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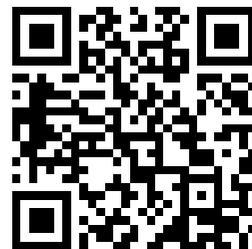
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SIXPENCE.

THE TEACHERS' REGISTER.

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THE publication of the conditions of registration—the condensed results of the labours of the Teachers' Registration Council during a period of eighteen months—is undoubtedly the outstanding educational event of the year 1913. To the uninitiated it may seem a marvellous thing that it should have taken eighteen months to produce this small document, and to them it may seem, too, that a council of four, by "cutting the cackle" and coming to business, would have been more efficient than a council of forty-four. But no one who realises the complication of the interests involved, who is acquainted with the long series of previous efforts to frame rules for a register, and is therefore able to read between the lines of the present attempt, would take this view, or would hesitate for a moment to join in the chorus of general approval with which the attempt has been received. The history of the registration question is not the main subject of this article. Nevertheless there are certain points in that history which even here deserve attention, partly because in recent summaries honour has not invariably been accorded where it is due, and partly because some readers of *THE SCHOOL WORLD*, and especially the younger, may be enabled to see their present duty more clearly when they view it in the light of the past.

The very quintessence of the truly professional spirit would be absent from a scheme of registration, if that scheme were not initiated and managed by the profession itself. For this reason we may pass by Mr. Forster's Bill of 1869 as a deflection from the main line of development, for it was born in a Government department, and shapen in the minds of administrative officials. The first professional attempt was made by the College of

Preceptors, which was instrumental in getting Bills introduced, varying only slightly from one another, in 1879, 1881, and 1889. Meanwhile the Teachers' Guild came into existence, and immediately there appeared a sharp division of professional opinion. Broadly speaking, the Preceptors wanted a register which should be a guarantee only of attainments, and in that sense of fitness to teach in a secondary school; whereas the Guild insisted upon training, and upon the inclusion of teachers of all ranks.¹ The policy of the Guild has obviously prevailed, and in this connection it is only bare justice to honour the memory of the late Mr. H. B. Garrod, who so ably and consistently sought to realise the ideal of a united teaching profession. The rival schemes of the Preceptors and the Guild were in 1891 referred to a Select Committee, which reported in favour of registration, but in a manner that appears to have caused both sides to claim a partial victory. Then followed, in 1895, the report of the Bryce Commission, with its unequivocal declaration that registration should imply some form of training, and that at least no graduate should be excluded from the register, in whatever kind of school he happened to teach. Bills based upon this report were introduced into Parliament, but they came to nothing. The first legislative step was the Board of Education Act of 1899, which set up a consultative committee charged with the duty of framing regulations for a teachers' register, to be formed and kept in manner to be provided by Order in Council. The Order appeared in 1902, and a Teachers' Registration Council was constituted, the labours of which produced the ill-fated two-column scheme. This scheme entirely failed to satisfy the elementary-school teachers, and did no good to the secondary-school teachers, at any rate in the sense that it failed to encourage training, and that it

¹ It is not meant that these ideas originated with the Guild. The files of *The Journal of Education* would prove the contrary.

tended to make registration a means of advertisement, which in itself was a fatal flaw. The abolition of this scheme was one of the few administrative items saved from the wreck of the Birrell Bill of 1906. At the same time Parliament gave power to establish by Order in Council a new Registration Council which should be "representative of the teaching profession." And thereby hangs a tale.

The old Council had failed chiefly because it was insufficiently representative; and it was necessary that the new Council should not fail for the same reason. A controversy ensued, not without its touches of acerbity, between Sir R. Morant and a committee representing *twelve* teachers' associations, regarding the meaning of the phrase "representative of the teaching profession." After a couple of years of this kind of coming and going, a conference met representing *thirty-seven* associations of teachers, including those teachers of special subjects who had hitherto been left out in the cold, and the recognition of whose claims Sir R. Morant had insisted upon. Again two years passed, when (in 1911) a series of conferences between Sir R. Morant and members of certain associations led to the establishment of a new Registration Council, of which surely no one could grumble on the score of its representative character. The phrase "representative of the teaching profession" had, after five years of discussion, at length received adequate interpretation. Looking back upon this controversy, we may perhaps divide the honours. The driving power came from the teachers, as was right and proper; whilst the particular direction in which the power should act was largely determined by the officials, and this in the circumstances was also right and proper.

Coming now to the conditions of registration laid down by the Council, let us notice first those which will ultimately become operative. Probably the most important, in the sense at least that it may involve the most far-reaching changes, is that which provides that after 1918 no teacher will be placed on the register who has not received an adequate course of training, unless he can show that facilities for appropriate training do not exist, or unless he be a university teacher. As to attainments, a candidate for registration must possess either a university degree (or its equivalent) or the elementary-school teacher's certificate, or a diploma granted by an approved examining body at the close of three years' whole-time or five years' part-time instruction. Here again the Council leaves itself free to deal with the exceptional case on its merits. As to experience, a period ranging

from three to five or more years, according to the conditions of employment, is required, and of this period a substantial portion must have been spent in one school. The recital of these conditions makes it clear that the further condition of having attained the age of twenty-five is not likely to prove inconvenient to many people. Finally, the fee of a guinea is of interest chiefly to the elementary-school teachers, whose names will not be placed upon the register automatically.

The temporary conditions in force up to December, 1918, whilst identical with the permanent conditions so far as age and fee are concerned, are otherwise so framed that few reasonably efficient persons at present engaged in teaching can justly complain of exclusion. Roughly speaking, five years of whole-time or ten years of part-time experience are required, of which period two years must have been spent in one school. In the case of trained teachers the required period is diminished by a year. Further, there must be satisfactory evidence of fitness for the profession. This last condition will in any case involve the Council in considerable difficulties, and in the case of the army of uncertificated and supplementary teachers in elementary schools would have involved enormous difficulties, had not the Council cut this particular knot by providing that elementary-school teachers must have gained two years of the required experience subsequently to recognition by the Board of Education as certificated teachers. This regulation means that uncertificated and supplementary teachers are excluded. It also means that an elementary-school teacher at present unqualified may yet eventually claim to be registered, provided he sets to work without delay to qualify—an inconspicuous but noteworthy instance of the wisdom and care with which these regulations have been drawn up.

Such, then, in brief outline, and with the omission of some minor details, are the conditions laid down by the Council. The immediate business of the teaching profession is surely to respond to the lead given by its representatives, and to "see this thing through"; not to spend too much time in pointing solemnly to the rocks and shoals that lie ahead, many of which may turn out to exist only in imagination. Still, we all know that the conditions are subject to re-consideration as time goes on, and that there is a great deal of interpretative work to be done by the Council in the immediate future. One may therefore permit oneself, not in any carping or disloyal spirit, to set down a few notes and queries, on points that are bound to arise in the minds of teachers of various grades, and

of others who are interested in the nation's educational welfare. And that few words may be wasted; these points shall be put in serial order.

(1) Except in the case of teachers of technological and special subjects, an applicant must possess either a university degree (or its equivalent) or the Board's certificate. Now, to subscribe to the proposition that the teacher of an upper form should be a graduate, and usually a graduate in honours, is one thing. But to say that the teacher of a lower form must be a graduate, which will usually mean a pass man, is another and more disputable thing. Many of us can confess to no such faith in the virtues of a pass degree, and can think of some excellent lower-school teachers who do not possess this qualification, and who would probably have been spoiled for this work if they had ever tried to possess it. Much of the work done with the younger boys and girls is not of the stuff that degrees are at present made of. A rigid interpretation of the conditions might mean that lower-form teaching would pass largely into the hands of teachers who possess only the Board of Education's certificate. This would not now be so great a calamity to the secondary schools as it might have been in times gone by, since many of these teachers have in recent years been educated in secondary schools, and have thoroughly imbibed the spirit and traditions of those schools. The calamity would be to the elementary schools, which cannot afford to lose them. But the prescient Council has left a way of escape. It may in exceptional cases "accept other satisfactory evidence that the attainments of the applicant are of a sufficiently high character to warrant registration." Let us hope that this clause will be interpreted permanently in a liberal, though not in a lax, spirit.

(2) Does the condition that an applicant for registration must produce "a certificate of having passed all the examinations for a degree" imply the deliberate discouragement of the practice which has grown up in the older universities, of allowing a woman to proceed to a final examination for honours, without having fulfilled all the usual conditions as to preliminary examinations? By all accounts this plan has worked well, and seems, indeed, to have been some compensation for the disabilities of women at the ancient seats of learning. For since women cannot in any case become graduates, they have not been tempted to take up unsuitable courses of study for the mere purpose of becoming technically qualified.

(3) One important result to be looked for from these regulations is that a strong impetus

will be given to the training of secondary-school teachers. Here it is to be hoped that the Council will give careful heed to the working of the alternative system of training recently sanctioned by the Board of Education—a system which stands in some danger of becoming a mere apprenticeship, rather than a real training in "the principles and methods of teaching." No doubt the training colleges have their faults, which should be remedied. But far too much is sometimes made of the failures of the training colleges. The moral of most of these failures is that the training colleges should be placed in such a position that they can easily afford to send away unpromising students. Besides, many of these complaints are based upon a false notion of what training means. Training is not, and it never can be, what some have called it—"shortened experience." Nothing can take the place of experience. But a good training should enable a young teacher to get far more out of his first few years' experience than he ever could have got otherwise, and thereafter to view his whole life's work in the light of the "principles" of which the Registration Council speaks. The prime, though not the only, object of training is to save the teacher from becoming the mere depositary of a tradition.

(4) The condition as to training may be modified in "cases where an applicant satisfies the Council that facilities for the prescribed training do not exist." One scents danger here. To take a single instance, there is probably no subject in which children suffer more at the hands of unskilled teachers than that of music. So much one may say, without in the least meaning to gibbet one particular class of teacher. If the facilities do not exist they should speedily be brought into existence, and to this end it is conceivable that the Council may have to stiffen its back.

(5) Perhaps it is inevitable that university teachers should permanently be dispensed from the obligation to undergo some training. Yet this concession to expediency deserves at least the passing tribute of a sigh. For the power of lucid and effective lecturing is by no means so common as might be supposed, and it is a power which *can* be acquired. Many a brilliant young graduate has been pitchforked into a classroom full of lively young students, with just as disastrous consequences as any that have been witnessed in a school. And many a lecturer's comparative ineffectiveness is due to causes which might have been removed, if the right suggestions had been made when he was still young enough to learn. But let that pass.

(6) The applicant's experience must have

been acquired in an educational institution "accepted for this purpose by the Council." Here the problem of interpretation will provide the Council with some uncommonly hard nuts to crack, there being so many privately managed schools, of all degrees of efficiency from the highest to the lowest, which have hitherto been subject to no sort of inspection. One is lost in admiration at the Council's subtle distinction between *approving* a certificate of attainments, and *accepting* a school for the purpose of experience—a significant nicety which has escaped some of the commentators. We take it that in the long run schools, as well as diplomas, will have to be *approved*, and that to this end some form of inspection will become necessary in all schools that are to be counted worthy of recognition by the Council.

(7) There remains one class of teacher whose treatment at the hands of the Council seems at present undetermined, and on whose behalf the present writer would crave permission to say a word. There is a large number of women teachers who have been trained in institutions of admitted excellence, and who hold a certificate which has won its way to respectful recognition by those who know—the higher certificate of the National Froebel Union. Many of these women teach in kindergartens, and many in the preparatory classes and lower forms of girls' secondary schools. The normal period of preparation for the certificate has always been two years and one term. Taking the words of the Registration Council in what seems their natural sense, however, these women will be excluded after a time, unless they spend three years on their training. It may be that the Council will regard a year spent at school in preparation for the preliminary examination (which in this case must be a matriculation or senior certificate examination) as part of the three years, on the ground that the applicant was then acquiring "such ancillary subjects as the Council deems necessary"; but this is by no means clear. At any rate, care should be taken not to treat unjustly a body of very capable and well-trained teachers, whose claims to inclusion are at least as good as those of the majority of certificated elementary-school teachers.

So much by way of criticism and suggestion. But, as has already been said, the great thing now is that teachers of all grades should play their part in showing the nation that they mean business. It is to be hoped that the elementary-school teachers—some of whom may imagine that individually they have little to gain—will not hesitate to "sport

their guinea," and that the university teachers will also set a good example of corporate spirit. The tentative efforts of half a century have at last culminated in a real opportunity of forming a consolidated teaching profession, and if the chance is missed, the question must no doubt be regarded as closed for the present generation.

GENERALISED ARITHMETIC.

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THE "Reform" in the teaching of geometry may be said to have come and gone, and many are left dissatisfied. The "Reform" in the teaching of algebra is still upon us; and, although much has been done in the way of omission, the majority of teachers seem so obsessed with the examination bogey, that there remains a great deal to be done in the way of commission. It would appear that the great points of debate are: "When and how shall we introduce the boy to algebra?" So long as this is considered a matter of prime importance, absolutely no headway at all can be made. The great question to be decided is: "How shall we teach arithmetic?"

Whether we regard mathematics from the utilitarian point of view, according to which the pupil is to gain facility in using a powerful tool, or from the purely logical aspect, according to which he is to gain the power of logical inference, it is clear that the chief end of mathematical study must be to make the pupil think.¹

They [*i.e.*, the authors of practically all our current text-books] fail to recognise the fact that the pupil has reasoned, and reasoned accurately, on a variety of subjects before he takes up the subject of mathematics, though this reasoning has not perhaps been formal. . . . It is necessary first to arouse his interest and then to let him think about the subject in his own way.²

In the light of these quotations, let us examine the present method of teaching arithmetic; a mere superficial consideration is enough to condemn it. "First four rules, simple and compound; fractions, vulgar and decimal; practice; proportion; interest, simple and compound; true discount and present worth; stocks and shares; square root; problems on clocks, and sheep eating growing grass, &c." Each of these neatly departmented sections is taught by rule; or, worse still, proofs are given which are scarcely worth calling illustrations. Viewed from the utilitarian point of view, the time spent is wasted; for commercial men have their own methods,

¹ Prof. J. W. Young, "Lectures on Fundamental Concepts of Algebra and Geometry"
² *Ibid.*

which rarely appear in the text-books. From the educational point of view the waste is criminal.

The majority of educationists place an absurdly high value on the age at which a child may be assumed to be capable of reasoning. Any father of a family would tell them that a child of five or six "has reasoned and reasoned accurately on a variety of subjects, *in his own way.*" It is also an undoubted fact that the powers of imagination and observation are particularly strong in young children. The only weak point is expression, due to lack of an extended vocabulary of terms. Hence, the method to be adopted is clear; namely, to make use of the facts, and gradually mould by *oral* teaching the child's method of reasoning into a more formal type, without interfering with the child's own *type*, or with as little interference as possible. In other words, taking a leaf out of the book of a first-class cricket coach, find the style of the pupil and perfect this style.

Another point arises in connection with the word, which has become a catch-phrase, and produced an incalculable amount of mischief, the word *interest*. There is a great difference in value between the teacher who makes the lesson "interesting" to his students and the one who gets his students "interested" in the lesson. The first idea leads to the "spoon-feeding" so prevalent nowadays, the second means education. The first means the teacher earns about half his salary, the second means that he earns considerably more than he gets as a rule.

Are we then to cultivate interest by such teaching as at present is dignified by the name of "practical mathematics"? I know one excellent text on practical mathematics, one with a good sale, that has in it: "Let x stand for one pound and y stand for one shilling," so that $5x + 2y$ would stand for £5 2s. I submit that the question is answered.

In what follows I am going to suggest that in all schools a rational and logical course of preliminary practical mathematics be substituted for arithmetic; but note the word—*mathematics*. The subject is to be a science, and the subject is to be treated scientifically and not as a mass of rules without reason. Starting with lads of about seven or eight,³ the subject would be a medley of geometry and mensuration, algebra, geometrical drawing, and trigonometry. By the time they were nine or ten years of age, the boys should have a fair knowledge of all the fundamental rules of algebra, the geometrical properties and constructions equivalent to the first six books of

Euclid, without the slightest idea that they have been doing either algebra or geometry; and they should have had enough training in generalising the results they have obtained, or observed, to render them capable of understanding a formal definition or a formal proof of a proposition, or the "proof" of the rules for fractions, indices, &c., in algebra.

I do not suggest any order: this should be a matter for the individual teacher. A chance question by one of his class, an unforeseen or an intentional difficulty, introduced in the class-work, or possibly even in the home-work, should form a peg on which to hang the work of the next period. All I am going to suggest is methods of approach to certain subjects of this suggested course, as models for the rest.

A. *The Natural Scale*, 1, 2, 3, 4, etc.—Counting; counting in groups; counting in groups of groups; using "chips," card counters, cowrie shells, or anything handy; blackboard work;—the method 1, 2, 3; 4, 5, 6, 7, 8 = 3 + 5; 1, 2, 3, 4, 5; 6, 7, 8 = 5 + 3. Generalise $a + b = b + a$. Similar work leading to $a + (b + c) = a + b + c$, $a - (b + c) = a - b - c$, here bringing out the fact that $a > b + c$.

Finally, showing the correspondence of the scale of numbers with an inch scale, let the boys each make two scales of $\frac{1}{4}$ inches or centimetres on strips of paper, to work against one another slide rule fashion, and show that addition and subtraction consist in forward and backward "steps" or "counts" along the scale of numbers.

B. *Area*.—Rectangles on squared paper; counting of area; illustration of the generalised law $a \times b = b \times a$. Rectangular arrays of stars on blackboard, "product = rows by columns," up-ending the blackboard (or paper pinned on the blackboard) to show that "rows by columns" = "columns by rows."

C. *Decimal Scale of Inches and Tenths*.—Show area of parallelogram = area of rectangle, and area of triangle = $\frac{1}{2}$ area of rectangle, on same base and same side, by cutting up paper (preferably the boys should do it). Area of rectangle $3\cdot7 \times 2\cdot5$ by counting of sub-units. Rule for multiplication of decimals by the rough check $3\cdot7 \times 2\cdot5$ lies between 6 and 12.

D. *Fractions*.—Impress on the class that $\frac{2}{3}$ is an imaginary number (*i.e.*, to count with): work out laws for fractional forms such as $\frac{1}{2}$, $\frac{1}{3}$, etc.; generalise these by oral work; *define* $\frac{2}{3}$ as one of a new class of numbers, in such a way that the same laws hold good. Bring out the fact that decimals are a particular subclass.

E. (a) *Negatives*.—Extend the scale backwards so that $a - b$ is always possible; use of sliding scales, with the "zero" marked in the centre of each strip. Thermometer useful for

³ Or as soon as they can add, subtract, multiply, and divide accurately and quickly.

oral questioning. Denote the negative 3 by 3, to start with.

(β) *Addition and Subtraction of Negatives.*—It is necessary that there should be no new rules. $5-3=2$, $5-4=1$, $5-5=0$, $5-6=?$, $5-7=?$. Suggest $5-6=-1$, $5-7=-2$. Without any new rules this suggests $5-(-1)=6$. Keeping in view that there is no counting number such as -1 , define $a+(-b)=a-b$, $a-(-b)=a+b$.

(γ) *Multiplication and Division with Negatives.*—No difficulty with $-3 \times 4 = (-3) + (-3) + (-3) + (-3)$. No meaning to $4 \times (-3)$. Define it to be $-(4 \times 3)$ after showing that this at any rate satisfies all the laws so far obtained, such as $a \times b = b \times a$ and $(a+b)(c-d) = ac + bc - ad - bd$, generalising the latter from $a=1, 3, b=2, 1, c=3, 2, d=2, 3, 4, 5$. Suggest finding another definition that will do the same thing. Impress that attempts to *prove* rule of signs are rubbish.

(δ) *Zero.* $a+0=a$, $a-0=a$, $a \times 0=0$; impress $a \div 0$ is unintelligible.

F. *Powers.*—Oral. Find values of a^b when $a=2, 3, 4, b=2, 3, 4$; find values of a^b when $a=2, 3, b=1, 0$. Compare series $2^3, 2^2, 2^1, 2^0, 2^1, 2^2, \dots$ with $1 \times 2.2.2, 1 \times 2.2, 1 \times 2, 1, 1 \div 2, 1 \div (2.2), \dots$. Show by generalising that $a^b \times a^c = a^{b+c}$, where b and c are natural numbers; and that the definition of a^n suggested by the series satisfies the law: hence $a^0 \equiv 1$, $a^n \equiv 1/a^n$ except when $a=0$, when they are unintelligible or, rather, undefined.

Fractional indices, in same way after generalising $(a^2)^3 = a^{2 \times 3}$, etc.: all work to be "mental" (*i.e.*, answers to be written down immediately question is asked) if not "oral."

G. (a) *Right-angled triangles.*—Pythagoras's theorem: (i) by dissection, (ii) on squared paper; note that the dissection method yields a "proof," showing method, making diagram on squared paper. "Difference of squares," generalise and prove $(a+b)(a-b) = a^2 - b^2$ in all cases.

(β) *Right-angled triangle gives mean proportionals.*—Ratio and proportional of commensurables. Practical approximations to surds. Graphical method of finding mean proportionals. Square root.

(γ) *Ratio of sides of right-angled triangle.*—Proof of constancy of $\tan \alpha$ along a line by measurement and division of decimals. Gradients.

(δ) *Solution of right-angled triangles* from tables the pupil has compiled to two decimal places for himself. This may involve the "diagonal scale."

H. *Arithmetical Theory of Proportion* with interest, stocks, etc., as illustrations of the one great principle. From each illustration deduce the respective formula, for practice in symbolic

notation. A good instance occurs in averages. Thus: "A man walks for a hours at b miles an hour, and the next c miles by motor-car in d hours. Find his average rate over the whole distance"—should be generalised after working three or four (or sufficient number to familiarise the boy with the method of working) examples where a, b, c, d are given numbers, whole numbers for choice.

I. *Geometry of Circle.*—All propositions can be obtained practically. Angles at centres on equal chords lead to measurement of circumference/diameter. Areas of polygons to area of circle.

In the foregoing I suggest there is nothing "interesting" or provocative of "bottle" methods. It will be hard work for the boys, it will be harder for the teacher, if he does his work properly, *i.e.*, does nothing himself but makes the boys do everything and tell him everything. But I suggest it is a scheme that a teacher can get enthusiastic over, and get his class enthusiastic over as well. I have found a boy will do an unconscionable amount of work to prove his own argument is correct.

I also suggest that for adult artisan students with small previous knowledge such a course would far surpass the usual course in preliminary practical mathematics, in fitting them to take up a study of the more difficult parts.

CLASS TEACHING THROUGH PARTNERSHIPS.

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UNTIL early in last term, I had taught my classes throughout the school on the approved plan of setting the same work for a whole form, and applying general tests to see whether and how it had been done. Since then I have completely abandoned this proceeding, and, with the exception of my pupils in Forms I. and II., no single boy is ever doing the same work as any of his companions. Towards the middle of the term, I set my pupils to work in partnerships of two each, trusting to the fact that each was in possession of a different book or part of a book to make them reciprocally useful. My aim was six-fold: (a) To increase (especially in modern languages) the actual time in which each boy was expressing himself on the lines of his subject; (b) To enlarge the visible scope of the work; (c) To encourage the laggard by showing him an obvious sphere of usefulness through his being able to teach even the cleverest of his class-fellows; (d) To promote that combination of individual with collective activity which should be considered a physio-

logical, as well as a psychological need, always to be supplied in the absence of countervailing necessities of practical administration; (e) To arouse the spirit of independence, and to encourage originality; and (f) to suit class-teaching to the varying needs and capacities of the individual. I shall endeavour to show how far this aim has been justified.

Before proceeding to the partnerships, I began my experiment modestly enough with nothing more inviting than the study of French verbs. One boy who had learned *être* would sit beside a boy called *Venir*, from whom *Avoir* would be widely separated. If *Avoir* had his say when I asked, looking into space, for the French for "I have come," I would instruct *Etre* to show the liveliest resentment at the theft. This distribution of verbs (followed by divisions of tenses on the same principle), simple as it was, had the effect of arousing great interest—and foretold well enough the remarkable enthusiasm which followed the introduction of a far more highly organised system of work in partnership.

A little later (I now reach the partnership period) I began to make a conversation book for each boy, with the view of making him realise, in the philosophic sense of the word, the true inwardness of common French. This proved a sheer delight, and I had repeated evidence, direct and indirect, of the hold it got upon my pupils. "Shop" ceased to be "shop," and boys were firing questions at one another in French at moments when "shop" is ordinarily taboo. The boys elected "editors," who kept me supplied with news about their comrades, to be duly introduced into their class conversations. Instead of dull and lifeless sentences about remote events and unknown people, we had talks all about ourselves, about where we had spent our holidays, about some comical adventure of one of our number. From the moment that I introduced the individual conversation-book there could no longer be a doubt that the boys regarded teaching in partnership as a very pleasant kind of game. And although, owing to the formidable labour it involves, I have been obliged to replace these special books by interchangeable sections of manuscript class-dialogues, there has been no sort of diminution of the interest.

All the ordinary apparatus of teaching French comes into play, with the sole exception of the set book—which I am only too glad to be rid of (the "grading" of these books being done on such extraordinary principles that boys are generally reading texts infinitely ahead of their mastery of the language). Our "readers" include fairy stories, illustrated scientific text-books (often easier to read even than fairy stories, which, of course, they are

not intended to rival in general value, but to supplement), newspapers, magazines, and a large number of stories with translations for the use of the partner. For prozes I use Macmillan's "2nd and 3rd Years," the partner again holding the key for corrections; and, since no punishments are needed to make boys play so pleasant a game, it may readily be imagined that such a thing as "cribbing" is out of the question.

For middle forms I use, among other devices, six different boxes, each enamelled in seven different colours to show the respective parts of the box, and also to teach fractional and other principles. From each of these boxes depend two books, one for each of the partners. The first (the easier) asks and answers questions about the outside, and the other deals with the inside and the contents of the box. The contents teach, besides some of the commoner actions of daily life, the language of the senses; in one case, for instance, we contrast the smell of Eau-de-Cologne with that of ammonia, and in another we oppose the weight of cork to that of lead. The conversations about these boxes, like all my conversations, are entirely in French, with the exception of certain "stage directions," as we may call them, written in English in the margin of the page. These, seen in the course of the conversation by the partner alone, form a psychological rather than a verbal aid to the meaning of the French.

Grammar is principally used directly in revision work, but I have devised conversation cards introducing, in perfectly natural dialogue, all the French pronouns, some particular tense of the principal irregular verbs or a series of difficult syntactical constructions. I use Macmillan's grammars on account of their richness in examples (more essential than ever in this system). They are divided into sections and labelled according to the portion of the subject dealt with. For teaching the time in French the partner sets one of a number of watches ("real" enough, but past time-keeping work, and to be had of watch-makers, if in common metal, at a few pence each) to a time indicated in figures on a card. He corrects the answer from the French words which follow. Then I have arithmetical and date cards, French guessing games on the lines of those suggested—by Ratichius, I fancy—for the teaching of Latin, and many other devices leading to free and varied conversation on a multitude of topics. In every case the questioner has the answer before him. I am slave neither to the direct nor the indirect method. The boys who are fitted for the direct method, take to it as fish to water; the method of the others gets more and more

"direct" as they learn in their own way, and as indirectly as they please. With so much margin of time for conversation there is no need to apply laws universally.

Possibly my first lesson for beginners of an average age of a little over twelve will convey a sufficiently clear idea of my methods in conversational French. The work of these boys, unlike that of their seniors, is not completely individualised. Half of each partnership takes a section labelled "odds," and the other half one labelled "evens." For a class of fourteen boys there are seven copies of each of two manuscripts. It will be noticed that I introduce the negative at a very early stage. In practice this has presented no difficulty. Some boys say perfectly naturally at the end of the first lesson, in answer to the question of whether "it (the window) is the door," "Non, ce n'est pas la porte, c'est la fenêtre." On the average my pupils take two forty-five minute periods to master each lesson, which is, of course, read over and fully explained by me before the work begins. At the end of three lessons they can give me a full answer to a question in French as to whether they have seen Shakespeare, and whether they have been in Birmingham.

[My excuse for this early introduction of the perfect tense lies in the two circumstances: (a) That it is very nearly as easy to understand *J'ai vu* as *j'ai la plume*; and (b) That it gives such an enormously added scope to a boy's powers of expression that it is worth far more than this trivial sacrifice of concentration to acquire.]

I think the reader will agree that the following lessons, owing (a) to the "stage directions," and (b) to the fact that the questioner has always a key to his partner's reply, may be considered, in motoring phrase, as nearly as possible "fool-proof."

PREMIÈRE LEÇON ["ODDS"].

	The window— <i>La fenêtre</i>	The pencil— <i>Le crayon</i>
	The floor— <i>Le plancher</i>	The door— <i>La porte</i>
Partner	The desk— <i>Le pupitre</i>	The chair— <i>La chaise</i>
points	The pen— <i>La plume</i>	The book— <i>Le livre</i>
to	The ceiling— <i>Le plafond</i>	It is— <i>C'est</i>
	The class-room— <i>La classe</i>	
	What is that?— <i>Qu'est-ce que c'est que cela?</i>	
window	Qu'est-ce que c'est que cela?—C'est <i>la</i> fenêtre.	
door	Qu'est-ce que c'est que cela?—C'est <i>la</i> porte.	
desk	" "	—C'est <i>le</i> pupitre.
book	" "	—C'est <i>le</i> livre.
pencil	" "	—C'est <i>le</i> crayon.
chair	" "	—C'est <i>la</i> chaise.
	Is it?— <i>Est-ce?</i> . . . Yes— <i>Oui</i> .	
pencil	Est-ce <i>le</i> crayon?— <i>Oui</i> , c'est <i>le</i> crayon.	
book	Est-ce <i>le</i> livre?— <i>Oui</i> , c'est <i>le</i> livre.	
pen	" <i>la</i> plume?— <i>Oui</i> , c'est <i>la</i> plume.	
chair	" <i>la</i> chaise?— <i>Oui</i> , c'est <i>la</i> chaise.	
ceiling	" <i>le</i> plafond?— <i>Oui</i> , c'est <i>le</i> plafond.	
floor	" <i>le</i> plancher?— <i>Oui</i> , c'est <i>le</i> plancher.	

	It is not— <i>Ce n'est pas</i> . . . No— <i>Non</i> .	
pencil	Est-ce <i>la</i> plume? Non, ce n'est pas <i>la</i> plume; c'est <i>le</i> crayon.	
book	Est-ce <i>le</i> crayon?—Non, ce n'est pas <i>le</i> crayon; c'est <i>le</i> livre.	
chair	Est-ce <i>le</i> pupitre?—Non, ce n'est pas <i>le</i> pupitre; c'est <i>la</i> chaise.	
ceiling	Est-ce <i>le</i> plancher?—Non, ce n'est pas <i>le</i> plancher; c'est <i>le</i> plafond.	

PREMIÈRE LEÇON ["EVENS"].

	I point to— <i>Je montre</i>	The door— <i>La porte</i>
Partner	You point to— <i>Vous montrez</i>	The window— <i>La fenêtre</i>
points	The blackboard— <i>Le tableau noir</i>	The ink-well— <i>L'encrier</i>
to	The ceiling— <i>Le plafond</i>	The paper— <i>Le papier</i>
	The floor— <i>Le plancher</i>	The boys (= pupils)— <i>Les élèves</i>
wall	Je montre <i>le</i> mur. Qu'est-ce que je montre?—Vous montrez <i>le</i> mur.	
window	Je montre <i>la</i> fenêtre. Qu'est-ce que je montre?—Vous montrez <i>la</i> fenêtre.	
door	Je montre <i>la</i> porte. Qu'est-ce que je montre?—Vous montrez <i>la</i> porte.	
the boys	Je montre <i>les</i> élèves. Qu'est-ce que je montre?—Vous montrez <i>les</i> élèves.	
	Do I point to— <i>Est-ce que je montre?</i> —Yes— <i>oui</i> .	
ceiling	Est-ce que je montre <i>le</i> plafond?— <i>Oui</i> , vous montrez <i>le</i> plafond.	
floor	Est-ce que je montre <i>le</i> plancher?— <i>Oui</i> , vous montrez <i>le</i> plancher.	
wall	Est-ce que je montre <i>le</i> mur?— <i>Oui</i> , vous montrez <i>le</i> mur.	
	You do not point to— <i>Vous ne montrez pas</i> .	
blackboard	Est-ce que je montre <i>la</i> fenêtre?—Non, vous ne montrez pas <i>la</i> fenêtre; vous montrez <i>le</i> tableau noir.	
door	Est-ce que je montre <i>le</i> plancher?—Non, vous ne montrez pas <i>le</i> plancher. Vous montrez <i>la</i> porte.	

(The boys having "got up" about half of their respective lessons, exchange books and question one another.)

In English and in a school which, like most, allows its life and energies to be sapped by external examinations, our problem is to yield in a more or less intelligent way to the insistence on obligatory texts. The reading aloud is done in groups numbering four as a maximum, while the mutual questioning on notes and contexts must be done in partnerships of two. For the working up of the notes on Shakespeare I have prepared a special "scissors-and-paste" edition of our play, with very full notes, as well as many pictures, on the same page as the text. This is the only way I can see of getting real activity into the work, and at least it strikes me as better than the means hitherto employed.

For general knowledge I use "The Parent's Book," and a one-volume encyclopædia, both cut into sections. This subject delights the boys, and has therefore, I think, an importance far beyond its face value, if one chooses to rate that low. Then I make, for stylistic purposes, free use of a specially written series of "missing-word tests" (the missing word being placed in square brackets for the benefit of

the questioning partner). This serves both to inculcate the appropriate use of a word, and to teach its synonyms.

In all I have close on four hundred sections of books, all of which could have been cut up and bound by my boys. In a school where the time-table is sufficiently elastic this should be done, as a most useful combination of a manual exercise with a drill requiring a certain amount of mental ingenuity.

On the disciplinary side I think everything is in favour of the new system. Three times in the past four days different classes have voluntarily passed a unanimous resolution to work a quarter of an hour after morning school. Each class is now completely self-governing, and I refuse even to take the chair at our discussions on ways and means, preferring, as I put it, to figure simply as "adviser" or "consulting expert." Forgotten pens and exercise-books are increasingly rare, for we have devised a system of collective reminding which achieves its end as no punishments ever could. The noise of the classes—although it is the noise of a perfectly running, if rather powerful machine—might deter some masters; but I think they would soon reconcile themselves to it as they began to see what it brought in its train.

It need scarcely be said that there must be no mingling of two systems. One's attitude under my method must be one of friendly encouragement, and seldom of impatient reproach. The impetuous critic would soon have a bear-garden, while punishment would introduce a foreign element that would destroy all in the twinkling of an eye. Those who have never seen really spontaneous activity based on enthusiasm and a self-evolved will to work in class, will find it difficult to understand that boys who are at once free and actively employed are very unlikely to do much harm either to themselves or to others.

Exactly how one acts to achieve a given psychological result, no averagely successful teacher can ever say. But I think that my method requires an attitude that is, in general, something between that of a referee at a football match, and that of an enthusiastic spectator. In French my time is mostly spent in correcting pronunciation, in correcting corrections of exercises, in asking ridiculous questions involving difficulties in the reply, and in saying something to encourage every boy, and to make him sure that I believe in him implicitly.

Going back to the six-fold aim with which, as I have said, I embarked on this scheme of teaching through partnerships, I have found (a) that my boys speak, on the average, some twenty times as much French as under the old

method, and that, in English periods, they increase correspondingly their freedom and firmness in the handling of their own tongue; (b) that the whole of their subject is constantly present to their imagination; (c) that the laggard has developed out of all knowledge; (d) that activity is incessant; (e) that the boy grows every day both in independence and originality; and (f) that I can now, for the first time, supply work graded and adapted to every individual need.

It seems to me that even the most empirical of men who had been through my term's experience of this method would no longer sneer at the possibility of a school established on principles of complete self-government. And I cannot help thinking that I have found the means to that activity without which self-government is impossible.

A COUNTERBLAST AGAINST VOCATIONISM.

By FRANK J. ADKINS.

All work and no play
Makes Jack a dull boy.

THIS well-worn couplet may appear a somewhat strange text for a school-master to choose. Mr. Wells once accused the whole race of teachers of being dull, and although we know how difficult it is to prove or refute wholesale charges of this description, yet it must be acknowledged that dullness seems to be on the increase in the schools, and therefore probably also among teachers. It seems to be getting harder and harder to strike sparks from the anvil—to get ideas, that is to say, from either masters or boys; easier and easier to run with decreasing effort along the deeply channelled grooves of our chosen subjects and interests. A character in "Sketches by Boz" hopes his boys will never become smart. Those who direct the destinies of our schools seem to cherish a similar hope. Smartness, sharpness, apparently mean shadiness to them; dullness alone is sound and respectable.

"Be good, sweet maid, and let who will be clever." Prof. Erskine, of Columbia, has recently said that in England alone is this antithesis to be found. In England, apparently, "Reason and God are not on good terms with each other."

Now it seems to me that a great deal of the dullness and imperviousness to ideas we suffer from in England to-day are due to the short-sighted practicality of the English mind—a practicality that so often defeats its own ends because it is too impatient for action and results to be ready to give the amount of

thought necessary to distinguish between substance and shadow; and, therefore, like the practical-minded dog, drops the solid bone it already has between its teeth in its pursuit of the merest shadow-reflection of the real thing.

Mr. T. E. Page once, at a Classical Association meeting, pointed out that the greatest problem of our statesmen was to reconcile the means by which a boy might learn to earn his livelihood and the means to make his life worth living. There, it seems to me, we have the bone and the shadow. Vocationism, which may be regarded as a greedy view of education, means the dropping of life in the pursuit of livelihood—and, as I hope to show later, a diminished effectiveness, even where livelihood itself is concerned; ultimately the vocationists must believe we live to work, and because they have not sought first the Kingdom of God in this matter, even the rest, the livelihood about which they are so much concerned, is not added unto them in all its fulness.

It must not, however, be thought that because I object to specific trade training for utilitarian motives as the aim of education, I do not welcome the practical, the manual, even the technical in school work. If education is the handing over of his heritage to the child, we must hand over to him bodily, as well as mental and spiritual acquirements; moreover, the increased reality and stimulus all subjects gain from a treatment which makes them at once part of the material environment of the learner, and so rescues them from the realms of mere paper and theory, is in itself a sufficient justification for the laboratory, the workshop, the modelling-room, and so forth. But all this is not vocational, however practical it may be. We are not turning boys into chemists or carpenters when we send them to laboratory or bench; we are not incurring the risk of choosing a boy's trade for him, and therefore of flooding one labour market and stinting another, by an ill-considered distribution of boys among different callings. (Think for a moment of the claims on the State a man would have who had been brought up by a public authority to a trade too full or too poorly paid to keep him and his. His claim of the right to work at the trade to which the State had trained him would be hard indeed to resist.)

But these economic aspects of vocationism must not detain us further. The point I wish to develop is rather this: Are we not grievously mistaken, *even as a practical business people*, in thinking that the chief end of education is merely to enable people to earn their own living? In its origin the education of the people had far other aims and ends to

achieve. George III. told Joseph Lancaster that he wished all his people to be able to read the Bible; to-day we apparently feel we have done our duty to our charges when we have made them fit to earn the—still to be fixed—minimum wage, picked them out of the blind alley, or else condemned them to a living death as defectives, epileptics, or what not.

How insufficient such a conception of education is may readily be seen if we turn to the conditions of, for instance, a considerable local—Sheffield—industry: razor-making. How is it that so many Sheffield razors are "Made in England, ground in Germany"? (One would have thought, by the way, that the grinding was an important part of the making.) It appears that the German is ready to use finely adjusted machinery in the grinding business, whereas the Sheffielder, proud in the possession of a highly developed touch, continues to spoil a greater proportion of razors in the grinding than the less skilful, but more adaptable, German. The fact is not to our credit; our workmen are at fault; all their skill is a snare, because it is not backed up by intelligence; just as the fine fighting power of Sparta was often cancelled by the mental neglect which showed itself in the form of paralysing superstition.

The fact is that modern manufacturing and business processes in all but the very highest ranges are making a continuously lessening call upon the intelligence of the worker, as one process and department after another is conquered by machinery. As a result, the workman or clerk becomes more and more of a mere tender, repeating *ad infinitum* operations quite devoid of intellectual stimulus to him. His work tends to an ever-increasing extent to leave his mind a blank. If, then, no provision has been made for feeding his mind with ideas outside his work and if the work itself, to perform which constitutes his whole duty to society, proves intellectually Dead-sea fruit, how can we wonder that, when a call is made upon his intelligence and his adaptability, the call is made largely in vain? The workman, like a stunted tree, is withering at the top.

If machinery means anything to mankind it means an increase of leisure. The petrol motor in a motor-boat has set free several scores of galley slaves. The motor-car has given such leisure to the horses that they have received permission even not to be born—a great boon to a servile race. Whether the decrease in the human birth-rate has anything to do with the increase in power machinery, as some maintain that it has, is a more difficult problem. But, at any rate, it is clear that the increasing factor in life is leisure, the decreas-

ing factor is labour. The machine is gradually removing the curse put upon Adam at the Expulsion, and the question of ever-increasing importance is, What use is man going to make of the leisure which his continually progressing victory over Nature is giving him? Thus education in the use of leisure is more important than education to a livelihood, and before we have finished I hope to show that, even as regards wage earning, efficiency depends upon the adequate use of leisure.

But we are afraid of leisure: we think of it as synonymous with that terrible thing pleasure, and so we say that—

Satan finds some mischief still
For idle hands to do.

A slavish couplet, surely. Our ideas are not very different from those of the washerwoman who looked forward to doing nothing for ever and ever after death; because we are still slaves—wage-slaves without any organised life beyond our trivial round, our common task which has certainly long ceased to furnish all we need to ask.

The dignity of labour is the dignity of work for its own sake, not for the sake of the wages it brings in. Leisure is the opportunity for such work. The only blessed drudge is the amateur in the real meaning of that much-misused word—the lover. Such a drudge may “inherit culture”; otherwise drudgery is brutalising and distorting. Every trade is a dangerous trade inasmuch as it prevents the full, all-round development which to the Greeks was goodness, and forces every wage-earner to over-develop himself by specialisation. Thus all wage-earners are sinners, because they are forced to come short of the Glory of God, Who made man in His own image. It ought not to be possible to put over a man’s grave: “Born a man, died a grocer.”

Am I claiming too much for education when I claim that its main business is in the counteraction of this fatal tendency, not in the strengthening of it?

Now for a few words on the subject of working efficiency. I once had to show a class of mathematicians how to write an essay on mathematical infinity, and I could quote other instances of undue concentration on a given subject weakening mental power in dealing even with the subject concentrated on because the mind itself, the instrument, was imperfectly developed by reason of this same concentration—which is, in effect, practically a monomania. Effectiveness in work is obviously effectiveness of the brain at work, and who shall say authoritatively on what

such effectiveness depends? But of this we may be pretty certain: that just as a food crank who lived entirely on fish because fish was good for the brain would weaken his brain as part of the body he was weakening with a diet suitable only for a polar bear, so will the vocationist crank tend to weaken the working mind of his victims by the monotony and resourcelessness of his curriculum.

I have already quoted the case of the Sheffield grinder. Why are the Germans superior? Not only, perhaps not chiefly, because they have a better system of technical education; rather, I think, because ideas are accessible in Germany, and Germans of all sorts get used to their presence. They thus become receptive; and even those educational theorists who are most opposed to the faculty theory will allow that a training in receptiveness in one direction is a means of securing it in another; for if not, we are reduced to the absurdity that the only way of increasing open-mindedness in, say trade processes, is to practise it in the sphere in which by hypothesis it is unobtainable: trade processes.

What then are the ideas which seem to keep the German workman’s brain in a more healthy condition than that of our own people? Shall we not find them emanating from those seats of continued and recreative education which Germany has developed as part of her national system: the theatre, the opera, and all those higher sides of public activity in which we on this side of the North Sea are so lacking? A century ago Napoleon spent part of his time in Moscow in revising the constitution of the *Comédie Française*. To-day, M. Antoine, the director of the *Odéon* at Paris, is an officer of Public Instruction. The only true education is that which people seek for themselves and pursue continuously, (not during childhood merely), and if this education is social, as is the drama, and not merely individual (and therefore isolating) as is book literature, we have here the essential elements of a national system, none the less effective as a means of education because it appeals to the people under the guise of recreation.

The absurdity of trying to form all the habits our people need in after life during the elementary-school period, *i.e.*, before the fourteenth birthday, has long been apparent. If we copy Germany in nothing else, we may at least observe her success in providing for the continued education of her people through the provision of the highest type of recreation, which, moreover, pays for itself in increased alertness and receptiveness in the world of business. Football and fishing are not so

varied, and therefore not so valuable, as music and the drama in their recreative influence. New ideas seem to hurt the Englishman; they seem to appeal to the German; at any rate they do not paralyse him as they are apt to paralyse us.

Fortunately there is evidence that the workers themselves are beginning to take their own precautions against this paralysis. The Workers' Educational Association is the supply to an obvious demand for general not vocational education. Although the rise of the intelligence of the workers must be a fact of the utmost political importance, yet the association seems not to be working with political objects in view; its obvious business is to open the doors of learning to the worker who pursues learning for its own sake. Can we not follow in the steps which the workers themselves are cutting?

The Suffrage and Syndicalist agitations are again instances—as is Social Democracy in Germany—of the way in which big polemical questions are bound to arise in spite of the pre-occupations of the workers with their daily tasks, and, educational as such agitations undoubtedly are, may we not consider that they would be more fruitfully conducted if our national system of education—adult as well as infantile—made more of ideas and matters of general historical, social, æsthetic, and literary interest? Errors and destructions due to ignorance of the value of what is being broken are far more likely among a vocationally trained people than among a people with the elements of a wider and longer continued training. *La petite morale tue la grande*: the same may be said of the little culture of vocationism and the great culture which men—even working men—strive towards as towards their birthright. Are we wise in trying to magnify the little thing in the hope that it may obscure the great? Is not that the policy of the ostrich or of the slave-owner? What do we mean, in short, by education when we say, with Robert Lowe, "We must educate our masters"? What, after all, is the good of being able to earn a living if the living you have earned is poor and thin? So long as the educational minimum we deal out to children remains for practical purposes our educational maximum, so long, that is, as we neglect the continued education—not the mere continuation-school stage—of the people shall we remain for the most part a mere proletariat and in no sense a sovereign democracy, however wide the franchise. And yet it is this blinkered race of workers that is getting continually more and more of the government into its hands.

THE USE OF THE PROJECTION LANTERN IN TEACHING.

By GEO. H. RYDALL, B.Sc.
Cockburn High School, Leeds.

ALTHOUGH the lantern has been so long with us, its educational value has scarcely yet been fully appreciated. The "lantern lecture" is supposed to be antiquated now, in these days of "moving pictures." I do not underestimate the value of moving pictures. They are certainly interesting and instructive, but the ordinary lantern, if properly used, is capable of doing work which, although of a somewhat different type, is no less valuable than that which the cinematograph accomplishes.

There might be, and ought to be, one or more lanterns in every school. The outlay for this apparatus is comparatively small. Personal experience has proved that school pupils will yet take the keenest interest in and bestow the greatest admiration on good lantern slides, and if slides are properly dealt with pupils will derive great benefit and much pleasure from them.

The lantern, when used as a piece of educational apparatus by someone who understands its use, appreciates its possibilities and knows how to teach by means of pictures, is a great asset, and I contend that every teacher should be a possible lanternist.

THE LANTERN.—A good serviceable lantern is not expensive. For three pounds or less, a lantern very suitable for school purposes may be obtained. Strength and simplicity are the essential features which the lantern should possess. An expensive lens is by no means necessary. The lenses supplied with the lanterns at the price given are quite satisfactory for either class-room or school-hall use. Even in the hands of a young teacher, such a simple piece of apparatus should be of great educational value.

In order that the lantern may be a familiar piece of apparatus in a school, the illuminant must be chosen with a view to simplicity in management and economy, consequently the limelight must be cancelled from the list of illuminants for general use. There remain the Nernst lamp or a simple arc light if electricity is available, a high-pressure spirit-lamp with incandescent mantle, or an inverted incandescent gas burner with a reflector. Since the candle-power of the latter is only about 70, its use will be restricted to the class-room. That room is the place where the lantern will prove most effective, and consequently the simplest of all illuminants is, under proper conditions (to be mentioned later) suitable. I

have used this illuminant and it has proved highly satisfactory.

The high-pressure spirit-lamp gives more than twice the candle-power of the incandescent gas burner, and since it is extremely simple in construction, easy to work, and trust-worthy, its scope of utility is wide.

In the case of either of these illuminants it is well to remember that the essential piece of the apparatus is simply a modified bunsen burner; consequently the parts to attend to are the air inlet and the orifice through which the gas issues to mix with the air. Spare mantles should always be at hand, in case they are needed.

The Nernst lamp is convenient, but, unfortunately, with an alternating current the life of the burner is shorter than is desired. There are some simple arc-lamps now on the market, which are quite handy and have only to be connected to the ordinary electrical supply by means of a plug and flexible connection.

Like every other piece of valuable apparatus, the lantern needs attention in order to get the best results, particularly when in constant use, as it should be. Moisture and dust combined, soon affect the glass. The condenser and the lens should be regularly attended to, each being taken down and the components thoroughly cleaned with methylated spirits, followed by a little ether, and then well polished. Since the condenser and lens would be simple, this is a matter requiring only ordinary care. In replacing the components of the lens special care should be taken to place the faces of the separate lenses in their proper relative positions. The illuminant is often blamed when the cause of the badly lit screen lies in a dirty lens or condenser. Another cause of a badly illumined screen is a wrongly placed illuminant. The illuminant should be so adjusted in the lantern, being moved backwards or forwards, that an evenly lit disc is obtained on the screen, before a slide is inserted. Dark patches on the disc indicate that the light is wrongly placed with regard to the condenser.

It is highly essential that these matters should be attended to before slides are exhibited, and a trial should always be made before the lantern is used in class. Nothing destroys the value of a lantern lesson so much as having to pay marked attention to the lantern during the lesson.

THE LANTERN-LESSON ROOM.—In some schools, particularly those supplied with electricity, the lantern is a fixture, a fixed arc-lamp being the illuminant. A fixed lantern is a mistake unless the room is one used only for lantern lesson purposes; otherwise the use of the lantern is considerably restricted, as probably the time-table will have to be inter-

ferred with in order to fit in the lessons. This cannot often be done, with the result that the lantern is little used. Wherever a lantern is to be used, the room should be provided with heavy, dark, tightly fitting blinds, so that it can be darkened in a few moments, and easily made light again. Where there is no special room for lantern purposes, each room where the lantern may be used should be provided with dark blinds. In rooms which have a southerly aspect this will necessitate two sets of blinds—an ordinary blind for use when there is dazzling sunlight, and the dark blind.

There should be a suitable stand for the lantern, strong and stable. It is bad practice to have to place a lantern on a table or desk and raise it into position by means of books and drawing-boards or anything else which may be pressed into service. Even if the arrangement is ultimately stable, time is wasted and the paltry contrivance looks bad. Clumsy management in any form always spoils a lantern lesson.

If a special room is available, a fixed screen will of course be used. If the lantern has to be used in any room, arrangements will have to be made for fixing temporary screens. There need be no difficulty in such cases, as a spring-roller blind with its supports serves excellently as a screen. The supports should be fixed permanently in the rooms, and each room provided with a white roller blind, which may be put up or taken down in a moment. Instead of the ordinary white glazed blind, unglazed paper is much better. This can be bought in large sheets and fixed on the roller as a blind.

A spring roller of a fairly large size is quite large enough for supporting a screen in a class-room. It is generally unnecessary, for ordinary class purposes, that a picture should be more than 4 ft. square in size. The picture need only be large enough to be seen well by every pupil. The smaller the picture, the brighter it will be. A good incandescent gas burner gives a well-illumined 4 ft. picture, and is particularly suitable for such a purpose because of its simplicity.

Pupils should not be too near the screen, as the picture will not appear sharp under such conditions. At the same time, they need not be placed far away. With a clear space on each side of the lantern and between the lantern and the screen, a teacher should experience no difficulty in teaching and manipulating the lantern, as the lantern will be comparatively near the screen. It is scarcely necessary to emphasise the fact that the screen must be clean.

Where the lantern is used in a small room it should be kept horizontal for projection

purposes, as tilting will, at short distances, cause some parts of the picture to be out of focus. The lantern stand should be such as will ensure the correct position of the lantern.

THE LANTERN LESSON.—Every teacher should give lantern lessons, and consequently should be familiar with, and capable of, using the lantern. Practice is said to make perfect, and the teacher should practice fixing up the lantern, attending to the illuminant, cleaning the condenser and lens, and using the lantern until he, or she, is as familiar with it as with any other piece of school apparatus. Familiarity in this case breeds confidence.

Lantern lessons are what are needed, not lantern lectures, and the regular use of the lantern is better for pupils and teacher. The pupils then do not look upon the lantern lesson as something out of the ordinary course, and the teacher becomes more expert in using the lantern and teaching at the same time. It is not the easiest task for a teacher to make the best possible use of ordinary pictures before a class. It is more difficult still to lead pupils to derive the greatest benefit from lantern pictures; consequently the very occasional lantern lesson is often largely wasted because the teacher cannot use the pictures properly, and the strangeness of the lesson prevents the pupils concentrating their attention in the right direction. With the very occasional lantern lesson a teacher is apt merely to show a set of slides, and a great amount of material is simply crammed into one lesson. Slides are more or less rushed through the lantern. Perhaps a set has been hired, and the teacher thinks he must have his money's worth—hence the "moving" pictures. One has heard the teacher who has "just five minutes left and will run through the remainder," and has sympathised with him. The conditions for lantern lessons are not generally what they should be.

A lantern lesson once a week is not excessive. By a lantern lesson I mean the possibility of using a lantern during the lesson. One slide only may be used, and even that may be a diagram, but what an advantage it is to be able to exhibit a diagram on a screen. A few slides may be used, or a series may be taken. The value lies not in the number exhibited, but in what use is made of them.

The subjects which chiefly lend themselves to lantern illustration are science, geography, history, and literature. In science one should be careful not to let the lantern rob the pupils of performing an experiment, or of seeing one performed. It is easy to project a diagram on a screen showing how an experiment would be carried out, but it is a mistake if the experiment can possibly be performed, and is worth

performing. Still, in teaching science, the lantern, if properly used, is almost invaluable, particularly in such branches as botany, geology, nature-study, physiography, and physiology.

In the case of geography it seems almost impossible to teach it properly without a lantern. Without pictures much of the geography attempted is of comparatively little value. Contour maps and the corresponding configuration of the country can be admirably illustrated by means of lantern slides, a slide of some part of a contoured map and a view of the corresponding land surface being used in conjunction. The slide showing the map may be made by tracing from the map on a ground glass slide, or by photographing the portion of the map and making a slide from the negative.

Seldom can a teacher obtain many ordinary pictures which are large enough to use for teaching purposes. Usually pictures can only be used for purposes of reference. In the case of history and literature the lantern is likewise a most important piece of educational equipment. It is a mistake that history books and literature books are not more generally well-illustrated from good photographs. There seems often to be little discrimination shown in choosing pictures and diagrams for purposes of illustration. One scarcely sees the educational value, for example, of a "picture" representing Canute by the sea-shore commanding the tide to cease flowing. Neither is a portrait of Sir Walter Scott, as a frontispiece, of sufficient value to justify the claim that an edition of "Marmion" is illustrated.

Lantern slides are certainly capable of supplying the "long-felt want" so often referred to in prefaces of text-books. The question will be asked, "How are the suitable slides to be obtained?" A good collection of slides should form part of the school stock, and this should gradually be increased. In addition, every teacher ought to depend on his own efforts to some extent for his own work. Lantern slides can often be bought very reasonably, or they may be hired. Diagram and map slides can easily be made on ground glass squares ($3\frac{1}{2}$ in. by $3\frac{1}{4}$ in.) by means of Indian ink, the inked side of the glass afterwards being varnished with colourless varnish which may be obtained at photographic stores. Coloured diagrams and maps can similarly be made with a little care by means of photo tints and varnishing. The ground glass enables tracing to be carried out.

A teacher who photographs certainly has an advantage. There is always valuable material not far away. A little brook will often supply as good examples of the action of running

water as a river. A photographic survey of a local battlefield will prove very valuable. A holiday can often be utilised in this direction, and to aim at obtaining photographs of educational interest adds zest to the holiday. A recent tour in Northumberland supplied me with much material of this type which I shall always value, and certainly the trouble to obtain it enriched the holiday. After some years' efforts in this direction one finds that one has a goodly stock of pictorial material to draw from, and there is a greater pleasure and a greater advantage in using material of one's own selection than in being absolutely dependent on the general stock.

The occasions when a lantern lecture should be given in school are few. One may be given with advantage as a preliminary to a school excursion, but generally the pupils will gain the greatest benefit from the lesson rather than from the lecture. Perhaps the time will come when the lantern is looked upon as an essential piece of apparatus in all schools, and when teachers use it with the same confidence and judgment as they would use a globe.

PERSONAL PARAGRAPHS.

MR. W. H. C. JEMMETT is resigning the headmastership of Lady Manner's School, Bakewell, at the end of the present term. Mr. Jemmett, who began teaching at Worcester Grammar School, was, during the ten years he was at Owen's School, Islington, a prominent member of the Assistant Masters' Association, and took an active part in the organisation of teachers in London.

* * *

MR. K. A. MORESBY, Oxford, has been appointed headmaster of Colchester House School, Bristol. Mr. Moresby was educated at Liverpool College and Lincoln College, Oxford, and has held masterships at Plymouth and Leeds; he was for some time resident in Switzerland, before going to Hildersham House School, St. Peter's in Thanet.

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MR. H. H. MORRISON, French master at Stationers' School, has been appointed Director of Education in the Sultanate of Jalore. Mr. Morrison was resident for six years in France and Switzerland before going to Keighley Grammar School. He left the last-mentioned school to go to the Stationers' in 1907.

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MR. F. P. C. WALKER, of Holt School, Liverpool, has been appointed headmaster of the County School, Ilkeston. Mr. Walker was educated at Nottingham High School and

Merton College, Oxford. He has had experience as a master at Wyggeston School, Leicester, and Lincoln Grammar School.

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MR. H. B. WETHERILL, of the Royal Masonic School, Bushey, is leaving to take up the headmastership of the High School, Allahabad.

* * *

THE Governors of Queen Elizabeth Grammar School, Hartlebury, Worcestershire, have recognised the merits of one of the staff and promoted Mr. G. H. Ashe to the headmastership.

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MR. R. K. DAVIS, of Marlborough College, formerly Scholar of Balliol College, Oxford, has been appointed headmaster of Woodbridge School, Suffolk, and will take office in January.

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WITH the view of commemorating the distinguished services to education of Mrs. Woodhouse for nearly fifteen years headmistress of Clapham High School, and formerly for twenty years headmistress of Sheffield High School, it was decided on her resignation to raise a fund to be used for the assistance of the higher education of girls and students, either at the University or during professional training for teaching. The fund will be known as the "Woodhouse Fund," and a list of the contributors will be ultimately presented to Mrs. Woodhouse. A strong representative Committee has been formed, including, among others, the Right Hon. A. H. D. Acland, the Lady Frederick Cavendish, Sir Archibald Geikie, the Bishop of Southwark, the Bishop of Kingston, the headmaster of Eton, Dr. Michael Sadler, and Miss Paul, the present headmistress of Clapham High School.

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MISS CONSTANCE JONES, Mistress of Girton College, is to receive an honorary degree from the University of Wales.

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MR. EDWARD IMPEY is retiring from his mastership at Eton in consequence of ill-health that renders a long rest necessary. Mr. Impey who was a scholar at Eton and King's College, Cambridge, has been a master at Eton for thirty years, during twenty years of which he has been a house master.

* * *

MISS LUCY ROBINSON is resigning the position of headmistress of the Downs School, Seaford, Sussex, at the end of the present year. She will be succeeded by Miss Cameron, formerly history mistress at the St. Felix

School, Southwold, who will maintain the high standard of education and continue the tradition of devotion to the study of history. Miss Cameron was a student at Somerville and took honours in the final history school. The Downs School was started by Miss Robinson in 1901 and a pupil has this year won a history scholarship at Victoria University, while two former pupils are now taking history at Oxford.

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MR. R. B. THRELFALL was educated at Haversham Grammar School, Westmoreland, and not at Pembroke House School, Lytham, as stated in November. Mr. Threlfall held a mastership at the latter school before going to Bridlington Grammar School.

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MR. J. F. P. RAWLINSON, who has recently taken such a keen interest in the formation of the pension scheme for teachers in secondary schools, has now been elected a member of the Council of the College of Preceptors.

* * *

DR. WILLIAM BRIGGS received, at the twenty-fourth annual reunion of the University Correspondence College a large number of past and present students and tutors. The success of the College has been remarkable; it has been largely due to two qualities possessed in an exceptional degree by Dr. Briggs; one is his capacity for selecting exceptionally good men to support him, and the other his organising ability.

* * *

MR. HENRY HUGHES, who was for thirty-five years master of the Bluecoat School, Oxford, was buried on December 1st. Mr. Hughes, who had reached the age of 87, retired in 1889 when the school was closed, after having served for more than half a century as a teacher. During his headmastership he saw many changes. At the time of his appointment only one school in Oxford was under Government inspection.

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MR. C. H. WYATT, Director of Education in Manchester, died on December 8th in his sixty-fifth year. Mr. Wyatt, who was a native of Manchester, was assistant clerk to the then newly created School Board in 1871. In 1902 he was appointed director of elementary education, and last year he became director of the entire system of education in Manchester. His books on "School Boards" and the "Education Acts" are books of great value, and in recognition of them and his other work for education both Cambridge and Manchester conferred upon him the degree of

Master of Arts. Mr. Wyatt drew up the scheme for the establishment of saving banks in schools, and has been the pioneer of the provision of free meals for indigent school-children.

* * *

MR. FRANK FLETCHER, the headmaster of Charterhouse, when presenting the prizes at the County School for Girls, Guildford, spoke of the necessity of marking out, of any future assignment of public money for education, a definite portion for improving the positions of teachers and enabling schools to get efficient instructors, who should be paid a living wage and given a real chance and a sense of independence. Mr. Fletcher said also that there was no such thing as over education. People might have wrong education or too much teaching, but could not have too much education.

* * *

SIR ROBERT BALL, who died on November 25th, had a marvellous power of illustration. His children's lectures at the Royal Institution were amongst the most successful ever given. The qualities of enthusiasm and humour were very much in evidence both in these and in his university lectures, and whether he dealt with planetary theory, with the combination of observation and of their errors, or with the geometry of dynamics, he made his pupils feel that the subject demanded enthusiastic admiration.

ONLOOKER.

COMMERCIAL EDUCATION IN SECONDARY SCHOOLS.

THE formation of commercial forms, or commercial sides, in secondary schools for girls and boys is becoming increasingly common, but there is great diversity of opinion on the whole subject of commercial education for pupils of secondary-school age. With the view of assisting teachers who are considering the matter, we invited expressions of opinion from schoolmasters and schoolmistresses who have made experiments in the direction of meeting the demands of parents and business men.

Among the points which we informed our correspondents it would be useful to consider we enumerated the following:—

1. Should commercial education be given in secondary schools, or should it be undertaken by special institutions after a secondary-school course has been completed?
2. What should be the character and scope of the special training designed to fit boys and girls for careers in business?
3. At what age should the education of

boys and girls be specialised with a view to train for commercial life?

4. Women clerks and lady secretaries have come to stay. Is it necessary to provide a different type of commercial education for girls from that which is suitable for boys?

5. Who should teach "commercial subjects"? Can these subjects be taught by ordinary members of the school staff, or must specially trained teachers who have had experience of office or secretarial work be employed?

Below are printed the replies which have been received, and they should prove of service as an indication of what is being done in many schools. We invite further contributions to the symposium from teachers with experience of commercial education.

By SARA A. BURSTALL, M.A.

Headmistress, Manchester High School for Girls.

ONE of the most suitable forms of vocational education for girls is that of secretarial or commercial training, combined with general education in English and languages.

It is clear that employment as clerks and secretaries is well suited for women. They give satisfaction to their employers, they are more patient over routine work than men, and their natural gifts of sympathy, intuition, and care for detail make them peculiarly efficient as assistants to principals in business, professions, and administration. Since this is a suitable vocation for girls in large centres, pupils may well be trained for it at schools during the last two years of their career. Shorthand and typing can be taught on methods which have educational value, and give mental training. Languages and advanced English are proper to school education. Furthermore, in particular areas, the curriculum can be adapted to the needs of that area. Spanish is desirable in some places as part of the course; elsewhere book-keeping is needed, or special attention may be paid to office routine.

Girls' secondary schools all over the country are now experimenting in developing departments where this kind of instruction can be given. We began here in 1901 with one pupil; we now have nearly sixty, and we find they can be placed advantageously in posts when they leave.

The most important consideration of all perhaps, from the point of view of education, is the effect on character of vocational training. We find that girls become more earnest, thoughtful, and painstaking when they are face to face with the demand of something real, something that is not a mere school exercise, but has a definite purpose and meaning, closely connected with their own after life. This is more especially the case with girls who have little natural taste for the more academic subjects of instruction, and are not fitted to enter a profession like teaching, where bookwork and the passing of examinations are essential.

By FRED CHARLES, B.A.

Headmaster of the Day School of Commerce, City of London College.

I AM glad THE SCHOOL WORLD is directing attention to the commercial education of boys and girls.

1.—Commercial education should be given in institutions, specially staffed and equipped. Preferably it should be given after a secondary-school course has been completed, but under present conditions of employment for those engaged in the clerical branches of commercial life it is not possible to secure that all should have been through a secondary-school course.

The subjects and their treatment must be practical and such as to commend the results to practical men; the practical man of business—the employer—must be the judge of the efficiency of the training; the whole scheme of training must be kept closely in touch with the actual requirements of the commercial world, and it is far easier for one central institution to maintain this relation than for a number of schools each with its commercial side.

If this and other vocational training is to be undertaken by the secondary schools, the sub-division at the top will be extremely minute, and the classification will, in a large proportion of cases, be made before the after-career of the student is definitely decided upon.

Every school will require at least classical and modern sides, the two sides that provide for would-be teachers and candidates for the university, and also commercial and domestic sides. The methods of treatment of the various subjects that suit one side will not suit the others, and the forms at the top doing specialised work will be so small that there will be no competition, there will be little discussion, and, from administrators' point of view, there will be great expense.

The best work on any one line is done where there are a number of pupils with a common aim; they compete with one another; they argue with one another; they teach one another. For this reason alone a commercial side to secondary schools appears a mistake, and, further, it might well lead to the commencement of the commercial work at an early age and to the leaving of the pupil who had acquired just a smattering of the simplest commercial subjects before having reached a proper leaving standard or a proper leaving age. Moreover, if there were commercial training in a secondary school, the tendency would be for the commercial subjects to be taught by persons having only a text-book knowledge of them and no real acquaintance with the requirements of commercial life.

2.—The subjects must undoubtedly be such as will be useful in themselves and at the same time continue the mental training of preceding years. Two acquirements useful, especially in the case of girls, at any rate in early years, are shorthand and typewriting; they are useful in themselves, and they are of far more use in mental training than educationists generally admit; they test and train the memory, accuracy, concentration, and intelligence in an unmistakable manner. The one disadvantage is, that a lazy, un-

ambitious shorthand-typist may become a mere human machine; to take down from dictation words, not sentences, and reproduce them unthinkingly by means of a typewriter is easy, but to do this and nothing more is fatal to advancement.

Book-keeping is a subject of which every clerk and secretary, boy or girl, should know at least the rudiments, and with it should be mentioned simple arithmetic. Here again accuracy is essential.

Next should come a knowledge of many matters that may be summed up under some such heading as office procedure or commercial knowledge. In it would be included filing, indexing, copying, duplicating; the postal regulations; documents of all sorts of business houses. It is necessary, too, that a clerk should be able to read intelligently and understand the commercial, financial, and shipping pages of the daily papers. This means a good course of practical economics, mainly descriptive.

But for boys something more than description alone is certainly desirable. Reasons should be carefully sought and examined. Principles should be deduced and discussed. Descriptive economics should lead to theoretical economics—that is, to political economy. With this should be combined the history of the industrial movement and the geography necessary to the true appreciation of economics. The work of an institution such as the Bankers' Clearing House is best understood by a study of the successive steps in its growth, and a knowledge of geographical conditions is a necessary preliminary to a reasoned consideration of food supplies.

Mathematics and statistics, commercial law and civil and constitutional history, national and local administration, together with the current topics of the day, must also be considered as a part of the necessary training of male candidates for commercial appointments.

Languages—two if not three—must be studied from the point of view of the work to be undertaken. Commercial phrases and terms must be used easily and in their correct sense; capable clerks should be able to compose letters ready for their principals' signatures, given the briefest outline of their contents. Précis writing is an admirable exercise that is becoming more and more usual in schools; in business training it is indispensable; it cultivates the power of grasping rapidly and accurately the contents of the letters or other documents under consideration, the power of discriminating between important and unimportant matter, and finally the power of expressing tersely, clearly, and without comment, the gist of the correspondence, reports, or minutes of evidence of which a précis is being made.

In English and in other languages studied, commercial and other matters should be discussed for their own sake, for the sake of the languages, and for the sake of the speakers. One of the most desirable attributes in business is ready, reasoned speech.

Here perhaps may be drawn a difference between the training of clerks intended for commercial houses and secretaries intended for private individuals. The main difference seems to be that the latter require far more general information. Their reading must

have been much more extensive and their outlook must be wider. They may be perhaps satisfied with slightly less knowledge of commercial matters and the details of commercial documents. The main difference, however, is the former, and it is dependent largely on the earlier sound general education.

3.—The age at which the specialised education should be given is determined by the answer to Question 1. The secondary-school course cannot be considered complete before the matriculation standard has been reached and the age of the average pupil would be then nearly seventeen years. This, however, is an ideal hard to attain at the present time. The circumstances of the parents and the early age at which a boy can, and in some cases must, begin to contribute to the maintenance of the home, renders it impossible for him to remain in school up to the age of eighteen and a half or nineteen years. Thus it may be necessary to reduce the age at which the training is to be undertaken in present circumstances.

4.—A different type of commercial education should be given to girls and boys. The former need not devote the same time and attention to organisation of what I may call the science of commerce as the latter. In answering Question 2 I have distinguished in more detail.

5.—Commercial subjects should be taught by specialists. Ordinary members of the school staff have not ordinarily had experience in commercial life, or in an office, and consequently their teaching would be theoretical and not practical, and often the want of experience in the practice of commerce would make the theoretical teaching incomplete and sometimes inaccurate.

By W. BONAVIDA HUNT, M.A.

Headmaster, Kilburn Grammar School, N.W.

IN the case of certain secondary schools the Board of Education has already admitted the need of some provision for business training. Such schools are probably all of them similarly situated to my own—that is to say, most of the parents concerned intend their sons to follow some kind of commercial career. In these circumstances the majority of the pupils are removed from school about the age of fifteen unless there is a very definite inducement in the shape of a special commercial curriculum to retain them. They leave either to go direct into some office, or, if they are very backward, to enter a commercial college, where they are prepared specifically for some post or appointment. In either case they lose the best and most fruitful period of school life.

It would not be right to belittle the work of the commercial colleges. They are probably run by business men on business lines, and honestly supply an obvious public demand, but education in the fullest sense of the term they do not profess to provide. In fact, if the secondary school itself were merely to turn its pupils into a commercial department, pure and simple, it would be an unjustifiable encroachment upon the domain of these institutions.

The commercial department of a secondary school, to possess any *raison d'être*, must fulfil at least two

functions. First, it must be carefully fitted into the general educational scheme of the school, so that a boy upon entering this department continues without any conscious interruption the most important of his educative and mind-forming studies. Secondly, instruction and practice in the accomplishments most generally useful to a boy starting in a business office must be given.

It may be helpful to those entirely unacquainted with the working of such a department to furnish a few details of a scheme approved by the Board of Education about four years ago, and still adopted in the Kilburn Grammar School.

To be eligible to enter the department, a pupil must be fifteen and must have reached a satisfactory standard of knowledge in purely educational subjects (including two years' work in science).

The curriculum of the department consists of purely educational subjects (English, history, geography, French, German, and mathematics), and commercial subjects (shorthand, book-keeping, typewriting, and business methods).

Three-quarters of the entire time is devoted to educational subjects, the remainder to the commercial subjects. For boys showing artistic talent, drawing is provided. Towards the end of the first year the London Chamber of Commerce examinations are taken.

The master in charge of the department organises an appointment bureau, and keeps himself in touch with the various reputable business firms and with persons of influence in banking houses and insurance offices. He also receives assistance in the matter from the bureau of the London Chamber of Commerce. The names of all boys desiring to enter business are enrolled, and the most suitable employment obtained for them.

Pupils who have left still belong to this organisation, and, if their employment does not suit them, they can, and do, constantly apply to the school for advice and help to secure something more congenial or remunerative, as the case may be. In order to keep past and present pupils in touch with each other, lectures by prominent men in the business world are given from time to time in the school. They are not so much for instruction as for practical help and encouragement; in fact, a sort of spur to business ambition.

It will be seen that if a secondary school takes in hand a commercial department in a really generous spirit, it must have a tremendous advantage over the commercial college. Its superiority seems to arise from the fact that the strength and the weakness of every pupil entering the department is known already, and there is no time wasted in finding out these important points. Neither must it be forgotten that the moral and physical training of the commercial pupil is considered and dealt with equally with that of every other boy in the school. Many of the boys in my commercial department are school prefects, and exert a marked influence over the character and tone of the whole school. The captain of the football is a member of this department.

A word in conclusion as to the staffing of such a department. There is very little doubt that the suc-

cess of the organisation depends on the energy and enthusiasm of the master in charge of it. It might easily be possible to supply the teaching in all subjects from the general staff with a little foresight in selecting qualifications at appointment. But, in my opinion, it would not be wise to do this. Much better it is to put one man in control of it, a man who is an expert teacher as well as a specialist in commercial subjects. In the other subjects he may be assisted by the other members of the staff, but the important point is to get the boys of the department to look to the one master as their official head. He will in all probability realise his responsibility, and from that very fact draw the inspiration needed to make any organisation of the sort a thorough success.

By G. R. PARKINSON.

Strand School, Brixton Hill, S.W.

1. It is generally agreed that it is much better to give commercial education in secondary schools rather than in such special institutions as exist at present. In the secondary school the pupils remain under the influence of their school and masters for a longer period and at a time in their lives when this is most useful, and, further, their general education is to some extent continued.

2. The character and scope of the special training might include with advantage: office routine, shorthand, book-keeping, typewriting, commercial correspondence in English, French, German, and Spanish (two selected foreign languages only), commercial geography, commercial history, economics, commercial arithmetic.

In addition some general subjects, such as English, literature, and science should be included.

3. Commercial work should not be commenced before pupils have reached a standard equal to that required for the London matriculation examination, *i.e.*, they should have reached the age of sixteen.

4. There does not seem to be any reason why the commercial training of girls in secondary schools should differ from that of boys.

5. Many of the subjects could, with advantage, be taken by the members of the school staff, but such subjects as office routine could only be effectually taken by masters who had had experience in business houses.

By CAROLINE E. RIGG.

Headmistress, Mary Datchelor School, Camberwell, S.E.

WHATEVER may be the case with boys, there can be little doubt in the minds of those who have charge of the education of girls that the commercial or business training which so many parents appear now to desire for their daughters—including preparation for the examinations for posts as girl and women clerks in the Civil Service—is much better given in the secondary schools than in special institutions which make it their business to prepare exclusively for these positions and these examinations.

For the Civil Service examinations for clerkships, *e.g.*, the candidates need thoroughly good training in

English, including précis and essay-writing, letter-writing, paraphrase, acquaintance with the meaning and use of words, and a fair knowledge of standard works in prose and verse. They need also a sound knowledge of the outlines of English history and of the geography of England and her Empire. There must be both a satisfactory knowledge of arithmetic, and of analytical principles as helping to this, and a ready manipulation of arithmetical quantities based on plenty of quick practice in dealing with numbers.

There should be such a knowledge of French as will ensure power to translate well into English, and to render English into French correctly and idiomatically.

The humbler, but most necessary, arts of clear, well-formed handwriting and accurate spelling are of obvious importance.

If we turn from the girl who desires a Civil Service clerkship to the one who prefers to try for one of the many posts in offices of various kinds which women are found competent to fill, or to the one who aspires to become a secretary in some position requiring higher attainments and more liberal culture than are generally possessed by the ordinary office worker, we find that to good handwriting and correct spelling and power to compose well, to condense and to make abstracts, there must be added the ability to take notes rapidly in shorthand of the contents of letters and documents, to be afterwards written up, and with this it is highly desirable that there should go the power to use a typewriter neatly and effectively. Indexing of letters, &c., and all that goes under the somewhat vague title of "business correspondence," must also be acquired. There should be also some knowledge of book-keeping. In addition, a knowledge of German as well as French—both literary and commercial—is necessary if the student desires to obtain one of the best posts.

It will be evident from what has been said that, whether a girl aims at a Civil Service clerkship or at a really satisfactory position as secretary or clerk, she should follow a course of study which can be made thoroughly liberal and educational if left in the right hands to direct; and manifestly the secondary school is the proper place for such training as is set forth above.

For Civil Service posts a girl may well start about sixteen; if she can first matriculate or win a good senior-school certificate of the University of London she will, when allowed to specialise in the smaller number of subjects now necessary for her, find it comparatively easy to obtain a place on the list high enough to secure her a clerkship, if she will give four terms to her special preparation. The examination is the same for the girls' and the women's clerkships. To allow of specialisation, with a view merely to employment in an office or elsewhere in work purely of the clerkship or secretarial type *before* a girl is in her seventeenth year, is to deprive her of what will be of untold benefit to her later, and to doom her to long hours, low pay, and mechanical drudgery. The evil day of limitation of interests should be deferred until a sound and broad basis is laid. But the

intelligent, well-trained girl, who has had (say) five years in a good secondary school and has done well in an upper fifth form, or, it may be, a lower sixth, may well begin to work on special lines, and, if due care be taken, her "special course" may be made thoroughly educational.

For shorthand and typing, the school must provide a special teacher; such a teacher may also very well take business correspondence, indexing, &c. At the same time, there are often teachers already on the staff who can do at least part of this latter work. Book-keeping need only be taught in its main principles, as each business house has to a certain extent its own system of book-keeping. All other work, in French and German, in history and geography, in arithmetic and mathematics, in English language and literature, in the humbler arts of spelling and calligraphy, can be undertaken perfectly well by members of the ordinary staff. It is, moreover; far best that girls taking these Civil Service and secretarial courses should work as much as possible with girls who are doing the ordinary school work, and be taught by women of wide culture, whose mental horizon is not bounded by the exigencies of a merely business training.

It is also most desirable that girls who intend to follow business careers should—while working on the lines already indicated—receive the same physical and æsthetic training received by their fellows; that the singing classes, the calisthenics classes, the literary societies, the games, &c., should not merely be *open* to them, but should be attended and participated in by them as a matter of course. In other words, they should share in the whole corporate life of the school.

It will be evident that the course of a girl training for a business career will differ very considerably, according as to whether she goes to a special institution for her special training, or whether she gets that training in connection with the varied, wholesome, happy, and sufficiently sheltered corporate life of a well-organised secondary school. Not a few of the very best schools in London, and in the important provincial towns, have undertaken work of this kind, and are doing it with success.

But certain conditions are essential to the wise and effective working of such schemes: (1) A careful organisation of the special work required, together with a sufficient co-ordination with what is *not* specialised, but is conducive to general moral, intellectual, and physical culture; and (2) a not too early specialisation, together with a quiet but steady opposition to the tendency manifest in some parents to remove girls as soon as they can earn a small sum weekly.

The future of English middle-class womanhood depends very largely on the creation by the schools of an ideal which will check the deterioration in body, mind, and manners, which is bound to come if our girls are to be allowed to go into office life in our great cities in their early teens, to work from 9.15 a.m. to 6 or 6.30 p.m. for a mere pittance. That is a "blind-alley occupation" indeed, and against such a doom for our girls we need to urge continual and steadfast war.

By E. J. SALTER.

Commercial Form Master, Acton County School, W.

It seems that few boys on leaving a secondary school are able to enter upon an expensive professional or technical career. Those who can do so begin their vocation well if their education enables them to pass the required preliminary examination before leaving school. Most boys, however, have to find openings in commerce or in the lower and middle branches of the Civil Service. For the needs of candidates for the latter the ordinary work of the senior forms—where special study of the seven "cardinal subjects" is permitted—is sufficient preparation. But for the average boy who must go into business, little or no provision is made.

This average boy has either too short a school life, and leaves to swell the ranks of the sweated boy-labourers; or, if he does stay until he is seventeen, without deciding upon a career, other than a commercial one, he usually finds that he is unfit to apply for promising vacancies advertised in the daily Press. He must either accept low-grade labour, and strive to "improve" himself at evening classes, or prevail upon his parents to send him to a proprietary school or coaching establishment for business training.

It is not surprising that parents who have given their boys a long school life, without deciding upon a career for them, sadly realise how much time and money have been wasted when they leave school without any qualifications for entry into the wide world of commerce. Schoolmasters, while suffering from the evils of congested curricula that prevent thoroughness, admit the need of a more frankly utilitarian training. And now we have the Board of Education, by means of Circular 826, not only advocating vocational courses in the upper school, but showing practical sympathy with the need of a place for useful optional subjects in the middle school, where "even the general education of boys and girls will gain in effectiveness if their work at school is to some extent brought into direct connection with their probable occupation in after-life." Here then is a consensus of opinion with regard to the need of commercial education in secondary schools.

The establishment of commercial forms will do much to lengthen the school life of the average boy. Provided that his own school can give him the necessary training, what atmosphere can be more suitable for him to specialise in? His character and abilities are known; and while he is preparing for a business career he can still share in the corporate life of the school. The habit of doing home-work until he leaves will help him to take naturally to evening study later at a polytechnic, or, possibly, at the London School of Economics.

The commercial form at the County School, Acton, W., began its work in September, 1912, under the care of an experienced master and specialist. It was made up of ten boys, two of whom had matriculated. Their average age was sixteen years four months. The new form found a place between Forms V. Upper and VI. Lower. Most of the original members have found positions in banking, in drapery, in paper-making, and in shipping houses.

Instruction is given in English, arithmetic, French, German, business methods, accounting, economics, geography, science, shorthand, typewriting. It may be observed that this course includes special treatment of five of the cardinal subjects of the middle and lower school. With regard to the remainder, if book-keeping and shorthand (the two most popular subjects of Royal Society of Arts' candidates) are taught in the middle school, much better results are obtained in the commercial form in accounting and business methods.

While the form is free from the fever of examinations, it is subjected to the usual periodical form test-papers; and the boys are encouraged to attain to a standard in most subjects approximating to that of the advanced stages of the Royal Society of Arts, or the Senior Chamber of Commerce examinations, or, most of all, to the recently revised requirements of the Senior School Commercial Certificate of London University. Stress is laid upon display and neatness in written or typed work.

A special room is planned for the form. In the meantime, most of the work is done in one room, and the boys are well supplied with suitable apparatus (typewriters and accessories, duplicators, files), works of reference, and text-books.

The form finds practical work in connection with the school stock-room (loose-leaf system), the masters' reference library (card index drawer), and the various school societies (typing and duplicating). Newspaper cuttings on matters of moment are filed; commercial periodicals are taken; and the boys occasionally visit local industrial works.

Although some firms kindly send notices of vacancies to the school, the establishment of a central employment bureau in connection with schools would enhance the value of the vocational courses.

Below is the commercial form time-table of three-quarter hour periods:—

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
German Gymnastics Shorthand Hist. Econ.	Arith. Eng. Lit. German German	*Comm. French *English Science	German Arith. *Comm. French	Arith. French Econs. Shorthand.	*Comm. French Arith. Science
Geography Bookkeeping Science	Shorthand French *Comm.		Geog. Shorthand. Science	English *Comm. Bookkng.	
Home Work: English Shorthand German	Geog. French Arith.	Bookkng. English German	Shorthand. French Econs.	Comm. Geog. Hist. Econ.	Bookkng. Science German

* Commercial periods include typewriting lessons.

By ARNOLD SMITH, M.A.

Head of the Secondary School Department, Battersea Polytechnic, S.W.

I DOUBT whether there is any occupation in which character is of so much, and attainments are of so little value as in business life. The special aptitude to deal with types of business is one that can only be developed in practice, and I think that we ought to be careful lest we do injustice to a boy's real needs by satisfying the supposed requirements of an occupation which can be entered without difficulty and

which generally leads nowhere. Success in business depends upon alertness of intelligence, resourcefulness, pertinacity, and luck; for one man who succeeds there are hundreds who fail miserably, not necessarily through any fault of their own. The situation of the average clerk (excepting clerks in banks and businesses of similar character) is precarious in the extreme; and, in so far as commercial life means an ordinary clerkship, I think no special preparation at school is either necessary or desirable.

On the other hand, there are branches of commercial life, *e.g.*, the Civil Service, which can only be entered by means of examinations, and, unless provision is made for these examinations by secondary schools, there is a tendency for their pupils to pass into the hands of cramming institutions which thrive upon their "successes." The average parent thinks, and very often rightly, that an institution which makes its supreme object the preparation for particular examinations, is more likely to achieve that object than a school which aims at an ideal of all-round development. I think that an effort should be made in secondary schools to provide for the immediate without sacrifice of the remoter and more important end.

What one may call a commercial bias, on the lines of the London University Commercial Certificate, may, I think, reasonably be given to school subjects for boys who, at the age of sixteen (not earlier), have definitely made up their minds to try for such examinations as the second division clerkship, or have a bent towards commercial life. For the former class of boys a curriculum not very different from the ordinary secondary-school curriculum is necessary; for the latter class the aim of their studies should be, in my opinion, to lead them to understand the complex machinery and intricate relationships involved in commerce, considered in its national aspect. Such subjects as economics may fitly come in here; and, if a boy can obtain a school leaving certificate after an examination like that conducted by the University of London, so much the better.

As for anything below this standard, as I said at the beginning, I consider it to be detrimental to the interests of the pupils. I will conclude by quoting a remark made to me by a business friend who has "arrived": "If a man knows shorthand and typewriting, that is all very well so long as he takes care to conceal it!"

By MARY SPALDING WALKER, B.A. (Lond.)
Headmistress, Roan School for Girls, Greenwich.

No "commercial" classes have been formed here, and there does not appear to me to be any reason for making a recognisable difference between the girls who may afterwards enter business and the rest. To separate a group as "commercials" or "secretarials," would only be to encourage parents in their unfortunate preference for easily performed clerical jobs, however unremunerative in the present and unpromising for the future, as careers for their girls.

Nevertheless, a great many of our girls do get employment in offices, private and public, shortly after leaving school, and from what we know of their

experiences we believe we have not been mistaken in refraining from specialising here for that object. However, as we do group together in certain forms, and above the age of fifteen, those girls who are likely to remain longer than the others, and to work with a profession (usually teaching) in view, it may justly be said that the other girls, those likely to leave at sixteen or sixteen and a half, and forming quite as large a body as the others (indeed, at present forming a larger set), are actually grouped together too. They are the girls who will probably "go to business" when they leave.

Now "business" work, of whatever grade, seems to demand certain qualities and tastes rather than special knowledge. First and foremost in business there is the necessity for a meticulous accuracy and precision in detail, which is not called for, and would be disproportionate, elsewhere. Girls likely to go to business need to have this fact very emphatically impressed on them. Then, their own handwriting must be clear and legible. (They are apt to imagine that people who can use a typewriter have no use for a pen.) Their arithmetic lessons must be more practical and less theoretical, and give more rapid oral practice in calculation, than those of the other girls. Most important of all, they must gain a thorough grasp of the use of their own language, be able to write English well, and to seize rapidly the substance of any passage and reproduce its meaning. They need more, not fewer, lessons in English language and literature than the girls who are to stay longer, and, in addition to their ordinary lessons in geography and history, they need an elementary course in civics. During their last year at school these girls may desire to give up mathematics and science, and are allowed to do so.

So far, I think, our plans for these girls need no justification, but we have thought it well to add to the simple curriculum just outlined two other subjects which perhaps do. These are (1) household cookery, and (2) needlework, which includes embroidery, design, and cutting-out garments. The main object is to enable these girls to cope with the difficult circumstances of the lives of the vast majority of women clerks; to make them independent of domestic servants, and, partially, at any rate, able to dress themselves suitably. Considering the poor remuneration of all female clerical labour in this country, it seems only prudent to do this, but even looking further afield, to Canada, for instance, where English girls may reasonably expect to go in search of employment, the importance of a practical acquaintance with domestic affairs appears enormous. And for another reason, I think there is great value in even a school knowledge of these skilled manual arts, and that is the relief they will afford after the monotonous daily work usually given to women in the operations of the modern business machine, which must become very deadening as the years go on, and bring neither much promotion nor variety of work.

For that reason alone, and because it prepares for life, as well as for a livelihood, do I think a secondary school well advised in teaching these household arts to future clerks, rather than in professing to give them "commercial" training. Indeed, I go so far

as to doubt the value even for its own object of most of that which goes by that name. Even in Germany I have heard a merchant condemn unsparingly as incorrect and unsuitable the very phraseology of certain so-called "business" documents, which his own daughter, in preparation for employment in his own counting-house, was being taught in the local municipal commercial school. That "business is business" means, among other things, that it is not make-believe. The realities of office work can only be imperfectly counterfeited in a school, and, unless the staff be almost annually changed, must be represented by quite obsolete methods, too.

The secondary school, therefore, should, I hold, let business teach itself, when it comes. If shorthand be desirable, and typewriting necessary, by all means let the girls learn these arts in special institutions on leaving school, and waste as little time as possible on their acquisition; practice will bring perfection.

Apt to learn, ready to adapt herself, quick to understand and carry out written or spoken instructions, and indisposed to make the same mistake twice, the pupil of a secondary school who has chosen to profit by her time there, ought to make a very valuable business woman. The pity is that her value in terms of current coin may be so very little.

THE MOST NOTABLE SCHOOL BOOKS OF 1913.

THE compilation of the following short lists of books published during 1913, or too late in 1912 for inclusion in the lists published 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.

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

Extremely well written and stimulating.

"Poèmes et Chants de France." By W. M. Daniels and René Travers. (Harrap.) 1s. 6d.

An interesting selection; some of the songs with music.

"La France qui travaille." By M. Ardouin-Dumasset. (Harrap.) 2s. 6d.

A good selection from Jago's "Voyage en France."

"The New France." By W. S. Lilly. (Chapman and Hall.) 12s. 6d.

For the teacher's reference library.

"Grammaire Historique de la langue française." By R. Nyrop. Tome iv. (Paris: Picard.) 10 francs.

This volume deals admirably with *Sémantique*.

"Geschichte der deutschen Literatur." By Stroebe and Whitney. (New York: Holt.) 6s.

A carefully written handbook.

"Introduction to German." By F. Ellis. (Dent.) 2s. 6d.

For upper forms and evening classes.

"Germany and the Germans from an American Point of View." By Price Collier. (Duckworth.) 7s. 6d.

For the reference library.

"Introduction to English, French and German Phonetics." By L. Soames. (Macmillan.) 6s.

A revised edition, in which the international symbols are employed.

"Lectures phonétiques." By C. Motte. (Paris: Didier.) 2.50 francs.

A number of passages carefully transcribed.

"Manuel pratique de prononciation et de lecture françaises." By L. Bascan. (Dent.) 2s. 6d.

Contains useful exercises and passages in phonetic transcription.

"Deutsches Aussprache Wörterbuch." By M. Viëtor. (Leipzig: Reiland.) 8.40 marks.

A valuable book of reference.

Classics.

"Municipalities of the Roman Empire." By J. S. Reid. (Cambridge University Press.) 12s. net.

"A Companion to Roman History." By H. S. Jones. (Clarendon Press.) 15s. net.

"A Companion to Classical Texts." By F. W. Hall. (Clarendon Press.) 9s. 6d.

"Roman Laws and Charters." Translated, with introduction and notes, by E. G. Hardy. (Clarendon Press.) 10s. 6d. net.

"Collected Literary Essays." By A. W. Verrall. 2 vols. (Cambridge University Press.) 10s. 6d. net each.

"The Peace of Aristophanes." With introduction, notes, and a verse translation, by B. B. Rogers. (Bell.) 10s. 6d.

"Apollonius Rhodius." Edited by G. W. Mooney. (Longmans.) 12s. 6d. net.

"Sermo Latinus." By J. P. Postgate. (Macmillan.) 3s. 6d.

"A Greek Vocabulary for Schools." By T. Nicklin. (Clarendon Press.) 2s. 6d. net.

"Primus Annus." By W. L. Paine and C. L. Mainwaring. (Clarendon Press.) 2s.

"Decem Fabulae." By W. L. Paine, C. L. Mainwaring, and E. Ryle. (Clarendon Press.) 1s. 6d.

"Oxford Book of Latin Verse." By H. W. Garrod. (Clarendon Press.) 6s. net.

English Language, Grammar, and Composition.

"English: A Modern Grammar." By G. H. Clarke and G. T. Ungeod. (Horace Marshall.) 2s. 6d.

Based on recent research in English and dealing with grammatical principles; suitable for upper forms.

"English Composition." By A. Cruse. (Oxford University Press.) 2s. 6d.

A very practical work, grounded on the principle of imitation; carefully graded illustrations.

"Aids to the Writing of English Composition." By F. W. Brewsher. (Bell.) 1s.

Intended for boys about to enter the public schools; contains useful exercises.

"Essay Writing, Rhetoric, and Prosody." By Egerton Smith. (Oxford University Press.) 2s. 6d.

An excellent volume, primarily for Indian students. Teachers at home will find it profitable to consult.

"The Writing of English." By W. T. Brewster. (Williams and Norgate.) 1s. net.

An interesting and suggestive manual; should find a place in the school library and the teacher's.

"Composition from English Models." By E. J. Kenny. (Edward Arnold.) Book I., 1s.; Book II., 1s. 6d.

Practical books for lower and middle forms.

"Written English and the Way to Write." By K. K. Moakes. (Longmans.) Pupils' edition, 1s. 6d.; teachers' edition, 2s.

A systematic and progressive training in following great models.

History.

(a) *For the Teacher and Older Pupils.*

"The Living Past." By F. S. Marvin. (Clarendon Press.) 3s. 6d. net.

A sketch of Western progress from the earliest times to the present day, with a thesis.

"Introduction to World History." By M. W. Keatinge and N. L. Frazer. (Black.) 2s.

"English Political Institutions." By J. A. R. Marriott. (Clarendon Press.) 4s. 6d.

The history of each institution told by way of explanation of present-day methods.

"The King's Government." By R. H. Gretton. (Bell.) 2s. net.

A study of the growth of State Secretariats, &c.

"Historical Geography of Scotland." By W. R. Kermack. (W. and K. Johnston.) 2s. 6d. net.

A thorough monograph.

(b) *For the Pupils.*

"Lords' Men of Littlebourne." By J. C. Andrews. (Harrap.) 1s. 3d.

A picture of Villein life in the fourteenth century.

"Britannia's Growth and Greatness." By A. J. Berry. (Pitman.) 2s.

A readable historical geography with many pictures.

"In Feudal Times." By E. M. Tappan. (Harrap.) 5s. net.

An interesting account of social life in the Middle Ages.

"The Story of the World." By E. O'Neill. (Jack.) 7s. 6d. net.

A simple story for boys and girls, with many reproductions of contemporary works of art.

Geography.

"A Handbook of Geography." By A. J. Herbertson. 2 vols. (Nelson.) 4s. 6d. each vol.

Intermediate between the ordinary school "geography" and Mill's "International Geography," i.e.; suitable for teachers, higher forms, higher evening schools, &c.

"A Text-Book of Geography." By A. W. Andrews. (Arnold.) 5s.

Satisfactorily based on physical geography; plenty of exercises.

"A Comparative Geography of the Six Continents." by E. W. Heaton. (Ralph, Holland.) 1s. 9d.

A good and up-to-date general school book.

"The British Empire with its World Setting." By J. B. Reynolds. (Black.) 1s. 4d.

A useful bird's-eye view.

"A Geography of the British Empire." By W. L. Bunting and H. L. Collen. (Cambridge University Press.) 3s. 6d.

A book for the lower school.

"Australasia," and "Canada and Newfoundland." By A. J. Sargent. (Philip.) 1s. and 10d.

The fourth and fifth issues of the Visual Instruction Committee's handbooks; lantern slides, as usual, available for use with them.

"The Continent of Europe." By L. W. Lyde. (Macmillan.) 7s. 6d.

The political unit considered from a physical and strategic point of view; full of suggestive matter for teachers and lecturers.

"Commercial Geography of the World." By O. J. R. Howarth. (Clarendon Press.) 2s. 6d.

A good general introduction to a most interesting phase of geography.

Mathematics.

"Mathematics." By C. A. Laisant. (Constable.) 2s. net.

A book for parents and teachers, supplementary to the ordinary text-books.

"A School Arithmetic, including Logarithms and Mensuration." By A. C. Jones and P. H. Wykes. (Arnold.) 4s. 6d.

Very comprehensive. Includes the more arithmetical parts of algebra and geometry. Examples of a very practical character.

"Elementary Algebra." Vol. ii. By C. Godfrey and A. W. Siddons. (Cambridge University Press.) With answers, 2s. 6d.; without, 2s.

Completes the course of elementary algebra for non-specialists. Noteworthy on account of the selection of topics treated. Includes an introduction to the calculus.

"Higher Algebra." By W. P. Milne. (Arnold.) 7s. 6d. net.

An excellent introduction to modern function theory.

"A First Formal Geometry." By R. Wyke Bayliss. (Arnold.) 1s. 6d.

Contains the fundamental theorems of plane and solid geometry. Numerous exercises.

"A First Course in Projective Geometry." By E. H. Smart. (Macmillan.) 7s. 6d.

Treats of the higher geometry of the straight line and circle, also the projective geometry of the conic.

"Elementary Mechanics." By G. Goodwill (Clarendon Press.) 4s. 6d.

Experimental and theoretical mechanics. Gives prominence to the vector concept. Includes some graphical statics and elementary rigid dynamics.

"Elementary Experimental Dynamics." By C. E. Ashford. (Cambridge University Press.) 4s.

The problems discussed are of a practical character and living interest.

Chemistry.

"Achievements of Chemical Science." By J. C. Phillip. (Macmillan.) 1s. 6d.

A valuable reading book, well illustrated.

"Exercises in Gas Analysis." By H. Franzen, translated by T. Callen. (Blackie.) 2s. 6d.

"The Chemistry of Plant Products." By P. Haas and T. G. Hill. (Longmans.) 7s. 6d.

Specially useful for students of plant physiology.

"The Progress of Scientific Chemistry." By Sir W. Tilden. (Longmans.) 7s. 6d.

A new and revised edition, giving an account of the chemistry of our own time.

"Chemistry." By G. Darzens. (Thresholds of Science Series.) (Constable.) 2s.

An interesting and stimulating introduction for the general reader.

"A Text-book of Experimental Science." By W. A. Whitton. (Macmillan.) 1s. 6d.

A good first-year text-book from "Lessons in Science," by Gregory and Simons.

Physics.

"Elements and Electrons." By Sir W. Ramsay. (Harper.) 2s. 6d. net.

An elementary volume which contains much information not to be found in other publications of the same standard.

"Matter and Energy." By F. Soddy, F.R.S. (Williams and Norgate.) 1s. net.

Very original and informative, but not difficult to comprehend.

"The Wonders of Wireless Telegraphy." By J. A. Fleming. (S.P.C.K.) 3s. 6d. net.

A very lucid description of the principles and practice of the subject.

"A Text-book of Physics." By Dr. R. S. Willows. (Arnold.) 7s. 6d. net.

Very appropriate for university intermediate examinations.

"Electricity and its Practical Applications." By Prof. M. Maclean. (Blackie.) 10s. 6d. net.

"Practical Physics: A Text-book for Technical Schools and Colleges." By Angus McLean. (Black.) 7s. 6d. net.

An advanced laboratory guide, restricted to the general properties of matter.

"Mathematical Physics." Vol i., "Electricity and Magnetism." By C. W. C. Barlow. (Clive.) 4s. 6d.

"Electricity in the Service of Man." Vols. i. and ii. By R. Mullineux Walmsley. (Cassell.) 7s. 6d. net each.

A new edition, almost entirely rewritten and brought up to date.

"Mechanics and Heat." By J. Duncan. (Macmillan.) 3s. 6d.

A class-book suitable for intermediate classes in technical schools.

Botany and Nature-study.

"Principles and Practice of School Gardening." By Alexander Logan. (Macmillan.) 3s. 6d.

"School Gardening, with a Guide to Horticulture." By A. Hosking. (Clive.) 3s. 6d.

Two excellent books, emphasising the educative aspect of gardening practice.

"Weeds." By R. Lloyd Praeger. (Cambridge University Press.) 1s. 6d. net.

Simple botanical studies of agricultural pests; intended for the use of children, not of farmers.

"A First Book of Nature Study." By E. Stenhouse. (Macmillan.) 1s. 6d.

Encourages personal investigation of familiar animals, plants, and landscape features.

"Some Secrets of Nature." (Methuen.) 1s. 6d.

"The Romance of Nature." (Methuen.) 2s.

Two readers on right lines; the first strong on relation to environment, the second including chapters on "physiographic" nature-study.

"Plant Life." By J. Bretland Farmer. (Williams and Norgate.) (Home University Library.) 1s. net.

Plant form considered from the point of view of function. Up to date and authoritative.

"An Introduction to Zoology." By Rosalie Lulham. (Macmillan.) 7s. 6d.

Deals with the habits and external characters of common British invertebrate animals. Excellent for reference.

OXFORD UNIVERSITY LOCAL EXAMINATIONS.

SET SUBJECTS FOR 1915.

Preliminary (July and December).

Religious Knowledge.—(a) 2 Kings (chap. i.-xvii.); (b) St. Matthew (chap. i.-xviii.); (c) Acts (chap. i.-xv.); (d) the Church Catechism.

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

English.—(b) Hamilton, "Greek Legends" (Clarendon Press); (c) Stevenson, "Treasure Island"; (d) either (a) Scott, "Lady of the Lake"; or (B) Select Poems of Tennyson, by George and Hadow (i.-xxi.) (Macmillan).

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

Latin.—Either "Cæsar in Britain," by W. D. Lowe (Clarendon Press); or "Selections from Ovid," by W. D. Lowe, i.-x., xxi.-xxviii. (Clarendon Press).

Greek.—"Selections from Herodotus," by W. D. Lowe (Clarendon Press).

French.—"Gavroche," by Victor Hugo (Clarendon Press).

German.—"Der Schlüsselbund" and "Jagderfolge," in E. S. Buchheim's "Short German Plays," First Series (Clarendon Press).

Junior (March, July, and December).

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

History.—(a) Greek History, Outlines from 445 to 323 B.C.; (b) Roman History, Outlines from 268 to 133 B.C.; (c) English History. Candidates may offer either (i) or (ii) or both (i) and (ii). (i) Either (A) Outlines from 55 B.C. to 1135 A.D., or (B) Outlines from 1066 to 1485; or (C) Outlines from 1485-1714;

or (D) Outlines from 1689-1837. (ii) General Outlines of English History from 1603 to 1901; (d) General History. From 1503-1715; (e) Foreign History. The Outlines of General European History from 1715 to 1802.

English Literature.—(b) Scott, "Rob Roy," with Stevenson, "Master of Ballantrae"; (c) either Shakespeare, "Julius Cæsar" and "Coriolanus," or Shakespeare, "Macbeth"; (d) Shakespeare, "Henry V.;" (e) Hakluyt, "Voyages of Hawkins, Frobisher, and Drake" (Clarendon Press); (f) Milton, "Comus," "Lycidas," "L'Allegro," "Il Penseroso"; (g) Dickens, "A Tale of Two Cities" (abridged by R. Scott, Clarendon Press); (h) Tennyson, "Shorter Poems and Lyrics" (Clarendon Press), "The Marriage of Geraint"; (i) Matthew Arnold, "Selected Poems," ed. George and Leigh (Clarendon Press); (j) either (a) Ruskin, "Sesame and Lilies," "Ethics of the Dust"; or (β) Ayscough, "San Celestino" (Smith, Elder); (k) George Eliot, "Silas Marner," with Tennyson, "Enoch Arden"; (l) Morris, "Life and Death of Jason"; (m) Blackmore, "Lorna Doone."

Geography.—(i) Geographical Principles, (ii) British Isles, (iii) one of (A) monsoon region of Asia, (B) Africa south of the Sahara, (C) Atlantic region of North America.

Latin.—Cæsar, *De Bello Gallico*, III.; Ovid, *Metamorphoses*, III., ed. Cartwright (Clarendon Press).

Greek.—Xenophon, *Anabasis* II.; Lucian, *Vera Historia*, ed. Jerram, Book I. (Clarendon Press).

French.—Either George Sand, "La petite Fadette," or "Memoires de Madame Campan" (Clarendon Press).

German.—Riehl, "Seines Vaters Sohn" and "Gespensterkampf" (Clarendon Press).

Senior (March, July, and December).

Religious Knowledge.—(a) Jewish History, from 227 to 37 B.C., with special reference to 1 Maccabees and Wisdom; (b) 2 Kings; (c) either (a) St. Matthew, or (β) St. John; (d) St. John (i.-xvii) in Greek, including the subject-matter; (e) Acts, i.-xv.; (f) the Epistle to the Hebrews; (g) English Church History from 1042 to 1353; (h) Fisher, "The Grounds of Theistic and Christian Belief," ed. ii., chaps. iv.-viii., xii.-xiv. (Hodder and Stoughton); (i) Prayer Book (the Church Catechism, full text and explanations, with the Office for Holy Communion in the Book of Common Prayer).

History.—(a) Greek History, the Outlines of Greek History from 445 to 323 B.C., with special questions on "The Greek Commonwealth," by A. E. Zimmern, pp. 205-end (Clarendon Press); (b) Roman History, the Outlines of Roman History from 268 to 91 B.C., with special questions on the Second Punic War; (c) English History. Candidates may offer either (i) or (ii) or both (i) and (ii). (i) Either (A) from 55 B.C. to 1135 A.D.; or (B) from 1042-1485; or (C) from 1399-1714; or (D) from 1603-1815; or (E) from 1689-1880. (ii) The Outlines of English History from the Anglo-Saxon Conquest to 1837. (d) General History. Candidates may offer one or both of the following periods: (G) from 410-1215; (H) from 1503-1715. (e)

Foreign History, the Outlines of General European History from 1715-1802.

English Literature.—(b) General Literature. A large choice of questions will be given. (c) Shakespeare, "Julius Cæsar" and "Coriolanus," with North's "Translation of Plutarch's Cæsar" and "Coriolanus" (Clarendon Press); (d) Bunyan, "Pilgrim's Progress," part i., with Milton, "Areopagitica" and "Paradise Lost," I., II.; (e) Thomson, "The Seasons," and Crabbe, Selections from Poems, in "Select English Classics," ed. A. Quiller-Couch (Clarendon Press), with Cowper's Poems (except the translations); (f) either (a) Shakespeare, "Henry V.," with Marlowe's "Edward II.;" or (β) Scott, "Rob Roy," with Stevenson, "Master of Ballantrae"; (g) either (a) Shakespeare, "Macbeth"; or (β) Dickens, "A Tale of Two Cities," ed. Boas (Clarendon Press); (h) Dryden, "Essay on Dramatic Poesy," with Pope's "Essay on Criticism"; (i) Pope, "The Rape of the Lock," with Dryden, "Absalom and Achitophel"; (j) Milton, "Comus," "Lycidas," "L'Allegro," "Il Penseroso," with Milton and Wordsworth, "Sonnets" in "Select English Classics," ed. A. Quiller-Couch (Clarendon Press); (k) Peacock, "Selected English Essays," pp. 30-429 (Clarendon Press); (l) either (a) Austen, "Pride and Prejudice," with Coleridge, "Poems" in "Select English Classics," by A. Quiller-Couch (Clarendon Press); or (β) Thackeray, "Esmond"; (m) Byron, "Childe Harold"; (n) Borrow, "Lavengro"; (o) Browning, "Men and Women" (1855 edition); (p) Matthew Arnold, "Merope," with Whitelaw's translation of Sophocles, "Electra" (Clarendon Press); (q) Meredith, "Sandra Belloni."

Geography.—(i) Principles of Geography; (ii) British Empire; (iii) one of (A) Europe, (B) Africa, (C) North America (including the West Indies).

Latin.—Virgil, *Aeneid*, IX., X. (1-509; Cæsar, *De Bello Gallico*, III., IV. (20-38 only); Cicero, *Pro Lege Manilia*.

Greek.—Xenophon, *Anabasis*, III., IV., i.-v.; Euripides, "Hecuba" (1-904).

HISTORY AND CURRENT EVENTS.

So Brunswick is Brunswick, and Hanover is Hanover, unless it is Hannover. Brunswick is not Hanover, and Hanover is not Brunswick. We were not clear on the matter until this marriage of a Brunswick prince, who is somehow half an Englishman, with a Prussian princess made us look up the matter.

"The illustrious house of Hanover
And Protestant succession,
To these we have allegiance sworn
While"

Prince Rupert, Robert, whatever his name is, of Bavaria, was willing to let bygones be bygones, and not claim the throne of his ancestors.

George our lawful King shall be,
Until

that day arrives with the Greek Kalends and other events of a dim and distant future. But there was such confusion in our minds with reference to the

possession of the Welf house (whose name we generally spell half Italian fashion), there were so many Dukes of Brunswick at the same time in the period of the Reformation, and we wondered what was meant in the eighteenth century when we found dukes of Brunswick-Wolfenbüttel, as well as our own Duke of Brunswick-Lüneberg, who was also duke-elect of Hanover, that we put it down as one of those mysterious things "made in Germany" of which we knew little and cared less. But now that there is again a reigning Duke of Brunswick, who has renounced his family claim to the ex-kingdom of Hanover, and promises to be loyal to his father-in-law, a little light is beginning to dawn. May it increase!

THERE has been produced at a West End theatre in London a play which by its title professes to be based on a Bible story. Curiosity drew many of us to see the performance, and it has started several ideas in our minds. We have been taught of recent years by those who have made a profounder study of the Hebrew Scriptures than most of us have time or power to pursue that there are two strands of tradition in the story of Joseph as told us in the "book of beginnings," one in which the jealousy of the brothers arises from Joseph's dreams, the other in which it arises from the favouritism of the father typified in the garment with long sleeves (so read instead of the "many colours"), one in which Reuben is the friendly brother, another in which Judah plays the part, one in which Joseph is sold to Ishmaelites, another in which Midianites carry him down to Egypt. What does Sir Herbert Tree make of this? It would take us too long to say; suffice it that he is true to neither the one nor the other. One thought, among others, arises as we follow the various scenes: Milton, long years ago, wrote a great poem, which, whether read nowadays or not, has given to most of us the story of "Paradise Lost" in place of the more sober narratives of the Bible. Will this play, in the present neglect of Bible reading, give to English people a story of Joseph which is no older than the year 1913?

THIS last autumn King George entertained a guest, Francis Ferdinand Charles Louis Joseph Mary of Austria-Este, who has since 1889 been the heir-presumptive of the aged Emperor Francis Joseph. He has for the last five or six years been active in Austrian State affairs, and popular opinion attributes to him much of Austria's activity in the Balkan Peninsula. It also credits him with strong Ultramontane ideas, and thinks that is the secret of much of his policy. "He is trying to win Albania for Rome." As to the truth of all this, we express no opinion, much less do we attempt to forecast what may happen when the monarch, the beginning of whose reign seems to us to belong almost to ancient history, shall have paid the debt of nature. But we are irresistibly reminded, as we read these things in the papers, of Austrian history in the beginning of the seventeenth century. Had there not been then a succession of Emperors who had temporised with the Reformation, and tried to govern their heterogeneous

possessions with a certain measure of toleration for diverse religious opinions? Were they not succeeded by Ferdinand II. in 1619, a date which should immediately recall the name of Bohemia and the memory of troubles there which had a disastrous sequel for Germany? *Absit omen!*

IN attempting to understand Francis Ferdinand we must remember the part of Europe in which he lives and in which he will in all probability be called to rule. Religious feeling seems to live on opposition. Where people of different religions live in close contact or in near neighbourhood, the intensity of their belief, at least so far as it is manifested in political or other action, is greater than where there is no such rivalry. The Austro-Hungarian Empire is made up of various races that differ in their allegiance to Rome or the Orthodox Church, even if the differences of race and of religion can be regarded as different things. In the Balkan Peninsula, into which the authority and influence of Austria have been penetrating so rapidly of recent years, the same phenomenon is observed. Bulgaria is remarkably tolerant, but she is exceptional in this respect. Serbia and Greece, though both of the same faith, have varying allegiances, and the intolerant spirit, because the difference is small, is all the greater. But we need not go to eastern Europe for examples of religious intolerance. We are apt to forget that New Zealand was colonised by Anglicans (Canterbury) and by Presbyterians (Dunedin), and the effect of those original differences is seen to-day in the bitterness of a present conflict over school education. With all this strife, are we beginning to understand the seventeenth century better?

ITEMS OF INTEREST.

GENERAL.

PROF. J. PERRY, F.R.S., whose work in connection with the introduction of improved methods of mathematical teaching is well known to our readers, has been appointed president of the Educational Science Section of the British Association for the meeting to be held in Australia next August.

At the annual general meeting of the Association of Assistant-masters in Secondary Schools, to be held at the London Day Training College, on January 3rd, at 10.30 a.m., the following resolutions will be proposed:—(a) That this association approves of the conditions for registration recently issued by the Registration Council, as embodying principles which the association has long and consistently advocated; and recommends all members of the association to place their names upon the register immediately; (b) that this association expresses its regret that the Board of Education has declined to accede to the request of the association that a clause be inserted in all schemes, and articles of government, to give assistant-masters served with notice of dismissal the right to be heard by governors, before notice of dismissal takes effect; (c) that this association strongly condemns the action of certain local education authorities, in putting out assistant-masterships to lowest tender; and (d) resolutions submitted by council.

THE annual general meeting of the Historical Association will be held at Bristol on January 8th to 10th. The meetings will be held in the University Buildings. The annual address will be delivered on the first day at 5 p.m. by the Dean of Wells. On the following day the Bishop of Bristol will lecture at 8 p.m. on some historical notes of local interest. On January 10th Prof. Leonard will read a paper on the study of history and the working man, and this will be followed by a discussion in which prominent working men are expected to take part.

THE Conference of Educational Associations is to be held this year from January 2nd to January 10th, at the University of London, when twenty-one associations will take part. Dr. James Bryce will open the conference on January 2nd, at 3 p.m., with an address on "Salient Educational Issues." A soirée has been arranged for January 7th from 8 to 11 p.m. A timetable of the various meetings, with the subjects for discussion, the papers to be read, and so on, can be obtained from the conference secretary, Mr. Frank Fairman, 74, Gower Street, London, W.C.

AMONG the subjects to be discussed at the London County Council Conference of Teachers, to be held during the first three days of January at the Birkbeck College, London, E.C., we notice the teaching of history, the prefect system, fatigue, memory drawing, and educational experiments in schools. All these topics are likely to prove popular, and we hope next month to give some account of the meetings. Application for tickets of admission, for which no charge is made, should be made to the Chief Inspector, London County Council, Education Offices, Victoria Embankment, W.C. Each ticket will admit the bearer to all the meetings.

THE twelfth annual meeting of the North of England Conference will be held in Bradford on January 1st to 3rd, 1914. On January 1st, a reception and conversation will take place at 8 p.m. in the Cartwright Hall. On the morning of January 2nd "The Present Discontents in English Education" will be discussed at a general meeting, when papers will be read by Dr. M. E. Sadler, Mr. A. C. Benson, and Dr. A. H. Fison. Sectional meetings will be held in the afternoon of the same day for the discussion of "Medical Care," "The Montessori System," "Technological Education," "Arts and Crafts," and "Desiderata in Secondary Education." The general meeting on the morning of January 3rd will consider "The Complete Training of the Child," and the papers will be by Dr. A. A. Mumford and Mr. P. B. Ingham. At the sectional meetings in the afternoon, the subjects will be "Eugenics and Sex Training," "Training and Supply of Teachers," "Juvenile Employment," and "Desiderata in Elementary Education." Cards of admission and the official handbook can be obtained from the joint honorary secretaries, Education Office, Bradford.

THE Teachers' Guild has arranged modern languages holiday courses for next summer at Honfleur in France, Lübeck in Germany, and Santander in Spain. The courses are intended specially to pro-

mote among English-speaking people a knowledge of the languages, customs, and ways of thought of the countries visited. They are open equally to members of the guild and to other persons. In order to ensure as much opportunity as possible of speaking the language of the country, careful arrangements are made by which the students may board with private families. Much attention is paid to phonetics and accurate pronunciation generally, and the lectures are given by professors of experience and repute in their own country. 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. In 1913 there were in all seventy-six students, of whom thirty-seven were at Honfleur, thirty-four at Lübeck, and five at Santander. Full particulars of the various courses can be obtained from Mr. F. Fairman, general secretary of the Teachers' Guild, 74, Gower Street, London, W.C.

Two sets of prizes, the Seabury prizes, are offered under the auspices of the "American School Peace League," for the best essays sent in on the following subjects:—(1) "The Rôle and Duty of Schools in the International Peace Movement," open to students in training schools for teachers of both sexes; (2) "The Meaning and Importance of the Two Hague Peace Conferences," open to pupils of primary and secondary schools. Three prizes, of the value of £15, £10, and £5 respectively, will be awarded for the best essays on both subjects. The lists will close on March 1st, 1914. Manuscripts must not exceed 5,000 words, and in general it will be considered sufficient if they attain a length of 3,000 words. They must be legibly written, on one side of the paper only, and in English, French, German, or Italian. The writer's name must not appear on the manuscript, but must be sent, at the same time as the essay, in a sealed envelope, bearing two mottoes referring to the essay. The essays should reach either Mrs. Fannie Fern Andrews, secretary of the American School Peace League, 405 Marlborough Street, Boston, Mass, U.S.A., or M. Emile Arnaud, president of the international Peace and Freedom League (*Ligue internationale de la Paix et de la Liberté*), Luzarches (Seine-et-Oise), France, not later than March 1st, 1914.

THE annual report of the National Home-Reading Union records a year of great activity. Four courses of reading—the special, general, introductory, and young people's—have provided reading circles and individual members all over the country with a sufficiently wide range of subjects to suit every taste, and last year's session closed with a membership of more than 6,000. Outside the United Kingdom the work of the union is making excellent progress in Australia and South Africa. In almost all countries the union has some supporters, but they are for the most part scattered and isolated. A special feature of the union's work is the young people's section, linked up with which are about 1,500 reading circles, embracing about 70,000 pupils in day and evening schools. Through the co-operation of the London County Council and many of the provincial education authori-

ties this side of the work has been developed greatly, and further extension is still looked for. The endowment fund which the union is seeking to raise has made progress during the year, but still falls far short of the desired sum of £10,000. Full particulars as to the methods of procedure adopted by the union may be obtained from the secretary, N.H.R.U., 12 York Buildings, Adelphi, London, W.C.

THE Education Committee of the county borough of Barnsley has issued a report on the first year of working of their Queen's Road Open-air School for children suffering from pulmonary tuberculosis. The outer walls of the classrooms of the school are entirely removed, protection from winds being obtained by overhanging eaves, like those of a Swiss chalet. The treatment includes a substantial breakfast, dinner, and tea for each child, the cost of food—2s. 6d. per week—being paid by the parents. From 1.30 to 3.30 the children lie down and keep perfectly quiet, and the majority sleep. The grounds round the school give ample room for gardens, sleeping place, and field playground. The school curriculum is framed to make the work as practical as possible, and to avoid long and tedious sitting in desks; arithmetic has been entirely taken from the time-table. Most of the time saved from desk-work has been given to gardening and housework, both of which are undertaken by boys and girls alike. The net cost of the school to the ratepayers is £232 14s. 9d. for the twelve months. Of the sixty-two children who attended the school for a reasonable period, seven were improved, twenty-eight were much improved, and twenty-two discharged cured. In view of the fact that the children go home to sleep and are at home all day on Saturdays and Sundays, these results are so satisfactory that the possibility is contemplated of making the school residential for a small number of the children in the near future

SCOTTISH.

In view of the affiliation of the Royal Technical College, Glasgow, with the University, Lord Rosebery, as Chancellor of the University, attended the graduation ceremony and addressed the students. He spoke of the giant strides that had been made in University development during the last thirty years. Then the ideal site for a university was thought to be some remote, sequestered vale, as by the classic Isis or Cam, but now their real sphere is held to be in the heart of our great industrial cities. It is indeed one of the best signs of the times that higher education, both technical and in arts and humanities, which used to hold severely aloof from each other are now seeking closer union. Claiming the right as Chancellor to offer a little "paternal advice" to the students, he counselled them whatever might be their life work to throw all their energy and pride into it and to perfect and exalt it by their devotion. At the same time, they must remember that as members of the University they should always have a regard for the breath and finer essence of all knowledge, and he urged them to cultivate the reading habit. He could assure them that it would stimulate and enrich

their work, relieve and divert their minds, and feed their imagination with higher ideals than could be had from everyday life.

THE autumn meeting of the Classical Association of Scotland was held this year in Glasgow University. The president, Dr. Heard, Fettes College, took as the subject of his address, "The Influence of Classical Studies on the Imagination." Frequent complaint is made at the present time of the decay of the imagination, and Dr. Heard suggested that in classical study would be found the surest educational force for its revival. It is too often taken for granted that imagination is a gift of inheritance and not of acquisition. It is perhaps true that any direct effort to train imagination will fail of its aim, but it is none the less true that a wise and healthful course of study is unconsciously formative in the way of imagination. In the masterpieces of classical literature we have not a crowded canvas. There is abundance of detail, but the central figures stand out bold and clear. The parts are always seen in relation to the whole, and therein lies their advantage over modern works. In a play of Shakespeare there is such prodigality of imagery, such wealth of precise detail, such subtlety of expression, and such variety of character that a rare constructive power is required on the part of the reader if he is to get a clear conception of the essential unity of the whole. In the "Iliad," on the other hand, even those who have lacerated and dissected its unhappy body have to confess that it rises again in newness and unity of life. It is just this unity that makes the "Iliad" the most stirring and stimulating influence in all literature. The Rev. Chas. Annacker, S.J., afterwards gave a delightful address on "The Ratio Studiorum."

UNDER the auspices of the Glasgow Branch of the Teachers' Guild an address was given by Dr. Otto Schlapp, Edinburgh, on the neglect of German in Scottish schools and universities. Dr. Schlapp at the outset gave a series of statistics to show how serious has been the decline in the study of German during the past twenty years. He accounted for the decline by the regulations of the Universities Commission of 1890, which gave preferential treatment to Latin and Greek at the bursary competitions. This factor in recent years has been eliminated, but a new one, equally fatal to German study, has been introduced by the Education Department, which insists on science and drawing being taught to all pupils, and favours the teaching of one foreign language only during the intermediate course. Various circumstances combine to make this language either French or Latin. In the universities the department of modern languages is not represented on any of the senates. The lecturers have no influence on the policy of reform affecting their subjects, nor on the distribution of funds available for general purposes. In this way the concessions to the modern spirit that are made in theory by the new regulations are found to be largely inoperative in practice.

THE annual general meeting of the Modern Languages Association was held this year in Edinburgh University. Mr. J. E. Mansion, George Wat-

son's College, in his retiring presidential address, spoke of the reform methods of teaching modern languages. He thought their difficulty in getting conversation out of a class was because of the teachers' inability to keep in touch with their mind and interests. They were far removed from the young barbarians of fifteen to seventeen. He had found from experience that they took but a surface interest in literature and art, but talk to them of aeroplanes, wireless telegraphy, motor-bicycles, and their games and interests generally, and their attention would be held and their conversation would make rapid strides. Dr. Graeme Ritchie afterwards addressed the meeting on the methods of French teaching in British universities. He said that the efforts made all over the country to develop the cultural side of French studies had ended in inaccuracy and unscholarly knowledge of the language. He advocated the intensive study of special points in language and literature, and a medium course between the sociological study now in vogue in French universities and their own traditional methods.

A CIRCULAR has been issued by the Education Department directing attention to the Board of Education's Examinations in Art, Science, and Technology for 1914, and also to those of the City and Guilds of London Institute. All the examinations in Scotland will be under the supervision of the Scotch Education Department. These examinations, it is pointed out, have no organic connection with the system of classes under the Continuation Class Code, and presentation at them is entirely voluntary. The examinations in art, so far as Scotland is concerned, are only intended for candidates competing for the awards of royal exhibitions, national scholarships, local scholarships, and free studentships. In the case of science and technology, examinations will only be held in Scotland when candidates can show that these are required by the conditions of their employment or other special circumstances.

IRISH.

VERY little has been heard during the autumn about the Treasury grant of £40,000 promised by Mr. Birrell for the improvement of the salaries of lay secondary-school assistant-teachers, and so much discussed last spring, since when it appeared to be abandoned; but it is stated on good authority that it will not be lost. Mr. Birrell, it is said, has after all been able to reconcile the contending interests, and will bring his scheme before Parliament immediately after the opening of the next session.

THE Department arranged for a course of four lectures on physical geography last month, which were given in the Royal College of Science by Prof. W. M. Davis on the afternoons of November 26th, 27th, and 28th, and December 1st. The subjects were "Rivers and Valleys," "The Lessons of the Colorado Canyon," "Mountains of Normal and Glacial Structure," and "Sea Coasts." The lectures were fully illustrated, and were organised for the benefit of teachers of geography in secondary schools.

THE autumn number of the Journal of the Department is the opening one of the fourteenth year. Its chief articles deal with the value of roots for wintering young store cattle, farmwomen's institutes in America, profitable trees, Irish lace and crochet industry, early potato growing, Irish egg-laying competitions, the liming of land, and the marketing of fruit. It contains also several reports on fruit and crops, besides official documents and statistical tables dealing with a large variety of topics bearing abundant testimony to the wide range of its work.

THE latest volume—the fourth—of the minutes of the evidence taken before the Viceregal Commission inquiry into Primary Education contains some remarkable statements by Dr. Starkie, the Resident Commissioner of National Education. The post was offered to him in 1899 by Lord Cadogan, and he was informed on the highest authority that the Education Office was an Augean stable, that the system of education was antiquated, that some of the higher officials were incompetent, and things were in a very bad way. The system of appointing old inspectors as secretaries and chiefs of inspectors had broken down, and Dr. Starkie complains that his efforts at reform were opposed by the incapacity or insubordination of some of the most important officials. On this point these officials no doubt could give rebutting evidence. Mr. Wyndham's cynical appropriation of the £185,000 belonging to the so-called Development grant is probably at the root of much of the mischief. This grant, which corresponded to a grant for primary education in England, should have gone to education in Ireland, but Mr. Wyndham wanted the money for his Land Purchase Act, and coolly declared that Irish education did not want any more money. Ever since then Irish primary education has been the Cinderella of the Treasury, and Dr. Starkie complains, not without reason, that the Government appointed him for certain purposes, and then deserted him. Dr. Starkie, however, points as his record of service and reform to the following improvements: the institution of junior assistant-mistresses at £66,000 a year; the encouragement of the teaching of Irish; a large increase in evening schools; improvement in school buildings and heating arrangements; the widening of the curriculum and reform of methods of inspection. Other far-reaching suggestions had been blocked by the Government.

THE latest reform initiated by the National Board deals with school dental clinics. The Commissioners have directed the attention of managers and teachers to the facilities now offered for treating the teeth of school children. Schemes may be submitted to the Commissioners, who are prepared to contribute half the cost of the necessary clinical equipment and half the cost of the treatment. The Commissioners are anxious to see a general scheme of medical attendance established in all their schools, but in the absence of this they are anxious that full advantage should be taken of the funds at their disposal for dental purposes.

THE Hermione lectures at Alexandra College, Dublin, were this autumn delivered by Mr. Rothenstein,

who lectured on: (1) Ancient painting; (2) medieval painting; (3) eighteenth-century painting; and (4) modern painting. He thus traced painting from its origin in religion through the influences of the Renaissance, of eighteenth-century culture, of democratic ideals, and of the Pre-Raphaelite and Impressionist schools down to our own day.

WELSH.

THE Degree Day of the University of Wales was celebrated at Aberystwyth last month. The work done by graduates, especially on the theses for higher degrees in history, was highly spoken of at the Court meeting. But the proceedings of the Degree Day were marked by meaningless din made by trumpets and by other noises. The singing by the students was uproarious and often in bad taste. It is simply surprising that the religious sense of the people of Wales is not shocked by the sort of nonsense sung off by students to the old hymn-tunes, thought to be specially sacred to the people of Wales. The actual proceedings were almost entirely inaudible even to the visitors in the front rows. At one part of the proceedings a pigeon was released, and its fright seemed to please some students, whose education might have been supposed to have trained them to more humane notions. Since the Degree Day, the Senior Deputy Chancellor, Lord Kenyon, said, at the distribution of prizes to the Wrexham County School, that there is certainly a decline of manners at the present day. In connection with these complaints, it may be noted that at the meeting of the University Court, on the day before the Degree Day, it was decided to approve of measures which would quicken the announcement of examination results, and enable the Degree Day to be held in July. This arrangement for the date of the Degree Day will have the advantage of providing successful students with their degree before they take up their teaching or other posts, as well as of avoiding the disturbance of work by the ceremony occurring in the middle of the college term.

At the last meeting of the Central Welsh Board there was a discussion upon passages from the report of the Board of Education, issued last June, upon the Welsh Intermediate schools for the year 1912. In that report it was stated that the examinations of the Central Board caused "the big lower forms to be neglected in order that the few higher or honours candidates may have tuition; that the work should be done, and can be better done, by the university colleges; that doing work of a post-matriculation type under school conditions of constant tuition does not tend to develop originality; and that pupils who do their intermediate work at school have to mark time during their first year at college. . . . The governors must decide whether they can afford to maintain a small university college department at the top of their schools. . . . For the children who wish to enter the University and to prepare themselves for the learned professions or for the higher posts in the Civil Service it is felt that they should leave the intermediate school in time to take their degree at the University, and

then, if they wish it, to proceed to Oxford or Cambridge, or to the Continent."

THE Chief Inspector for Wales (Mr. Owen Edwards) pointed out certain misapprehensions which had arisen in connection with the report, but maintained that classes at the bottom of some of the schools were too large for any teacher to deal educationally with them. On the other hand, some boys were being prepared for scholarships at Oxford and Cambridge when they might "as well try to get into the moon." But if a boy went to the Welsh university colleges early, he might proceed later to Oxford or Cambridge, and qualify for the Civil Service or professorships. This course is taken in the Scottish universities. The Chief Inspector said further that the authorities of one of the struggling county schools in North Wales had just told him when this report was drafted that they had passed a resolution to close their doors on account of their financial difficulty. The Board was thinking of such schools, and not thinking in any way of suggesting a time when generally a boy ought to leave school and go to college. Sir Harry Reichel proposed that the Board of Education be asked to embody certain statements made by the Chief Inspector in a further memorandum, as he considered they modified the original report, but a motion was carried by a large majority in favour of "the previous question," and, as one speaker put it, it was thought "the Board of Education would be well advised to allow Welsh education to undergo a little rest cure."

THE question of the teaching of Welsh in the Swansea schools has been raised by a deputation from the Swansea Cymmrodorion Society to the Swansea Education Committee. Swansea was described as essentially "the capital of Welsh Wales." There was no desire to rob the English child of his Shakespeare or his Bacon, but the deputation considered it "equally wrong to rob the Welsh child of his Ceiriog or his Islwyn." The deputation hoped that Swansea would fall into line at last with other Welsh towns, and "make Welsh compulsory in all the day schools of the town." The chairman said the matter would be considered by the committee carefully and sympathetically.

At the last meeting of the Anglesey Education Committee the following motion was proposed: "That the salaries of teachers in non-provided schools be calculated under the scale as from the 1st of April last, in the following manner: Each such teacher shall be allowed the minimum salary of the scale, plus the increase in respect of each year he or she has served in the county." The chairman, Lord Sheffield, interrupted the mover of the resolution, and ruled that no such motion could be discussed before the expiration of six months after the committee had passed the scale of salaries with conditions, and the six months had not expired. It was found that only one more day had to elapse before the six months required by the standing order would have been completed.

THE Cardiff School Management Committee has considered the question of the certificated class teachers'

salaries on a further report by the city treasurer dealing with the various schemes submitted. By eight votes to three the committee recommended the adoption of the scheme which raised the present maximum of £160 by £5 annually to £180, and the women teachers' maximum of £130 to £150. The scheme was estimated by the city treasurer to cost an additional £3,640, or in the tenth year £6,500.

EDUCATION IN THEORY AND IN PRACTICE.

(1) *The Idea of an Industrial School*. By O. Kerschensteiner. Translated by R. Pintner. 110 pp. (Macmillan.) 2s. net.

(2) *The Trade Continuation Schools of Germany*. By J. W. Scobell Armstrong, with prefatory note by Lord Haldane. 32 pp. (Eighty Club.) 2d.

(3) *University Tutorial Classes*. By A. Mansbridge. 197 pp. (Longmans.) 2s. 6d. net.

(4) *The Montessori Principles and Practice*. By E. P. Culverwell. 309 pp. (Bell.) 3s. 6d. net.

(5) *A Manual of Psychology*. By G. F. Stout. Third edition, revised and enlarged. 769 pp. (Clive.) 8s. 6d.

(6) *The Mental and Physical Life of School Children*. By P. Sandiford. 346 pp. (Longmans.) 4s. 6d.

(1) SOME time ago we noticed in these columns an English rendering (entitled "Education for Citizenship") of one of Dr. Kerschensteiner's books, and we are glad to see that this has been followed up by a translation of his little work on "The Idea of the Industrial School." The translation is by an American, and we may say at once that to an English ear the word vocational would have more readily conveyed an idea of the contents of the book than does the word industrial, because we are accustomed to use the latter in a special sense. The whole purpose of public education, says the writer, is training for citizenship, and in his first chapter he defends this proposition from the charge that it sets up a utilitarian and unethical ideal. This being the dominating aim of public education, what are the duties of our schools of all grades? First, the duty of helping each pupil to choose some vocation and to fill it worthily; secondly, the duty of teaching that this vocation is to be pursued for altruistic as well as self-regarding ends; and, thirdly, the duty of developing the desire and the ability to raise the ethical standard of the community. An exposition of these three duties is followed by a chapter on the methods of the industrial school, and in an appendix an example is given of industrial training in the elementary schools of Munich. There is much in the book with which we, and probably most of our readers, will cordially disagree. Yet we welcome it, because we think it will stimulate thought upon an aspect of education of which much is going to be heard in the twentieth century.

(2) To anyone desiring a plain and concise statement of what is being done in Germany in the matter of trade continuation schools, and is more interested in the actual facts than in the philosophical defence attempted in Dr. Kerschensteiner's volume, we can certainly recommend the unpretentious twopenny pamphlet written by Mr. Scobell Armstrong, and published by the Eighty Club. The first few pages give an explanation of the German system of schools, including the trade schools, and then follows a brief account of the rise and present state of the continuation schools. The latter half of the pamphlet is

devoted to the trade continuation schools of Munich, and here we have a clear summary of the fruits of Dr. Kerschensteiner's work. We may add that notwithstanding its place of origin, the pamphlet contains no suggestion whatever of party politics.

(3) Differing in its aims from the continuation school, and yet connected with the same great problem, is the work of the university tutorial classes, organised in recent years on the initiative of the Workers' Educational Association. No one has so good a right as Mr. Mansbridge to be heard on the objects and character of this important movement; and in his volume on "University Tutorial Classes" he gives not only an authoritative but also an attractively written account of the origin and progress of these classes, and of the features which differentiate them from other kinds of teaching. It strikes us that these tutorial classes at their best furnish a model of what most adult instruction, and perhaps much school instruction, should be. One great point of difference between the tutorial class and the university extension lecture is that in the latter the lecturer, secure on his pedestal of authority, is apt to take the middle and upper class point of view of economic and historical questions, with no one to check him; whereas the freedom of intercourse which prevails in the former often causes the lecturer to widen his knowledge of hard fact, and to qualify his opinions accordingly. But, after all, this difference is just the difference between good and bad teaching everywhere; for it is the difference between taking into account and failing to take into account the learner's point of view. All instructors of young men and women, whether in universities or elsewhere, have something to learn from the methods of the Workers' Educational Association.

(4) The Montessori literature grows apace, and the last addition is very far indeed from being the least. The keynote of the new volume by Prof. Culverwell, of Dublin, is sounded in the opening chapter, when he says, "The very name 'the Montessori method' or 'system' is incurably bad; it is not a method, it is not a system, and those who think it is a system or a method, or something that you do when you get the apparatus—they are the friends from whom we must pray to be saved." The writer's object is to treat fully of the principles which underlie the practice, and in our judgment he has accomplished his object with marked success. To this success two factors have mainly contributed, his manifest sympathy with his subject, and his equally obvious independence of judgment. He gives an appreciative exposition of the main principles of Dr. Montessori's thought and practice, including the notable principles of spontaneity and liberty; but he gives also some candid criticism, and introduces qualifications which will help to show English teachers how far those principles are in their special circumstances practically applicable. Naturally we cannot follow the writer wherever he would lead us, and indeed he would evidently be the last to expect such a result, or even to desire it. For example, in his able chapter on character and discipline, where he charges some of the opponents of "mental gymnastic" with failing to understand fully the doctrine they reject, we believe that the counter-charge could be sustained against Prof. Culverwell. Notwithstanding this, we recommend the book as on the whole a remarkably sound piece of work, well written, suitably illustrated, and interesting from end to end. We think it not the least of Dr. Montessori's achievements that she should have evoked such clear and genuine thought as this book exemplifies.

(5) Though Prof. Stout's "Manual of Psychology" was published fourteen years ago, yet so many alterations have been made in the new edition just issued that a fresh notice in these columns is desirable, especially as the book has been widely used by teachers needing an introduction to the subject. The distinguishing features of the manual are a refreshing absence of sketchiness, an avoidance of the error of trying to say something about everything, and a consistent endeavour to enable a serious student to live himself into the main problems of psychology. In the new edition all these excellent features are fully retained. Two new chapters are added, on instinct and attention respectively, whilst most of the other chapters have been thoroughly revised or entirely rewritten. Perhaps the most noteworthy of the questions reconsidered in these chapters is that of the relation between body and mind. In former editions of the book Prof. Stout adhered to the theory of "parallelism" as against that of "interaction"; but he now recognises that the latter theory has much to say for itself, and accordingly he gives prominence to the arguments of writers like Mr. McDougall, who defend it. Here, as elsewhere, Prof. Stout is as good a guide as ever to the student who really desires insight into the subject, or to the teacher who needs psychology for educational purposes. We observe that whilst the book is enlarged by about a hundred pages, the price remains the same.

(6) Dr. Sandiford's book on "The Mental and Physical Life of School Children" is a very painstaking piece of work, more comprehensive in its scope, and more "up to date" in its information than any similar English treatise with which we are acquainted. The writer was evidently well equipped for the task he set himself, and in many ways he has, in our opinion, performed it admirably. It is a book which, we think, needs a discriminating lecturer behind it; otherwise the average training-college student would find it too difficult. In many places one seems to be reading notes of an intended lecture rather than an exposition of the subject, so closely packed are the facts and figures. Again, whilst abundant references to the literature of the subject are highly desirable, we doubt the wisdom of so freely referring in the text to the books and memoirs to which the writer is indebted. He does not wear his extensive learning lightly enough for his purpose. He writes as if the names of his authorities were "household words" to the training-college student and the average teacher of children. Still, these are minor faults in a work the merits of which we cordially recognise.

WORLD HISTORIES.

Outlines of European History. By M. O. Davis. 146 pp. (Clarendon Press.) 3s. 6d.

An Introduction to World History. By M. W. Keatinge and N. L. Frazer. 284 pp. (Black.) 2s.

A General History of the World. By O. Browning. 799 pp. (Arnold.) 5s. net.

The Story of the World. By E. O'Neill. x+547 pp. (Jack.) 7s. 6d. net.

The Living Past. By F. S. Marvin. xvi+288 pp. (Clarendon Press.) 3s. 6d. net.

LIVING in an island, and turning our back, as has often been said, on the continent of Europe since the end of the Middle Ages, we in Great Britain have not much studied the history of the world in general or even of Europe in particular. We have even learned in recent times to shorten our accounts of the Hundred Years' War which we waged with France in the times of the Plantagenets on the ground that beyond its influence on France, which does not

concern us, and on England, which can be understood with a passing reference to the warfare, the struggle has no permanent interest. Even the Continental wars in which we took part in the eighteenth century in order to employ our French rival on land while we defeated his navies and captured his colonies might be almost neglected in detail, except that we are anxious to prove that the connection with Hanover was an evil. As to the first thousand years of the Christian Church and its share in the making of Europe we know scarcely anything between the end of the "Acts of the Apostles" and the outspeaking of Martin Luther.

But we have gradually been changing all that, and have come to realise that we cannot properly understand even our own island-story without knowing something of the movements in Europe in which we shared in spite of our partial isolation. Especially must we understand the history of the Empire of which we were only in a sense a member (were we not an "alter orbis"?), and of the Papacy the subjects of which we were spiritually, and, even for a time, though we like to deny it, temporally.

Just now both writers of books and publishers thereof seem to have realised that there is an effective demand for books which deal with matters not entirely English, and we have for notice five works dealing more or less with the history of the world from the earliest times to the present day. They are all indexed, and all but Mr. Marvin's have maps. Miss Davis groups her maps at the end of the book, gives us a few other illustrations, and tells carefully in short chapters the history of Europe from the time of the Greeks, reaching the Thirty Years' War in the middle of the book. Messrs. Keatinge and Frazer begin with the early civilisations of Babylonia, Egypt, &c., and approach modern history when they are two-thirds of the way through the story. They have a few illustrations, several maps, and an appendix on the topography of Athens and Rome, as well as a bibliography. These two books, though small, are good. Mr. Browning begins with Egypt and Babylonia, and is in much the same proportion as Messrs. Keatinge and Frazer. It is not a book to be perused, being rather a collection of the ordinary facts of history, apparently copied from the author's commonplace books. It gives the impression of being what the university man calls "casual," is careless in parts, and generally omits to give the inner meaning of events. We cannot see the wood for the trees.

Miss O'Neill's "Story of the World" is an excellent book for young readers. She has chosen the more striking features of each period from the very beginning, and tells her story in a most interesting way, but perhaps the most striking feature of her book is the wealth of illustrations. They are all reproductions, sometimes in colour, of works of contemporary art, whether picture, sculpture, or other, and each is accompanied with a few words of explanation. It seems strange to say, but we could not think of a more appropriate Christmas present for an intelligent boy or girl.

We have reserved to the last Mr. Marvin's really remarkable book, in which he works out with an abundance of learning his thesis that through the growth of science and the social art, mankind has steadily worked, through all the ages and under various forms towards unity. It is a book which should be in the hands of every teacher, since it gives a new and powerful interpretation of history. Messrs. Keatinge and Frazer treat (p. 1 of their book) that "the manner of life of early man and the guesses we may make about his habits are matters of the greatest interest, but concern only to a slight extent a history that aims at giving a connected account of the growth

of civilisation. . . .” Mr. Marvin, on the contrary, devotes thirty pages (a ninth of his book) to primitive man, and evidently delights in tracing the early beginnings of civilisation, both scientific and social, in “prehistoric” ages. He continues his story in chapters dealing successively with the various periods of European history, and ends by “looking forward.” The chapter on Greek science was newest to us, though there is much in the rest of the book that is new, if not in its facts, at least in its setting. Naturally Mr. Marvin has little to say of wars and general politics, though they are by no means neglected or forgotten, nor, of course, are there any maps, but there is a very full table of contents, as well as a “reasoned” bibliography.

SCHOOL READERS IN NATURE STUDY.

(1) *Some Secrets of Nature: Short Studies in Field and Wood.* xiv+144 pp. (Methuen.) 1s. 6d.

(2) *The Romance of Nature: Studies of the Earth and its Life.* xix+164 pp. (Methuen.) 2s.

(3) *The Woodcraft Supplementary Reader for Schools.* By Owen Jones and Marcus Woodward. 156 pp. (Sampson Low.) 1s. net.

(4) *Rural England.* By Henry Harbour. 214 pp. (Pitman.) 1s. 6d.

(5) *The Rambler Nature Books:—Round About the Seashore, Familiar Friends at Home, In the Garden.* By Margaret Cameron. 56 pp. 6d. each. *Stories of Insect Life, Rambles in the Park, Rambles in the Woodlands.* By W. J. Claxton. 96 pp. 9d. each. (Blackie.)

(6) *Workers in Nature's Workshop.* By W. J. Claxton. 191 pp. (Harrap.) 1s.

(7) *A Book of Nature Poetry.* Collected and arranged by W. J. Claxton. 128 pp. (Blackie.) 1s. 6d.

(8) *The Selborne Nature Reader: Senior Book.* By C. G. Kiddell. 306 pp. (Pitman.) 1s. 9d.

(9) *The Seashore I Know.* By W. Percival Westell and H. E. Turner. 80 pp. (Dent.) 8d.

(10) *The Zoo Conversation Book.* By Edmund Selous. iv+134 pp. (Mills and Boon.) 1s.

THE perfect school Reader in nature-study—when at last it materialises—will not only interest but also discipline the mind of the pupil. While picturesque in style, and stimulating a sense of the beauty of nature, it will be simple and sincere in spirit, and make no appeal to mere sentimentalism; it will be accurate in statement, and, of course, grammatical and idiomatic in language. The majority of nature-readers available for school use must be regarded as seriously inadequate when judged by these criteria, though encouraging exceptions are to be found.

Nos. (1), (2) and (3) of the books listed above show in a considerable measure the desirable qualities just mentioned. No. (1) is concerned with animals and plants only, and has nine excellent chapters on the plant- and bird-life of selected environments. To most of the chapters in the book are appended various useful “problems for consideration” by the reader.

The style of No. (2) suggests that it and No. (1) are written by the same author. It is equally trustworthy and suggestive, and includes five chapters on the “physiographic” side of nature study. Both books are attractively illustrated by coloured plates and reproductions of photographs.

It is a pleasure to meet with a school book which may be praised so whole-heartedly as “The Woodcraft Reader” (3). Absorbingly interesting from first to last, it is full of the little out-of-the-way details of nature knowledge which only gamekeepers and

their like can hope to learn at first hand. Though intended for the special benefit of boy scouts, the book may be read with profit and pleasure by all lovers of the open air. It is illustrated by delightful marginal sketches by Colbron Pearse.

“Rural England” (4) is a most interesting and excellently illustrated Reader on practical farming and gardening. Among its many admirable features are short biographies of pioneer farmers, and chapters on the history of agriculture and on the conditions under which crops and stock are raised in the Colonies. The book will be of great value in rural schools.

“The Rambler Nature Series” (5) is adapted for younger pupils than are the books considered above. Miss Cameron’s three Readers are suitable for children of nine to eleven years of age, and Mr. Claxton’s for pupils of eleven to twelve. All the books are simply and attractively written and trustworthy; and they are very beautifully illustrated in colour and in black-and-white. In No. (6) Mr. Claxton utilises in an effective manner the fact that “many trades which we mortals follow have their counterparts in the functions of the higher animals and plants.” Thus, among the titles of his chapters we find “The Builders,” “The Lodgers,” “The Scavengers,” “The Bankers,” &c. It is a good idea and well worked out. Mr. Claxton’s collection of nature poetry (7) has been made with discrimination, and arranged according to subjects; a number of good illustrations are included. The book may be recommended without reserve.

Mr. Kiddell’s book (8) contains a large amount of interesting information, and is likely to whet the appetite of young readers for more. It includes extracts from Gilbert White, Thoreau, and several well-known living naturalists, and is splendidly illustrated. Several of the statements made are incorrect in detail, and others are misleading, but on the whole the book is a good piece of work.

“The Seashore I Know” (9) is an effort of a different class. It is well got-up and illustrated, and its authors gossip amiably, if somewhat aimlessly, about the animals and plants of the shore; but they quite miss the special opportunities in which the subject is so rich. They apparently share Cuvier’s doubt whether barnacles are molluscs or crustaceans—a question settled in 1826—and they speak of “crab tadpoles” (*sic*) as if the terms tadpole and larva were synonymous. A specimen of the literary style of the book may be quoted: “There was no escape for them, as, being almost entirely composed of sea-water, the sun soon dried them up and escape was out of the question.”

Mr. Edmund Selous can be relied upon for accuracy and raciness, and his book of imaginary conversations with animals at the Zoo (10) is as entertaining as his “Tommy Smith’s Animals,” which was deservedly popular. The allowance of jam in the mixture is a liberal one, but the jam is wholesome, and the consumer will find it difficult to evade the powder.

RECENT SCHOOL BOOKS AND APPARATUS.

Classics.

Theocritus, Bion, and Moschus. Translated into English Verse by Dr. A. S. Way. 200 pp. (Cambridge University Press.) 5s. net.—Theocritus for a translator is almost as difficult as Horace. How to get the natural flowing rhythms, and the direct style of Greek, together, is too much for any verse writer. In these days especially, when for a whole generation we may almost say that English has ceased to be spoken, and is only read by the eye, the traps are innumerable. Add to all this the use of rime, and

you feel inclined to advise the translator to wait for another generation.

Dr. Way's long, galloping line, we confess, does not please us. It is often impossible to read the lines without doing violence to the natural sound of the words; and the rime often causes inversions and hence obscurity. He is much more successful with slower rhythms; as Theocr. xxx., in heroic measure, or xxviii., with internal rimes, very cleverly done. These extra rimes in the long verse add a little to the complex effect of the whole. The book is undoubtedly clever, and shows a practised hand, but it does not show a good ear. We have noted no slips in translation; the author's scholarship is to be trusted.

Stories of Old Greece and Rome. By Emilie Kip Baker. Illustrated. xii+382 pp. (New York: The Macmillan Company.) 6s. 6d. net.—This book has merits, but it has a fault, quite needless and unexpected in modern days: Latin and Greek names are all mixed up together. Thus we have Jupiter, Mercury, Minerva, with Plato and Psyche; a Latin name being always preferred if one is obvious. The stories cover a great range, and include much that is usually not to be found in such books, as the creation of man, Pandora, Endymion, Cupid and Psyche, Echo, Hero, Pyramus, and Pygmalion, minor deities, and Œdipus. Very few are Roman: Janus, Vertumnus, and Pomona, and the Vestals. The stories are simply told, with a little soft sentiment now and again. One interesting part of the story of Prometheus is omitted, where Hesiod tells how Zeus and Prometheus quarrelled over the sacrifice; Prometheus tricked Zeus, and Zeus in revenge "hid the fire" which Prometheus afterwards stole for men. The pictures include a few statues, but most of them represent paintings; they are well reproduced, and the print is good. This is an attractive gift-book, which would have much gratified one child eight lustrums ago. An appendix gives learned notes, references, and English poems on similar themes.

Dialogues of Roman Life. Written and adapted by S. E. Winbolt. xii+142 pp. (Bell.) 2s.—This book is a welcome sign of the times. Not only the dialogue form, and the subject-matter, will prove useful in the schoolroom, but the fact which at once appears, how like the Roman boy was to the English boy. The vocabulary may at once be turned to account by master and pupils in the schoolroom; for here is the boy reciting his lessons (but the specimen of a lesson on p. 6 is really terrible!), asking for leave, playing truant, and describing his daily life. Where is now the old argument, that the Latin language is degraded by being used of everyday things? There are a number of useful pictures. But the marking of the long syllable is erratic; it is only done occasionally, and this plan, as we have found, is certain to lead to new mistakes. We wish the author had told us where he got his "adapted" pieces; we seem to recognise some. Readers may like to go to the fountain-head for more.

Outlines of Greek and Roman History. By M. E. Hamilton. 166 pp. 5 maps and 6 illustrations. (Clarendon Press.) 3s.—It may be doubted whether so brief a sketch of history is desirable for schools. We think that in the early stages the history should be grouped about persons, and to a less degree, places; and that when a connected narrative comes to be proper, a detailed list of dates and events should be accompanied by a larger sketch than this. But those who are not of this opinion may be directed to this book, which tells the story simply and groups the facts around important movements. But there is a

fault in the proportion. Eight pages cover the Persian Wars, and the Peloponnesian has eighteen; yet although the results of this war were great, the details are less important than other things. For instance, the Colonies do not appear, nor the Tyrants, although each was an important movement. The story ends at Alexander the Great and Julius Cæsar, thus leaving out the empire.

English.

The Poetry Review, December, 1913. (The Poetry Society.) 6d.—We always notice this interesting magazine; and the number before us contains one very good paper, viz., that on Tagore. It is a pity that space prevented quotation from the "Crescent Moon"; but the genius of the poet is well treated. An admirable and new note is struck in an essay on the music of metre. The review, which is becoming famous, should, as we said before, look after its proof-reading; who or what are Milton's "Sampson," and "Bathrolaire"?

English: a Modern Grammar. By G. H. Clarke and G. T. Ungoed. xii+222 pp. (Horace Marshall.) 2s. 6d.—It is a little difficult to know what is the primary aim of this book. As a study of grammatical fact and usage it is most acceptable for it discusses structure and function in a thoroughly scholarly and lucid fashion; but as a text-book for middle forms it is not quite so satisfactory, for what is proper in a treatise is not necessarily suitable for pupils of the age of fifteen. We cannot think, for instance, that the elaborate refutation of Herling's nomenclature for subordinate clauses is required for such immature pupils, even if it were put more convincingly than on p. 163. On the other hand, we are convinced that with a little revision the book would make an excellent school grammar, for it is thoroughly modern and, save in a few instances, admirably clear. Details of nomenclature, such as dental and vocalic verbs, introduced or rather adopted by the authors, we welcome without hesitation.

Composition through Reading. The Direct Method of Teaching English. By F. Pickles. xvi+266 pp. (Dent.) 1s. 4d.—Mr. Pickles is no doubt entitled to claim that his book "is a departure from old-time methods of teaching composition," but it is a departure with which we are now fairly familiar. His method is based upon the "sedulous ape" practice, and our only criticism of it, as applied to young children, is that the time given to what, after all, must be rather isolated extracts, must seriously encroach upon the time available for a progressive course in English literature. The exercises provided by Mr. Pickles are excellent of their kind, and should prove most suggestive to teachers of composition. Had chapter xv. ("Essay Subjects for Young People") been expanded, and appendix ii. ("Grammar Reduced to a Minimum") been omitted, the book would have gained much and lost nothing.

A Practical Course in Secondary English. By G. Ogilvie and E. Albert. 484 pp. (Harrap.) 4s. 6d.—This book is divided into the time-honoured divisions of style, form, and language, and the three parts are also sold separately. It hails from Scotland, and is therefore thorough. But its thoroughness seems to us of a university rather than of a school standard. Even in method the same criticism applies, for we cannot think that the best approach to composition for school children is through the practice of literary criticism. Nor do we approve of introducing the study of style by minute study of the word and the sentence rather than by the thought-

unit, the paragraph. But apart from this, the book has a distinct value; the exercises are abundant and well chosen, the section on the history of the language is very good indeed, and grammar is treated as the living tutor of expression.

An Advanced English Grammar. By G. L. Kittredge and F. E. Farley. xviii+333 pp. (Ginn.) 4s. —An American educationist recently wrote to *The Times* to the effect that English schoolboys were two years ahead of his own compatriots of similar age. The title of this book would seem to favour his point, for we can find nothing in it of an "advanced" character at all. It contains the matter usually presented to the middle forms of English schools, and that matter is not set out in any particularly scholarly or attractive form. It is neither a training in logic nor—save incidentally—a manual of usage; it is rather an illustration of function after the old manner of definition and instance. There are fifty books on the market published at a quarter of the price which we should recommend with greater confidence.

History.

Macaulay's History of England. Edited by C. H. Firth. Vol. i. xxxvi+516 pp. (Macmillan.) 10s. 6d. net.—Three histories of England were written in the Victorian age which were immediately popular and have become classics. Green's history of the English people ignored the period before "449," and became feeble after the seventeenth century, but for the centuries between has been the source *par excellence* of popular knowledge of our national story. It has already received the honour of a sumptuously illustrated edition in four volumes. The history which Froude wrote in a spirit of reaction against the Oxford movement was deliberately confined to the Tudor period, and is famous for its Protestant bias as well as its untrustworthiness in details. It still awaits its apotheosis. Macaulay intended his work to begin with 1685 and to continue "down to a time within the memory of men still living" in the 'sixties of the nineteenth century. It is well known to be a fragment, since Macaulay did not live to write more than his panegyric of William of Orange, his first Whig hero. It is this fragment, with all its brilliance and with all its faults, that Prof. Firth is now giving us in six volumes, of which the first is before us. It has an abundance of illustrations of various kinds, some in colour, and when we saw Prof. Firth's name on the title-page, we began to hope that we should have besides a critical apparatus by which to correct the great writer in the light of later knowledge. Alas! the professor, in the long and interesting preface, gives us much information about the pictures, but he thinks "an illustrated edition of a British classic is not the proper place for a critical commentary" (and we sadly admit we think he is right), and that therefore "it has not been thought desirable to add any new references or any comments." The consequence is that we have much to be thankful for—a book which will be an ornament to the library; and much yet to hope for.

The King's Government. By R. H. Gretton. xii+144 pp. (Bell.) 2s. net.—Neither the title nor the sub-title of this book, "A study of the growth of the central administration," gives an adequate idea of its contents. It may best be described as a scholarly monograph, written, however, with careful clearness, on the growth of the secretaryships of State, and of the other departments of the central government. The author shows how the "King's servants" gradually grew in power at the expense of the "Privy

Council," explains the "Secretary" of the various periods, and much of what is otherwise difficult to understand, the struggle of the House of Commons to obtain control over the administration of the country. The book is in short sections, with what at first sight appears to be much repetition, which is, however, seen to be necessary, and comes down to the present day. There is a bibliography as well as an index. Every teacher of English history should read, mark, and inwardly digest it for the benefit of his pupils.

Geography.

Landscape and Life in the Bristol District: a Study in Local Regional Geography. By J. B. Reynolds. viii+148 pp., maps and illustrations. (Baker and Sons.) 1s. 6d. net.—Miss Reynolds has produced an excellent brief local study, which is descriptive of the geographical conditions which have helped to determine the site and growth of the city of Bristol. She has summarised the chief features of the climate, relief, industries, and trade of the city in relation to the neighbouring district with its hills and coal-workings, and in reference to the Avon and the Severn estuary. The final chapter is devoted to Bath. The maps and questions are a worthy feature of the book. Teachers will find the book suggestive and useful, and some of them may be prompted to utilise it as a model for similar studies of their own districts.

Contours and Maps. By F. Morrow. vi+116 pp., maps and diagrams. (Meiklejohn and Sons.) 1s. 6d. net.—Teachers will find in this book an excellent summary of the principles of contour lines as well as valuable hints for the application of those principles. A notable feature consists in the large number of test questions, many of which are from examination papers. The reproductions of maps and diagrams are well done and thoroughly clear; a feature is made of the oroscopic map, which may be described as a map which has the appearance of a photograph of a relief model in cardboard, showing the terraced edge of the cardboard layers. The suggestions for making relief models are the weakest part of a good book; it is doubtful whether a beginner would be able to make a relief model in plaster of paris from the hints given. The method suggested is that of Mr. McMichael, whereby sections about an inch thick are made and fitted into a box; the easier layer system of making plaster of paris models described by Mr. Spary is not mentioned.

Lands and their Stories. Book VII. *Asia, Africa, and America, outside the British Empire.* By H. W. Palmer. Geographical appendices by D. Frew. 303 pp. Maps and illustrations, some in colour. (Blackie.) 1s. 9d.—This interesting, brightly written Reader has an appendix of geographical facts. Japan is awarded thirteen pages in the text and two pages in the appendix. Mr. Palmer gives the history of Japan, a description of the empire and some of its chief cities, and writes about the Japanese at home; Mr. Frew duplicates some of the information in his summary of the country. Argentina, to take another example, has six and a half pages respectively. Mr. Palmer tells something of the history, something of the country as a whole, and of Buenos Aires; Mr. Frew summarises this information without the history. The better and necessary portion of the geographical summary lies in the description of the continents as a whole. The illustrations are numerous and typical; the maps in the appendix are not quite so satisfactory.

Business Geography. By J. Hamilton Birrell. 280 pp. (Ralph, Holland.) 1s. 6d.—After a brief intro-

duction on the conditions of production and of trade, Mr. Birrell deals with the world's commercial products in turn. In regard to coal, for example, the origin and chemical composition of coal are described; the coalfields and lines of export in Britain are mapped; a table is given showing the coal exported in 1910 from British ports; diagrams show the output of coal per county in England in 1910 and the export of coal from Britain to other countries in 1910; the actual and potential coal of the chief countries is discussed. The last chapter deals with foreign competition. There is no index.

Science and Technology.

Practical Surveying and Elementary Geodesy. By Henry Adams. xii+276 pp. (Macmillan.) 4s. 6d.—The author of this book has had many years' experience as a practical surveyor and teacher of land surveying. His aim has been to present the principles and procedure of land surveying precisely and concisely with a view of eliminating so far as possible the difficulties experienced by beginners. The book contains an adequate treatment of chain surveying, levelling, trigonometrical surveying, &c., together with the office work of reducing and plotting. The average student will have no difficulty in understanding the methods for these operations explained in the book. Some useful sections are given dealing with the engineering side of surveying, and including the setting out of roads and railways. These sections are somewhat abbreviated, and will require to be supplemented by additional explanations by the teacher. The adjustment of instruments is scarcely so fully treated as one would expect to find. Practical surveying is a subject into which the personal element enters very largely, and the student will find many of the author's opinions both interesting and useful. Others are not so desirable of adoption; thus, in double-line field-books, the outline of fences, &c., should not be run across the space between the lines in the field-book. There is risk of spoiling the chainage figures by doing so. There are several sample pages of field-books illustrating this point; pp. 52 and 57 may be quoted as showing undesirable characteristics. The author also seems to favour the old system of parallel plates with four levelling screws for levels (p. 119) and for theodolites (n. 172). Practically all instruments are now being constructed with tribrach base and three levelling screws. The book contains many illustrations, clearly drawn and reproduced, and will be of undoubted service to those students who require a moderately comprehensive knowledge of the subject of surveying.

The Elements of Descriptive Astronomy. By E. O. Tancock. 110 pp. (Clarendon Press.) 2s. 6d. net.—Mr. Tancock gives simple descriptions of the chief celestial bodies and their movements, and his book may be recommended as an attractive and trustworthy introduction to these subjects. Particular attention is given to the stars and constellations, with the view of making the reader familiar with the chief objects and groups observable with the naked eye. This should make the book useful as a preparation for the Boy Scouts' badge. The various aspects of the celestial sphere in different latitudes are also well explained. There are a few practical hints on the use of a small telescope, and questions and exercises to fix and extend the points described. Mr. Tancock has interested boys in astronomy by presenting the subject to junior forms in Giggleswick School along the lines followed in this book; and we have no doubt that other teachers with the same enthusiasm could

be equally successful by using the book as their guide.

Handcraft in Wood and Metal. By John Hooper and Alfred J. Shirley. 240 pp. (Batsford.) 7s. 6d. net.—This book is written with the view of showing some of the educational possibilities of handcraft, and the authors have collected many valuable notes on the early history and development of tools. They propose a three years' course in wood and metal work, include notes on the materials used in handwork, and even give a chapter on buildings, equipment, and tools; but the scope is too wide for satisfactory treatment, although the teacher of handcraft will find the book interesting and suggestive. The line and wash drawings of models, with the sketches and photographs illustrating points in construction and decoration, are a notable feature; but considering the importance attached by the authors to historical development and good decoration, we are surprised to find many poor designs among much that is otherwise excellent. The suggestions for decorative treatment are curiously uneven. For example, the fine chandelier and the ugly shield trophy on p. 140 may be contrasted.

An attempt to crowd into a single volume the history of craftwork, the theory of cutting tools, the principles of ornament, the properties of materials, and complete courses of wood and metal work, is almost inevitably doomed to failure; it is necessarily either too sketchy to be trustworthy or too bulky to be useful. The present volume is none the less an interesting contribution to the literature of manual training, and should find a place on every instructor's bookshelf.

Model-making in Cardboard. By J. Thorne. 2s. net.

Light Woodwork for the Classroom. By W. J. Warren. (Charles and Dible.) 1s. 6d. net.

The flood of books on educational handwork is still increasing, and there is some danger that an army of instructors may be overwhelmed. We have often thought it a pity that the output could not be dammed for four or five years and teachers thereby compelled to rely more on their own and their pupils' initiative and originality. The books named, however, are good examples of their type, Mr. Thorne's in particular giving valuable notes on tools and materials, while the novice will find the illustrations very useful. In the second book the "inventional" plan is used in most of the exercises, but the teacher should avoid the suggestions for "correlative mensuration" unless he can find valid reasons for its introduction. Personally, we are of the opinion that light woodwork is an overrated form of handwork. It is certainly better to make objects on really "practical" lines, where the cost is not prohibitive. The models given in both books are clearly described and carefully graduated; the diagrams are adequate, so that they may be of service to teachers who prefer a stereotyped sequence, or who have neither the time nor the inclination to invent a system for themselves. We do not think such text-books suitable for the pupils.

Elements of Descriptive Geometry. By G. F. Blessing and L. A. Darling. 219 pp. (Chapman and Hall.) 6s. 6d. net.—This book, like its companion volume, "Elements of Drawing," by the same authors, which was recently reviewed in these columns (vol. xv., p. 74) is based on the work required of all first-year students at Sibley College, Cornell University. The principles of projection, particularly orthographic projection, are explained clearly, and the authors are to be congratulated on having kept in view the im-

portance of developing in students the power of "visualising a problem." The standard theorems of solid geometry are proved, and the usual problems are stated clearly, the latter being preceded in most cases by an analysis of the conditions, and followed by some check on the accuracy of the construction given. An excellent feature is the number of perspective drawings; in the first part of the book practically every figure includes a perspective view of the construction, as well as the conventional plan and elevation.

Points, lines, and planes are treated first, and solids are not dealt with before chapter v., when the authors adopt the system—unusual in English practice—of placing the plan above the elevation. In our opinion it is doubtful whether this order of treatment is advisable for beginners. The historical sequence is from the concrete to the abstract; the practical application came before the development of the theory, and teachers are beginning to realise the importance of this principle in presenting and developing any subject. Thus, in descriptive geometry, we have found that clear concepts of fundamental principles are gained, if the beginner sketches details of actual machines, discusses and devises methods for their convenient and adequate representation, and is led to the construction of ordinary working drawings, *before* he studies the arbitrary but apparently logical series of problems given in text-books on solid geometry. After all, it is only a convention to commence with the point and proceed to the solid by way of the line and plane. The natural sequence is probably the exact opposite, and there is much to be said for an order of presentation which recognises this probability and refuses to discuss the means to be employed for representing the engineer.

lines and planes before the necessity for such representation arises in practice. It must be remembered that the important and striking weapon known as descriptive geometry was forged to suit the needs of

The authors recognise the difficulties of their arbitrary sequence, and make free use of experiments with cardboard and wire models in the earlier chapters. Were it only certain that the students were led to these experiments by the necessity for finding a solution of some practical problem—such problems, for instance, as would certainly arise in a single term's work on the representation of simple machine details—we should have had nothing but praise for an otherwise admirable treatment of the elementary principles of descriptive geometry.

Miscellaneous.

Who's Who, 1914. xxx+2314 pp. 15s. net.
The Englishwoman's Year Book and Directory, 1914. Edited by G. E. Mitton. xxxii+441 pp. 2s. 6d. net.

Who's Who Year-Book for 1914-15. vii+178 pp. 1s. net.

The Writers' and Artists' Year-Book, 1914. Edited by G. E. Mitton. x+157 pp. 1s. net.
(A. and C. Black.)

It would be difficult to find a more useful quartet of reference books than those published annually by Messrs. Black. All engaged in the work of the world find "Who's Who" indispensable. Year by year it increases in size; this year, for instance, sees the addition of some ninety-eight pages. Teachers will find among the 25,000 biographies those of many eminent schoolmasters and schoolmistresses, as well as of other educational workers.

"The Englishwoman's Year Book" ought to be in the reference library of every girls' school; it is full of information likely to be of assistance to school-

mistresses in advising their pupils who wish to adopt a career.

The other volumes are brought up to date, and contain much guidance, which will assist teachers in charge of debating societies and school magazines, arranged in a manner which makes reference easy.

EDUCATIONAL BOOKS PUBLISHED DURING NOVEMBER, 1913.

(Compiled from information provided by the Publishers.)

Modern Languages.

"Lectures Illustrées (Éléments de Grammaire)." By E. Magee and M. Anceau. 64 pp.; containing 58 illustrations, of which 32 are in colour. (Black.) 1s. 6d.

"Exercises on 'Le Blocus,' with Grammar and Questionnaire." By R. J. C. Hayter. viii+32 pp. (Cambridge University Press.) 10d.

Classics.

"Quantity and Accent in Pronunciation." By T. W. Westaway. xvi+112 pp. (Cambridge University Press.) 3s. net.

English: Grammar, Composition, Literature.

"Dictionary of Abbreviations." By W. T. Rogers. 378 pp. (Allen.) 7s. 6d.

"Progressive Précis Writing." Exercises in Précis Writing, Progressively Arranged, with Instructions. By H. Latter. 214 pp. 3s. 6d. Key to ditto. 2s. 6d. net. (Blackie.)

"Johnson's Life of Dryden." Edited, with introduction and notes, by Alfred Milnes. 196 pp. (Clarendon Press.) 1s. 6d.

Byron: "Childe Harold." Canto IV. Edited, with introduction and notes, by H. F. Tozer 144 pp. (Clarendon Press.) 1s. 3d.

Shakespeare: "Richard II." Edited, with introduction and notes, by G. S. Gordon. 102 pp. (Clarendon Press.) 1s. net.

Class-Books of English Literature:—"Kingsley's *The Heroes*." With introduction and notes by Walter R. Pridaux, and 6 illustrations and 2 maps. 1s. "Dickens, Selections from." With notes by L. B. Tillard, and 4 illustrations. 1s. Ruskin's "The King of the Golden River." 6d. Hughes's "Tom Brown's School Days" (abridged). With introduction and notes by A. J. Arnold, 1s. "Poetry, a Selection of." Edited by John Thornton. 1s. Marryat's "Settlers in Canada" (abridged). With introduction and notes by G. M. Handley. 1s. (Longmans.)

Scott: "Guy Mannering." Edited by R. F. Winch. (Macmillan's English Classics.) 740 pp. (Macmillan.) 2s. 6d.

The Tudor Shakespeare—"Antony and Cleopatra." Edited by G. W. Benedict. 210 pp. "The Tempest." Edited by H. E. Greene. 168 pp. (Macmillan.) Each 1s. net.

George Eliot: "Silas Marner." Edited, with introduction and notes, by H. Warwick. 228 pp. (Oxford University Press.) 2s.

"English Letters (XV.-XIX Centuries)." Arranged by M. Duckitt and H. Wragg. 476 pp. (Oxford University Press.) 1s. net.

"Practical Speech Culture." By A. C. Cox. With a preface by Geo. E. Clarke. 87 pp. (Ralph, Holland.) 1s. net.

"Book Ways." By Edith Kimpton. 296 pp. (Ralph, Holland.) 2s. net.

History.

"The History of the United States and its People." By Edward Eggleston. New edition (Appleton.) 12s. 6d. net.

"A History of England and the British Empire." By Arthur D. Innes. In four vols.; with maps and plans. 6s. each net. Vol. i., "Before the English came, to 1485." 584 pp. (Rivington.) 6s. net. Also a library edition of vol. i., 10s. 6d. net.

Geography.

Black's "Pictures of Famous Travel." By H. Clive Barnard. Containing 58 illustrations, 32 of which are in colour. 64 pp. Picture cover (Black.) 1s. 6d.

Large Classical Wall Map, "Orbis Romanus" (the Roman Empire. Size 50x42 in., printed in colours. (Johnston.) 12s.

Mathematics.

"Plane Geometry." By A. Schultze and F. L. Sevenoak. New edition. 314 pp. (Macmillan.) 3s. 6d. net.

"Plane and Solid Geometry." By A. Schultze and F. L. Sevenoak. New edition. 468 pp. (Macmillan.) 6s.

Science and Technology.

"Experimental Science." I., "Physics in Four Sections." By S. E. Brown. Section I., Measurement. viii+58 pp. Section II., Hydrostatics. vi+69 pp. Section III., Mechanics. vi+67 pp. Section IV., Heat. vi+69 pp. (Cambridge University Press.) 1s. each part.

"The British Bird Book." Edited by F. B. Kirkman. Section XII. 299 pp. Ordinary edition, 10s. 6d. net; edition de luxe, 21s. net. Vol iv. 704 pp. Ordinary edition, buckram, 36s. net; edition de luxe, half morocco, gilt top, 84s. net. (Jack.)

"Educational Metalcraft: A Practical Treatise on Repoussé, Fine Chasing, Silversmithing, Jewellery, and Enamelling, specially adapted to meet the requirements of the Instructor, the Student, the Craftsman, and the Apprentice." By P. Wylie Davidson. With a Foreword by Francis H. Newbery. With 378 illustrations. (Longmans.) 4s. 6d. net.

"A Treatise on Chemistry." Vol ii., "The Metals." By Sir H. E. Roscoe and C. Schorlemmer. Fifth edition, completely revised. 1486 pp. (Macmillan.) 30s. net.

"Practical Surveying and Elementary Geodesy." By Henry Adams. 292 pp. (Macmillan.) 4s. 6d.

"Introduction to Biology." By M. A. and A. N. Bigelow. 434 pp. (Macmillan.) 6s.

"Alternating Currents and Alternating Current Machinery." By D. C. and J. P. Jackson. New edition. 978 pp. (Macmillan.) 23s. net.

"A Laboratory Manual in Physics." By N. H. Black. 130 pp. (Macmillan.) 1s. 8d. net.

Pedagogy.

"Educational School Gardening and Handwork." By G. W. S. Brewer. xii+192 pp. (Cambridge University Press.) 2s. 6d. net.

"A National System of Education." By John Howard Whitehouse, M.P. x+93 pp. (Cambridge University Press.) 2s. 6d. net.

"Teachers and Taught" Text-books on Religious Education:—"Period of the Conquest and Judges." By G. K. Hibbert and M. L. Rowntree. "Jesus the Hero." By Florence B. Revnolds and Herbert I. Waller. "Stories of Jesus." By Nora W. Blake (*née* Laphorn). (Headley). 1s. net cloth limp; 1s. 6d. net boards.

"Introduction to the Science of Education." By

Benoy Kumar Sarkar. Translated from Bengali by Major B. D. Basu. (Longmans.) 3s. 6d. net.

Miscellaneous.

"The Way of the Heart." (Historical Plays, No. 10.) By Amice Macdonell. 64 pp. (Allen.) 6d. net.

"Told in the Indian Twilight." By A. Lee Knight. 148 pp. (Allen.) 2s. 6d. net.

"Two on a Tour in South America." By Anna Wentworth Sears. Illustrated. 312 pp. (Appleton.) 7s. 6d. net.

"Jungle Days." By Arley Munson. Illustrated. (Appleton.) 10s. 6d. net.

"Woman in Science." By H. J. Mozans. (Appleton.) 10s. 6d. net.

"Heroes of Exploration." By Alfred J. Ker and Charles H. Cleaver. Fully illustrated. 208 pp. (Blackie.) 1s. 6d.

"Cambridge University Examination Papers, Michaelmas Term, 1912, to Easter Term, 1913." Vol. xlii. iv+1128 pp. (Cambridge University Press.) 31s. 6d. net.

"The Layman's Old Testament." Edited, with brief notes, by M. G. Glazebrook. 902 pp. 3s. 6d. net. Separately: Part i., 472 pp. 2s. 6d. Part ii., 452 pp. 2s. 6d. (Clarendon Press.)

"The Bible within the Bible." Compiled by Rev. A. Clegg. Part i., "Genesis and Exodus." 64 pp. Part ii., "The Gospel." 72 pp. (Headley.) 6d. each net.

"The Rise and Fall of Religions." By Anon. 245 pp. (The Year Book Press.) 3s. 6d. net.

"The Bey of Bamra: a Farceical Comedy for Schools." By F. Maynard Bridge. 48 pp. (The Year Book Press.) 9d. net.

"Drama, Music-Drama, and Religion: as Illustrated by Wagner's 'Ring of Nibelung' and 'Parsifal.'" By Ramsden Balmforth. 96 pp. (The Year Book Press.) 1s. 6d. net.

CORRESPONDENCE.

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Accidents in the Chemical Laboratory.

At some time during his life it is almost certain that a science master will be called upon to treat some injury which has happened to one of his boys in the laboratory. Sometimes, though not frequently, the accident may be of a serious nature, and on rare occasions an accident has been attended by fatal results. More than once proceedings in a court of law have followed an accident, and the method of treating the injury has been the subject of inquiry and criticism; this is probably inevitable, however correct the treatment applied may have been.

Most of us have had no medical training, and many of us do not even possess a "first-aid" certificate, while very few books, practical or otherwise, give any help in this direction. For these reasons it seems that it might be helpful to give an account of the methods with which I am acquainted, and most of them have been tried either in my own school laboratory or by friends. There is certainly one golden rule, viz., if the injury is of a serious nature send the victim to a medical man after the necessary pre-

liminary treatment, but it is important that this should be suitable, so that the injury may not be aggravated.

For the sake of convenience injuries which may be incurred are considered under separate headings, beginning with those of most frequent occurrence.

Cuts.—Broken glass is usually the cause of a cut, and the wound should be washed thoroughly with water, and any bits of glass which it contains removed by gentle pressure. When this is assured, washing with an antiseptic solution is required; various solutions are available, but the best are mercuric chloride of strength one part to two thousand of water, or one of Jeyes's preparations, such as "Cyllin," one part to three hundred of water. Boric acid and potassium permanganate can also be used, but it is best to keep a stock of one of those first mentioned ready for use. After the antiseptic treatment the cut should be covered with a dressing of boric gauze or lint and a bandage. While the wound is being attended to faintness is sometimes experienced; if rest and sitting down do not put this right, the boy should lie down and a dose of salvolatile may be given.

Burns and scalds.—Burns caused by hot apparatus and scalds by boiling water both require the same treatment. The object is to exclude the air as quickly and completely as possible. If the scalded part is covered by clothing it must be removed, taking care not to break the skin, and then the injured part is treated with a liberal supply of carron oil, an emulsion of linseed oil and lime water. Cotton-wool soaked in boric acid and applied moist is the best dressing; enough should be used to cover the burnt part completely. This is covered with jaconet or oiled silk to restrain evaporation and keep out the air, and everything should be kept in place by a bandage.

Burns by Corrosive Liquids.—Hot acids, such as sulphuric or nitric, cause very nasty burns, and often necessitate calling in a doctor. The best treatment in every case is to wash thoroughly with water so that the acid is diluted and removed; a fairly concentrated solution of sodium bicarbonate should next be used as a wash; the bicarbonate neutralises the acid, is itself neutral, and so is better than the normal carbonate, which would have an irritating effect owing to its alkaline reaction. Lint soaked in a solution of boric acid (1:40) is the best dressing, which is completed as before with jaconet and a bandage.

A burn with bromine or any other corrosive liquid is treated in the same way.

If an acid gets into the eyes they should be held open and thoroughly flushed with water, and then with a dilute solution of sodium bicarbonate applied from a wash bottle.

Burns with phosphorus are very troublesome when they occur; even an apparently slight burn may be serious owing to the great difficulty with which the wound heals. The burning phosphorus should be extinguished by plunging into water, and the burnt part bathed with a solution of silver nitrate applied with a swab soaked in boric acid; the phosphorus reacts with the silver nitrate to form silver phosphide. When all the phosphorus has been removed in this way carron oil can be used and a bandage applied. This method has been used successfully on my own finger, and the wound healed fairly quickly. Another method recommended is to paint the wound with a dilute solution of carbolic acid, and then powder with picric acid. The bandage and dressing used must be large enough to exclude the air completely.

Corrosive Liquids in the Mouth.—The use of a pipette is generally responsible for all accidents of this kind, and care should be taken always to use a dilute solution with a pipette, never more than normal, while

on each occasion it is advisable with beginners to warn them strongly against swallowing any liquid which gets into the mouth. The mouth should be washed well with water if an accident does happen and with a dilute solution of acetic acid if the injury has been caused by an alkaline liquid; if by an acid liquid with a dilute solution of sodium bicarbonate.

Poisonous and Objectionable Gases.—There are certain gases which it is much better to leave severely alone in general laboratory work, as the educational advantages derived from their use in an ordinary school course are more than counterbalanced by their poisonous nature. Amongst these are carbon monoxide, arseniuretted hydrogen, and phosphine; even for demonstration purposes it is quite sufficient to obtain small quantities; to obtain carbon monoxide by passing carbon dioxide over heated iron is adequate. Sulphuretted hydrogen is used to a large extent in qualitative analysis and in some preparations, e.g., hydriodic acid; an overdose of this gas produces nausea and faintness; the best antidote is chlorine, which is best applied by sprinkling some bleaching powder on a towel moistened with dilute acetic acid; as much fresh air as possible is wanted afterwards.

Excess of chlorine, sulphur dioxide, or other gases of an acid nature is corrected by inhaling the ammonia given off from a dilute solution of ammonium hydroxide. Chlorine and bromine fumes can also be alleviated by inhaling alcohol vapour.

Fires.—The best way to extinguish burning clothing is to wrap round with wet towels. A burning liquid on the bench should be covered with sand, in some cases water is quite useless. Hot sulphuric acid or other corrosive liquid on the bench should be covered with lime.

Care and Supply of Material.—All the solutions, bandages, carron oil, &c., together with a clean pair of scissors, a knife, safety-pins, and cotton should be kept together in some easily accessible place, and never used for any other purpose. Good first-aid boxes are supplied by Burroughs Wellcome and Co., at various prices, which contain almost everything required; but it is quite easy to assemble all the medicaments and bandages and keep them in an ordinary wooden box ready for use.

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The School World.

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

THE PRONUNCIATION OF LATIN.

THERE is no doubt that the debate at the Headmasters' Conference on Latin pronunciation has had a deplorable effect. It might be thought that so technical a subject would scarcely attract attention outside the schools, but this seems not to have been the case. At one club, at least, opinions were freely expressed by men of affairs not at all complimentary to those in whose hands education is supposed to be. Although the resolution in favour of the reformed pronunciation seems to have been passed by a good majority, the sarcastic comments were caused by those who spoke against it, amongst whom were the headmasters of Eton and Shrewsbury.

Dr. Lyttelton seems to have given up the attempt, on the ground that it retarded the progress of the boys; and Mr. Alington said that he had changed his pronunciation ten times, and that he had used the reformed pronunciation ever since he went to Shrewsbury, but that he had never had the faintest doubt that he was wrong in doing so. Others sat gracefully on the fence.

It is rather the spirit shown by these speeches than what they say that causes disquietude in friends of classical study, and contempt in the outside world. That the values of Latin vowels and consonants are known, and that the words can be sounded approximately as they were by the Romans, is not questioned by anyone who knows anything whatever about it. Of course, we cannot reproduce the finer intonations of the sentence, but we can get close enough in other respects. It is also certain, from the evidence of a large number of people, that it does not retard the learning of the language; on the contrary, careful and deliberate utterance helps to impress it upon the memory. Moreover, if the reformed pronunciation be taught from the beginning, it becomes as natural to boys as any other, and causes no more difficulty than there is in pronouncing any sounds carefully.

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To change a pronunciation already learnt is not quite the same; but that is only a trouble of transition, and would never come again if the job was once done. Nor is that really a serious trouble, for many masters have had experience of that very thing, and found it a small matter.

For instance, Dr. Abbott changed the pronunciation of the City of London School in a term, and he declared that it caused no difficulty after that time, except with some of the elder boys who were used to the other. Now most of the preparatory schools have already done their part; and of those who have not, the majority are only waiting for a lead from the public schools. They will do what the public schools want, whether they like it or not. But there is difficulty in the change, a difficulty not recognised by the headmasters who spoke, except perhaps by Dr. Lyttelton, only the truth is that the difficulty lies in the masters themselves, not in the boys. The masters will not change, because it is troublesome to themselves; and this is what makes the outsiders blaspheme, for they are not to be hoodwinked, they see the truth clearly, and they say at once: These men are too lazy to improve themselves.

This suspicion makes the outsider doubt the same men when they deliver judgments on other subjects. Their defence of a classical education is discounted for this reason; and this trifling matter, as some might call it, may have a powerful influence on the public in determining the type of school which they will demand. They see that the Conference in more than one point has backslidden from what it was eight years ago, and we cannot be surprised if they ignore the schoolmasters altogether, and frame a plan of work which shall be altogether utilitarian and commercial.

But the question of Latin pronunciation is part of a larger question, that of pronunciation in general. Many are apt to think that it is waste of time to train the faculty of speech; they grudge not only the time and pains given

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to Latin, but the time and pains given to French, and as for English, they never think of teaching that at all. But the matter is really of the first importance. Our own speech is rapidly becoming vulgar and incoherent, and it can only be saved by systematic training. Besides this, right breathing and voice production have a close connection with health. Not only does careful speech make it easier to learn any language, old or new, but it is essential to the right appreciation of its literature, and it alone enables the learner to take in the thoughts and impressions which the great writers wished to convey. Moreover, this training would make life happier, for we should then hear about us agreeable sounds instead of disagreeable. Latin is peculiarly useful for this end, because its sounds, both vowel and consonant, are so simple. There are other collateral advantages in speech-training, one of which is that the speakers learn to speak before the age of self-consciousness.

It is useless, however, to urge any such reasons upon those who will not take trouble. Although Latin pronunciation is not in itself very troublesome, it is troublesome for middle-aged men to reconsider their whole system of work, and to change where it proves to be defective. And they will not admit, as a rule—although many do so freely in private—that there is any ground for dissatisfaction in things as they are. It is as a sign that the Latin pronunciation is disquieting; and here the headmasters must be held responsible. It is difficult, no doubt, to insist on a change when masters are reluctant; but that is pre-eminently the duty of the headmaster, who is put in his place to see that the best possible is done, and no one else has power to help if he holds back.

THOUGHTS ON PRESENT DISCONTENTS IN ENGLISH EDUCATION.¹

By Dr. M. E. SADLER, C.B.

Vice-Chancellor of Leeds University.

PRINCIPAL GRIFFITHS, the brilliant and witty, but rather sardonic, Cambridge man of science, who returned some years ago to his native land as principal of University College, Cardiff, was president of the Educational Science Section at the British Association meeting last September in Birmingham. He delivered an address which was racy and well-written, but which made upon the minds of the people a more discouraging impression than he seems to have intended to convey.

¹ A paper read at the North of England Educational Conference, Bradford, on January 2nd, 1914.

His paper had the merit of being very much to the point. For some months previous there had been what the meteorologists call a "depression" in English educational opinion. It was a temporary mood, but while it lasted the skies were grey, the horizons misty, and spirits overcast. It must have been during this time of passing discouragement that Dr. Griffiths set to work to compose his address. He might have called it "Thoughts upon Present Discontents in English Education."

There are signs that when he came to the point he shrank from obtruding much of his personal opinion. He probably found that his own knowledge of certain parts of English education was, like everyone else's, exceedingly limited; that he had been in the habit of harbouring rather vague opinions which reflected the dissatisfaction of other people and occasional disappointments of his own; but that, when it came to offering to the British Association and the public generally a considered statement upon the educational outlook, he did not himself possess that thorough knowledge and far-reaching command of evidence which his scientific training compelled him to regard as the only adequate foundation for concisely expressed conclusions. He therefore resorted to a device which looks much more scientific than it really is. He printed questions and sent them out broadcast for answers, with the intention of building upon these replies an estimate of the success of the existing educational system in England.

More scientific than it really is, I say, because the value of opinion gathered by postal inquiry depends on a very careful selection of correspondents and upon a subsequent weighing of their replies and judgments which involve the possession of a knowledge of the *personnel* of English education far beyond that of any individual critic. When the principal had got his answers, he set to work, or set somebody else to work, to bring out the percentages of favourable and unfavourable judgments. The results of these computations he communicated to the public in his presidential address. The prevailing colour of the replies was grey or black. He reported an atmosphere charged with little of the electricity of hope or of successful endeavour. Local educational administrators, private correspondents of position, representatives of the teaching profession (apparently, if internal evidence is a guide, almost exclusively connected with elementary schools) were all in a gloomy mood when they answered the principal's questions, and the grand total of their accumulated testimony amounted to dissatisfaction, if not to pessimism.

Modern education, he inferred (in what follows I do not quote his words, but translate the inferences of his address into words of my own), might quicken wits, but is giving slight ballast to character. It results, perhaps, in a volatile intelligence, but produces little of intellectual grasp. Somehow or other, and nobody can precisely say why, its results were disappointing, its future doubtful, its expense enormous. The National Education Bill had run up to nearly thirty million pounds a year. What was there to show for it? Boys who were careless about their work, wanton levity of sudden strikes in the sphere of labour, self-indulgence and a passion for material things among the rich, a craving for wealth among those less well-to-do, a dimness of ideal, a faltering of judgment, an absorption in trivial amusements, these were the signs of some unwholesome habit in the body politic.

The teachers, those who stand nearest to the actual work of education, instead of being buoyant with hope or quietly confident in the growing success of their labours, were querulous, grumbling at the conditions of their lot, crying for the moon. The local educational administrators, the engineers who turn the handle of the great bureaucratic machine, seemed as little pleased with the conditions of their employment. They appear to have expressed the wish that more administrative power should be put into their hands. If they could only be made more powerful they seemed to think that the causes of their comparative failure would be removed. And they showed signs of some disagreement. The small towns grumbled against the big towns; the boroughs grumbled against the counties; the council school administrators grumbled against the voluntary managers. And if Principal Griffiths had sent out another sheaf of questions to the Roman Catholic clergy and the clergy of the Church of England, he would have got from them another set of grumbles against the public administrators, who were taking patronage out of their hands and limiting the freedom of the older voluntary school.

But when one came to look more closely into the texture of the evidence which Principal Griffiths had collected, one found that nobody on either side of the controversy had expressed a very clear idea of what he would have in the way of education if he were able fully to gratify his wish. Still less was there any sign, at any rate among those whom Principal Griffiths consulted, of the power of a social ideal, clearly conceived, ardently desired, dominating and directing the purpose of administration or instruction. This is the real weakness of the situation. You can never have any successful system of education unless it

has a definite end in view. It may be an old-fashioned purpose, already out of joint with the rising forces of the age, but if it is a purpose reverently observed and loyally cherished, it has power to transfigure the humblest effort and to produce fine results out of feeble materials. And if the ideal has in it the strength of the future, if it is an anticipation of what is really coming, a vision of what is about to be, it can illumine the dingiest school-room, irradiate the most squalid slum, and make the trite and trifling details of teaching acts of creative power. The English education which Principal Griffiths reviewed is at the moment torn asunder by hesitancy as to ideals. It is puzzled, self-critical, harried by doubts, untouched by passion or faith. And on this sort of thing almost any amount of money is wasted. It has not in it the spark of life. It slips into routine. It is frightened of making a venture. It plays for safety. It dare not fight.

But look again a little more closely and you see cause for encouragement even here. Much of the hesitation is the outcome not of palsied will-power but of harassed fair-mindedness. The currents of modern thought are perplexing; the fog lies thick on the waters; the course of the ship of State is doubtful and dangerous. There are hundreds of thousands of upright and public-spirited English people who could not for the life of them say what kind of England, if they lived for thirty years longer, they hope or would like to see. And if you are doubtful of the goal towards which you are going, the whole business of education is affected by hesitancy and half-mindedness. But once let the breeze spring up and the fog clear away; once let the course of the ship be clear again and the current strong, and these very people who now hover between conflicting purposes would spring to their task with cheerfulness and hope and rejoice in the success of their labours.

And there are many signs, though Principal Griffiths seems to have allowed them to escape him, that the time is coming when a clear purpose will take the place of harassed uncertainty and when the main body of English education will feel the exhilaration of a clear aim. So far from English teachers as a mass being at the present time disheartened about their work, or disillusioned with their lot, there never has been a time within living memory when so many of them were enthusiastic about their work or so willing to give unsparingly of the leisure of their holidays to self-training and further study.

Holiday courses in England are scarcely more than twenty years old. Year by year the number, the attendance at them, their success,

increase. Only those whose business it is to watch this significant movement know how far-reaching it is, how deeply it is affecting the educational situation. Thronged summer gatherings, attended by hundreds of teachers for two or three weeks together, are now so usual as scarcely to receive notice in the Press. Again, any new contribution to educational thought is hailed at once with interest and eager curiosity. When Jacques-Dalcroze came to England a year ago the largest halls could scarcely hold the number of teachers who wished to hear him. If Madame Montessori came to England (as I hope she may), she would have to give her lecture twice over in every town she visited. Mr. Edmond Holmes, who is the Gordon Craig of English educational literature, has an audience of readers upon a scale which, in his lifetime, Matthew Arnold utterly failed to find. Again, if you go to any experienced inspector, he can take you to schools in his district where there is work of high promise and originality, due to the character or artistic power of some perhaps obscure teacher, and bearing fruit in a new kind of discipline among the children and in a new relation of confidence between the school and the home.

Platform hacks talk about the chaos of English education. It is a cheerful chaos. It is growth, not decay, which is the cause of the confusion. There are scores of private schools, even the names of which are not known to the wider public, which are full of a fine spirit of educational originality, combined with a reverent regard for the wisdom of precedent. Principal Griffiths did not mention the education of girls. Yet, after all, girls are more than half the English race. We live in an age in which girls' schools have for the first time in England been created on a national scale. What body of educational opinion is there amongst us so well-considered, so honest, and yet so hopeful as that of the headmistresses and assistant-mistresses of our secondary schools for girls? Principal Griffiths's picture is like a painting by some of the Dutch masters, a little dark and gloomy; but even he has his high lights. He spoke with just enthusiasm of the promise and performance of the tutorial classes organised by the universities in union with the branches of the Workers' Educational Association, and with the help of local authorities and the Government. Perhaps, by concentrating too much of his praise on this one feature of the educational outlook, he did unwittingly a little injustice to other tendencies and other movements, in their way not less encouraging. This up-thrust of interest in the things of the mind, which is a mark of the best working-class

opinion in England at the present time, is one of a dozen signs of hope for the future; but it is also a sign and an outcome and a cause of unrest. We are in for stormy weather, but there is something exhilarating in a storm.

Where, with all his effort to speak fairly and to strike a true balance, Principal Griffiths failed in his survey of English education was in forgetting the fact that during the last ten years we have had to grapple with a triple task. We have had to pay up the arrears of three decades of neglect of secondary and higher education. We have been obliged, in order to bring the provision of teaching a little nearer to the standards of the liberal profession which in our hearts we know it should be, to pour out money in raising the stipends of the teachers above the beggarly pittance with which the blundering economy of an earlier generation was content. And, lastly, we have had to create, within the brief space of ten or fifteen years, a body of educational experience, both in the offices of the public authorities, central and local, and also among those associations of teachers the strength of which is one of the distinguishing marks of this period in our educational history. Every pound which each of us pays in rates or taxes for education is partly the liquidation of a great debt, a debt of arrears, which we have inherited from the past; it is partly a contribution towards the effort to make the material side of a teacher's life less inadequate to the just claims of a great profession; and it is partly an expenditure upon the necessary work of creating a new educational tradition, based upon experience, upon inquiry, and upon experiment. Under this threefold burden the English taxpayer and ratepayer groans and grumbles. It is a pity that Principal Griffiths missed his chance of reminding us why it is we have to pay so much, and of heartening us with the hope that, after all, what we are now spending is wiping out a discreditable debt, is helping to form a teaching profession worthy of the name, and is gathering for our successors that mass of experience which is the only stable foundation of a new educational tradition.

What Bacon said about the planting of colonies is true of the making of an educational system: "It is like the planting of woods. You must make your account to lose almost twenty years' profit and expect your recompense in the end."

Who's Who in Science. International, 1914. Edited by H. H. Stephenson. xix+662 pp. (Churchill.) 10s. net.—This useful work of reference makes a special appeal to teachers of science. It contains biographies and a classified index of more than 9,000 men of science, as well as valuable tabular statements as to the staffs of the universities of the world.

THE INFLUENCE OF THE OLDER UNIVERSITIES ON THE CURRICULA OF SECONDARY SCHOOLS.¹

By A. C. BENSON, C.V.O., M.A.

President and Fellow of Magdalene College, Cambridge.

I

AT the time when the Tichborne case was attracting the attention of the public, a mob-orator was heard in Hyde Park to say with much emphasis that he did not care two straws whether the claimant was Sir Roger Tichborne or not; all he asked was why a poor man should be kept out of his rights.

When discontent is in the air, we must be on our guard against this kind of attitude; before we criticise, we ought to feel pretty sure that things are amiss, and that the defect is a remediable fault, and not a mere defect of quality, inherent in the imperfection of things. We may spend a long, laborious, and not very happy life, in tracing the cracks which run through our social structure; but criticism by itself is a merely disconcerting business, and a destructive critic is often little more than a very tedious companion!

The educational discontent of the present time is not of this kind; it is an intelligent, sympathetic, even a good-natured discontent. Of course, all expert criticism is apt to arouse a mechanical reverberation among the large class of people who like to feel that they are not responsible for their own failures; but it may be said that there are a good many educational critics now in the field who really understand their business, quietly investigate and face the facts, and make fruitful suggestions.

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I am going to try in a short paper to lay what I believe to be a substantial case before you. Let me briefly indicate my position in the matter. In the course of twenty years' experience as a public schoolmaster, I became very much aware of an educational gulf, into which I saw a good deal of promising and intelligent material disappearing. I saw a number of boys start in the race with a lively inquisitiveness, who either, so to speak, never reached the tape at all, stopping listlessly by the way, or reached it in a very helpless condition. I saw, or thought I saw, a manufacture of intellectual cynicism and intellectual indifference on a large scale; and it appeared to me that that the result of the public school curriculum on far too many boys was that they ended by disbelieving in the pleasure and

interest of intellectual things. Of course, it was quite possible that this was inevitable, and that whatever the curriculum might be, the same result might ensue; or, again, it might have been a failure of method rather than of subject. But I tried certain experiments, which I need not here detail, which convinced me that it was to a large extent the fault of the subjects taught, and that they proved to a large number of boys uninspiring and uncongenial.

Then I went on to the university, and had to teach a number of young men of average intelligence how to write essays; and what I saw made me perfectly certain that the intellectual interests had not been so much eliminated as suspended, and that in all probability the faculties had been there all the time, only dormant.

Since then I have had a good deal of experience in the work of educational systems in connection with the Board of Education, a County Education Committee, the Oxford and Cambridge Joint Board, and the Teachers' Training College at Cambridge. I have really had an opportunity of seeing how the whole thing works, and the conclusions which I have formed have not been mere theories, but deductions from very real experience.

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I am going to isolate one single problem from the other problems which abound; for in trying to track the particular defect which interested me to its source, I became aware, not to go too much into detail, that the source of the mischief lay in the universities. I came to the conclusion that, both directly and indirectly, the University of Cambridge, at all events, exerted a cramping and stunting control upon the school curriculum, partly by our method of encouraging and rewarding intellectual promise, and partly by the compulsion which we exercise with regard to particular subjects. The latter is the more serious misdemeanour, because I feel fairly sure that my University does its duty very well by the honour men; but the pass-examinations of the University have few rational defenders. They are admitted to be a helpless compromise, and they sacrifice standards and stimulus alike to the conflicting claims of teachers and Tories, who prefer that a subject should be ill taught rather than frankly abandoned.

By rigidly limiting alternatives, by retaining what claims to be a general education, but is in reality a meagre kind of specialism, and by taking advantage of the necessities of class-instruction and the co-ordination of subjects, the older universities lay a paralysing hand on the school curriculum. The chain of causes is

¹ A paper read at the North of England Educational Conference, Bradford on January 2nd, 1914.

simple enough. A certain number of boys are intended for the university, and have to be prepared accordingly; a certain number of parents cannot make up their mind whether their boys are intended for the university or not, and wish them to be provisionally prepared for it; and the result is that the curriculum of a school has practically to be adapted to the requirements of the university. The larger public schools are the worst sufferers, because a larger proportion of their boys go to the university; the lesser schools have partly extricated themselves from the control; but again, as an examining and inspecting body, the universities have a wide influence in regulating the curriculum of secondary schools, and it is very difficult for any one school to isolate itself from the general tendencies of education and take a wholly independent line.

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Now, as we all know, the chief difficulty of education nowadays, which meets us at every turn, is the congestion of the curriculum. It is a perfectly inevitable difficulty; it is but the clashing of the expansion of the modern world with the old educational tradition. It is, on one hand, the ancient humanities; on the other, it is the new romantic movement in literature, the development of history as a science, the immense increase in sociological and geographical knowledge, and most of all the incredible growth of scientific knowledge in every department. The first point of all is that education ought no longer to be divided as ancient and modern, but as literary and scientific; and our first aim must be to create a new balance; a literary education with a tincture of science on the one hand, and a scientific education with an admixture of literature. This should enable the man trained in literature to have a logical hold on facts, and the scientifically trained man to cultivate a power of expression; to say nothing of the value of sympathetic imagination, which is often destroyed by specialism. The end of it is that men should acquire an interest in ideas; that literature should not stand for culture apart from knowledge, and that science should not stand for knowledge apart from culture.

The mischief of the present situation is simply this: that by demanding a modicum of ancient languages as a *sine qua non*, the literary education is to a great extent limited in range and extent. A boy trained in Greek and Latin on the usual methods has to face the fact that it must become the core of his education, and that the time available for all other subjects is not very great. While to that I must add that my experience has shown me far beyond the possibility of doubt that

there are many boys quite capable of being affected by intellectual interests, and even literary influences, who are not responsive to the classics at all. I do not for a moment underrate the supreme influence of Greek over a mind with real linguistic and literary capacity, but it is a high and guarded fortress, and entrance is not easy. I do not myself regard the literary influence of Latin very enthusiastically. Its books of genius and charm are rare; but its claims to provide a mental gymnastic, and the fact that it is the basis of so many European languages, though not to my mind very conclusive reasons, cannot at present be disregarded. The disuse of Latin as an element of literary education is not a practical question just yet, and therefore for the relief, both direct and indirect, of the curriculum, the main attack must be made upon Greek. However reluctant one may be to concentrate the attack upon Greek, and with whatever reverence one may regard it, one is conducted to Greek as the one real assailable point by practical considerations, as surely as an Athenian was conducted from the Piræus to the city between the long walls, admitting of no divergence from the route.

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My case then is simply this: that in the interests of the curriculum, the time has come for Greek to become an alternative on the literary side of education. And the significant fact is that the headmasters of public schools have practically been converted to this position in the last decade, while if it is asserted that this means the disappearance of Greek from the lesser public schools, the plain reply is that it has already disappeared as a leading subject.

There is a scheme which is now much in the air to provide for an examination to test the progress of a boy's general education at the time when some measure of specialism becomes advisable, and a further examination at a later date to test special proficiency in more advanced studies. It is very necessary to provide some method of counterpoise to excessive specialisation. But one thing is quite certain, that a boy's education, just at the time when he is capable of profiting by reasonable specialisation, cannot any longer be allowed to be suspended and docked by his having to acquire a miserable knowledge of the elements of Greek, a process fruitful in disgust, and without any educational value whatever.

If this base necessity can be disposed of, and a wider choice of subjects for the entrance examinations of the older universities can be provided, the baneful grip upon the curriculum will be relaxed, and a real co-ordination of

studies according to aptitude may take the place of a perfectly fruitless rigidity.

I cannot now venture to predict the direction which the expansion of the curriculum will take. The claims of English are paramount, and a real mastery of at least one modern language must be secured. It is probable that an acquaintance with English literature, together with a power of free expression in English, combined with a similar treatment of a foreign language, can give the ordinary boy as much in the way of stimulus and contrast as he can well profit by. But so much mastery as is involved in the above suggestion must be a first article of the educational creed, and space must be ruthlessly cleared to provide it. The further claims of mathematics, science, history, and geography, scripture knowledge, even music and handicraft, must be adapted to this one central necessity. That is the literary side; and at the same time, on the scientific side, it must be provided that a training in English literature and expression, and the secure knowledge of a European language, should not be extruded.

Another great incidental advantage of such a scheme is that the universities could then raise the standard of their pass-examinations, instead of so far compromising with the exigencies of the time-table as to accept a standard in classics which is ludicrously and discreditably low. The Tory position in the universities is frankly to abandon all standards of classical attainment among pass-men, if only the subjects can be retained as a fence which has no educational value, but is difficult and inconvenient to surmount.

I would say in passing that I do not here attempt to criticise the newer universities. From all that I know of them, it is obvious to me that they have a wider outlook, and adapt themselves far more frankly and sympathetically to meet modern educational needs. But the wealth and prestige of the older universities give them an unreasonable degree of independence. They are apt to excuse themselves for a lack of vital knowledge of educational problems by cherishing the lofty belief that they stand for culture against materialism; and high-minded tenacity, backed by secure endowments, is a thing which is strongly entrenched.

But I am convinced that a great liberalising of the curriculum is both inevitable and imminent. In certain directions, and notably in that of science, my own University is well to the front. But our fault rather lies in nurturing a rather sterile and rigid ideal of culture, and in dismissing subjects which appeal directly to the interest and enthusiasm of students as soft options—that phrase is a very

sharp sword in the hand of the ungodly and malicious!

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The one subject which will, I believe, in a very short time claim a foremost place in the school curriculum, is the study of English literature and the training of expression. It has been creeping slowly into the schools, the old theory being that it could be acquired incidentally, as pigeons pick up peas. The result has been that it has been attacked too often in a half-hearted and amateurish fashion, and put into the hands of untrained and un-equipped teachers.

Side by side, then, with a wider choice of alternatives, I want to see the development of very serious schools of English literature. The enormous growth of the historical tripos at Cambridge, which is now in point of view of numbers ahead of all the other triposes, shows clearly enough that there are a number of men in search of something which may bring them in direct touch with political ideas, and practise them in the art of lucid and emphatic expression. But even so, there are many men of literary instincts without historical aptitude; and I desire to see English studied, not only with a view to expression, but philologically, verbally, critically, and historically, not going too much into origins and sources, but dealing with the development of our literature from Chaucer onwards.

One of the chief causes of educational discontent arises from the queasy sensation of inanity in the victims of traditional methods. There are many minds nowadays on the lookout for interests and ideas, who do not quite know what they want, but cannot find satisfaction in the more technical prescribed studies. It is all this material which I wish to sweep into the net; and I wish to train the power of thought directly through the medium of the familiar tongue which corresponds to familiar thought, and no longer by the process of winding our way tentatively and lamely into the ideas which lie behind the languages of other nations old and new. I do not mean that linguistic gymnastics must be neglected, but it is advisable that all should be taught to deal with thought and expression directly, and in the natural medium of our own incomparable tongue.

I want, then, to see, on one hand the restriction of subjects removed, and on the other a forward policy adopted in the direction of English teaching and native thought.

The great difficulty is to balance conflicting claims; but the point is to *act*, in the spirit of Dr. Johnston's famous apophthegm. He said that to lose time in deliberating what subject

to begin teaching to a boy was like spending time, on getting up in the morning, in considering which foot should first be inserted into a man's nether garments; and if the homely force of his conclusion cannot decorously be quoted here, it may be summarised by the much tamer statement that the end of putting clothes on is, after all, not to remain unclad!

THE TEACHING OF HISTORY.¹

By the REV. CANON J. HOWARD B. MASTERMAN, M.A.

IT is not my purpose to deal with the technical details of historical teaching. There is much that might be said about the use (and misuse) of maps, text-books, natural objects, &c., but I do not think that it is about these things that you want me to speak to you. There is the much deeper question—What place ought history to have in our curriculum? To that question I would answer without the least hesitation—a much larger place than it has at present in any but our most enlightened schools. I know, of course, how all the Muses, and many other lower-class creatures of modern growth, rage around the doors of your classrooms, indignantly demanding right of entry. But if you will let Clio in, you may keep most of the others outside, though I hope Polyhymnia will not fall a victim to our theological differences, and I am sure you will all welcome Terpsichore, who leads the choric dance of the days when the world was young.

But why give so large a place to history? Because history, properly taught, will train the characters of our children in almost all the qualities that they need most. I say history properly taught. I sometimes wonder whether any other subject has suffered so much from bad teaching as history. Until quite recent years, the history teaching in public schools was not unfrequently committed to the master who, having shown his complete incompetence as a teacher of the classics, had been induced to acquire a minimum of bare and undigested facts wherewith to stifle the natural intelligence of the fourth form boy. Those evil days are past, but the legacy of their influence is with us still. I sometimes have visions of a sacrificial bonfire like that of the men who used curious arts in the Ephesus of St. Paul, in which the historical text-books of the past go up in flames, amid the plaudits of an emancipated world!

But before we can decide how to teach history, we must arrive at an intelligent idea

of what it is that we want to teach. If you want to teach a chronological synopsis of events, that will be quite easy—and quite valueless. Only do not call it history.

What, then do we want to teach? Most of all, I think, a certain habit of mind. Facts are, after all, merely the tools of the historian, as words are the tools of the poet. What are we to use them for?

Well, first of all, to develop the faculty of truth. The true historian always has this special characteristic, that he cares supremely for the truth. He will dig for it, as for hid treasure; he will go and sell all that he has to buy it. You must teach history to your children in such a way as to convey to their minds a permanent impression of the supreme value of accuracy. You must show how the historical work of our own day has learned to cross-question the facts. For you want to make them into men and women who will apply the same principle to the facts of their own day—men and women who will turn with scorn from the noisy huckster who thinks that if he shouts a half truth loudly enough the world will mistake it for the whole. "Teacher, is that true?"—that is one of the questions with which you must not play any tricks, as you value your own soul. The boy who starts life with the uncritical idea that everything that he hears is true will generally end with the cynical idea that everything he hears is false. You cannot teach him, perhaps, how to discern between the certain and the uncertain, but at least you can show him that you have learnt the value of the distinction, and that a historian is not a man who follows cunningly devised fables.

While you are training the critical faculty of your children, you are also training their moral judgment. But here we must be careful. It is fatally possible for history teaching to minister to the most odious form of priggishness. Those horrible little histories that teach us to sit in judgment of the great characters of history, and sum up our verdict in a few well-chosen words of approval or condemnation—for them (and I had almost said, for their authors) no fate is too bad. When I hear a schoolboy being asked to give his opinion on the character of a Simon de Montfort or a William the Conqueror, I feel as though I was watching a vigorous attack on the Matterhorn with a pea-shooter. To the great dead we must offer our admiration—our gratitude, when we can—and, if not, our silence.

We may not presume to judge our forefathers, but we may, and must, judge the issues that confronted them. Every boy is the better for trying to answer the question:

¹ A paper read at the London County Council Conference of Teachers, January 1st, 1914.

"If I had lived in the seventeenth century, should I have been a Cavalier or a Roundhead?", or "Was the hundred years' war good for England?", or "What is the real significance of the ruined abbeys among our English valleys that now point their broken arches towards heaven in silent protest against their desecration?" I do not say that they, or we, will be able to answer these questions or a hundred like them, but I do say that, in thinking about them, we are training ourselves to face great moral issues, to see through the glamour of illusion that flickers over the past, to put the powers of our own souls to the test in the gymnasium of history.

Then consider the value of history in the training of the imagination. Foreign observers have singled out lack of imagination as our greatest national limitation. Most certain it is that we can give our children no better equipment for the task of citizenship that lies before them than a power of imagination that has been trained to attach itself to real things. We must begin with fairy-tales, of course, and woe be to the superior person who dares to challenge the right of all our old friends—the fairy-tales of our own childhood—to a place in our schools. But there comes a time when our imagination can no longer subsist on fairy-tales, and then comes the historian's opportunity. He has stories to tell not less wonderful because they are true. He has the magician's wand that can make the past live again, that can repeople the world of to-day with the "old unhappy far-off things, and battles long ago." Think of this London of ours. The very names of its streets are like spells that raise the dead. And they are real dead, actual people. It is only when you have taught imagination to play among the facts of the past that you can hope to make it play among the facts of the present and the future. The boy who has reconstructed, by the power of imagination, the old world of the Craft-gilds, will see the possibilities of industrial organisation in the future with larger insight; the boy who has ridden with the knight to the *Parliamentum* at Westminster, or sat with the burghers in counsel in some medieval hall, will have a clearer idea of the responsibilities of citizenship.

For it is always the present of which we historians must be thinking. That is where the historian differs from the antiquarian. For the true historian is a prophet—a man in whom the past calls to the present, and the present passes the message on to the future. No one ever understood the moral value of history so well as the great fathers of Hebrew literature. They were poets as well as

chroniclers, and so they brought imagination to bear on their historical work.

There is another way in which imagination gives value to history. It gives us a season-ticket over the railways of the past. Some one once excused drinking on the ground that it was the cheapest way out of Manchester. There is a cheaper way—it is the way of historical imagination. Browning has pictured for us how

the drudging student trims his lamp,
Opens his Plutarch, puts him in the place
Of Roman, Grecian; draws the patched gown close,
Dreams "Thus should I fight, save or rule the world."
Then smilingly, contentedly, awakes
To the old solitary nothingness.

A child who leaves school with a taste for history—with a developed historical imagination—has the key to a rich treasure-house. The craze for excitement that is so characteristic of our times is simply the outcry of a people bankrupt of the resources of the mind—uneducated in the faculty of imagination.

Then, again, history is the best corrective to the special danger that modern science has brought with it—I mean, of course, the danger of moral paralysis in face of forces that seem to act independently of human volition. For the historian is always dealing with human activities. He sees men making the future of the world—not the great men only, as Carlyle vainly thought, but the ordinary men, the archers that fought at Cressy, the mob that rioted in Cheapside, the soldiers who followed Monk to London, the artisans who shouted for the Reform Bill. They all helped to make history—they made it by what they did, and they made it by what they did not do. Every great crisis in history turns on the action of a hundred unremembered men. The value of insignificant lives is one of the great and inspiring lessons of history. We all know the rhyme of the horse-shoe-nail that changed the destiny of a kingdom. History is always like that. Men have made the history of the past, and men will make the history of the future.

Then, lastly, history, rightly taught, is an education in the faculty of sympathy. It is not only that we

Must hear humanity in fields and groves
Pipe solitary anguish; or must hang
Brooding above the fierce confederate storm
Of sorrow, barricaded evermore
Within the walls of cities.

History is not like the prophet's scroll filled with lamentation and mourning and woe. It is also the record of courage and faith and fellowship, of patient effort and splendid sacrifice. And our sympathy must not be

limited to our own forefathers. What makes a book like Fletcher and Kipling's *History of England* so evil is that it ministers to that national insularity that is a travesty of all real patriotism. Henry Newbolt's is a nobler ideal:—

To count the life of battle good,
And dear the land that gave you birth,
And dearer yet the brotherhood
That binds the brave of all the earth.

I believe that you, the teachers in our schools, have the cause of international peace and goodwill in your keeping. You may, if you will, teach history in such a way as to earn for yourselves the blessing of the peace-makers—in such a way that your children may grow up believing in "the brotherhood, that binds the brave of all the earth."

If these are the objects we have in view, on what principle shall we organise our history teaching? Well, I think our main principle should be to concentrate on the forces and influences that have made, and are making, the England of to-day. The medieval world can be summed up in the Castle and the Cathedral—the Castle that comes with the Norman, that symbolises the whole feudal order, with its ideal of privilege based on service, and that goes down in blood when its work is done in the fifteenth century—and the Cathedral with its ordered system of monastic life, ending at last in the crash of the Reformation. But these are the forces whose work is done; it is only their ruins that remain to us still. The castle of the future will be the home of common service; the Cathedral of the future will be the home of common worship.

The history of the seventeenth century turns wholly around the one word, Parliament. So you must go back to the earlier history of the political institutions that reached their full self-consciousness in that great period. Then the history of the eighteenth century turns around the word, Expansion, and you must go back to John Cabot and Drake and Raleigh, and the Pilgrim Fathers, to Pitt and Wolfe and Clive; and then on to Captain Cook, and Lord Durham and Livingstone and Rhodes, and all the men, from the unhappy colonists of Raleigh's Virginia to the last shipload of emigrants that left Liverpool last week, who have gone out to people the waste places of the earth. They are all part of the same half-conscious process by which the Anglo-Saxon race has been fulfilling its destiny. And so you reach the nineteenth century. And as you come nearer to our own times, the scale of your teaching must expand. Your task is to interpret the present, to show how this England of ours has grown out of

its own past. So you will concentrate on the three great developments that give significance to the last hundred years. First, the Industrial Revolution, starting from the Peace of Utrecht and the growth of international commerce, and ending with the modern organisation of industry; then the realisation of democracy, not forgetting the development of local self-government, from the old folk moot of our ancestors to the borough council of to-day; then the development of material resources, the story, whereof strange chapters are still to be written, of the wresting of nature's secrets, one by one, through the patient efforts of modern science.

But perhaps you will say, "Where are the wars, the political intrigues, the 'crownings and dethronings,' that form the stock-in-trade of the school history we learnt in our childhood?" I do not think that we can banish these altogether. History is a pageant as well as a process, and the historian is a seer as well as a prophet. There are a hundred scenes in our national history that we might make to live again before the eyes of our children. A book like Kipling's "Puck of Pook's Hill," or Belloc's "Eyewitness," shows us how this can be done. But we must never lose sight of the fact that behind the pageant is the process, that all the noise and colour and movement *mean* something. The pageantry of history is sacramental, it has an inward and spiritual import that redeems it from a charge of nothingness. It is a great religious drama that moves on from age to age, with the world for its stage and all humanity for its actors, and who knows what assemblage of unseen spectators beyond the footlights!

Unless a teacher feels something at least of this spiritual significance of history he had better teach algebra or mechanics all his life long. But if he does feel this, he will know that the vocation of a teacher of history is one of the highest to which a man or woman can be called.

I think I can read the unspoken criticism that is in some of your minds. You will say, like St. Paul, "Who is sufficient for these things?" You will think of your big classes, your overcrowded time-table, of your children leaving school just when their minds are beginning to develop, and coming to evening classes, if they come at all, tired and apathetic.

Well, I know all this, but all the more do we need to have high ideals of what our teaching ought to be. It is the attitude of our own minds towards the subject that we teach that has most to do with the influence it exercises on the minds of the children. For every child, the whole past lies behind the locked door of ignorance; if you can do no more than

teach him how to turn the key that unlocks the door, and make him want to open and enter, you have done a very great thing. And if you can teach him to enter with unshodden feet, as one who treads on holy ground, you will have done a greater thing still. But that high task is given only to those who walk themselves with unshodden feet because they have seen in history the revelation of God.

EDUCATIONAL PROBLEMS YET TO BE SOLVED.¹

ENGLAND has now been almost entirely covered with elementary schools, and pretty fairly with secondary schools. What is now wanted is intensive cultivation, higher quality rather than more quantity.

We are spending, it is stated, nearly £30,000,000 sterling of public money on education; and there is talk of spending more. Is more money needed, except for one purpose, viz., better salaries for teachers? Our usual British impulse, when anything is to be done, is to assume that money will do it, and to demand money accordingly. But thinking is more important than money. Before money is granted, let us, at any rate, take thought of where, and for what, money is needed, let us take stock of the whole present situation, and make sure that the present expenditure is being wisely and economically applied, and is yielding a due educational return. Is there not still a good deal of overlapping?

The salaries of teachers of every grade are inadequate. The cost of living has risen and is still rising. The conception of what a teacher should know and should be is also rising. If the profession is to attract sufficient talent and hold the place which the friends of education desire, it must be better paid.

The teacher is in many schools worked so hard as to take out of him the force and freshness essential to the best kind of teaching. His intellect needs to be fed by reading and leisure for thinking on what he reads. As streams keep a lake full and enable it to feed a river, so a mind which is always being called upon to give out needs to be fed and stimulated by fresh facts and fresh ideas.

Of raising the age for leaving the elementary schools I need not speak, for it is already under discussion. But the fact that in many schools the children depart before they have assimilated, and that they consequently soon forget what they have been taught is due, not merely to their leaving too soon, but also to

the fact that the classes are too large to enable the duller pupils to receive due attention. This, too, should be dealt with.

Even now sufficient attention is not given to secondary instruction. Whether it is given in schools purely secondary (as was often the case in Scotland), or in the upper part of an elementary school, its soundness is the most vital thing for the progress of a nation. A nation moves forward less by the average citizens than by its strongest and finest minds. To make the most of those minds, ten per cent. or less of the whole, and to send on to the university the very strongest and finest among these, duly prepared by the secondary school—this is the best investment a nation can make.

We have not reached a proper synthesis of the scientific and the humanistic subjects in secondary and in university education. To-day the tide runs towards the former subjects all over the world, as fifty years ago it ran towards the latter, which are now in danger of being undervalued. Most discussions of the question have been conducted by specialists, who think their own kind of knowledge the most valuable from the point of view of the direct use to which that knowledge can be put. But the real test is: What subjects, and what sort of teaching of those subjects, are best calculated to train men to think, to enable the mind to see facts as they are, to analyse them, to draw just conclusions from them, to rise above prejudices, to play freely round the phenomena of life? Are mathematics and physics or chemistry sufficient for this purpose?

A part of this larger question is how to improve the course of study in what are called "modern departments," and to draw up a curriculum, or several curricula, fit for those who show little aptitude for the study of language.

We have still some things to learn from foreign countries. Germany warns us against the tendency to prolong general liberal education to twenty years of age, though we in Britain are probably right in holding, unlike the Germans, that the years from seventeen or eighteen to twenty are better spent in the wider and more stimulative air of a university than under the discipline of a school.

The universities of the United States have at least as much to learn from us as we from them. But it is one of their conspicuous merits to have gone far ahead of us in establishing a hold on the business community. Not only in the West, but in the oldest and most developed universities of the Eastern States, fully one-half, and often more, of the graduates pass into the ranks of commerce and

¹ From the inaugural address by Lord Bryce to the conference of educational associations held at the University of London. Extracted from *The Morning Post*.

industry, and find their university training of the highest value to them therein. Had I time, I could cite to you the opinions on this subject of some of the heads of the greatest industrial undertakings in that country. I do not suggest that British universities ought to curtail their general education, but they might provide more fully than they do now for such subjects as political economy, the science of administration, commercial geography, and the elements of finance.

Is there not a danger that we may unduly multiply universities? Better to have a few strong than many weak seats of learning. It is an excellent thing to provide good teaching colleges in the chief centres of population. But we must beware of lowering the standard of a university, of diminishing the inducement to the most capable men of going to the places where they will obtain the highest kind of teaching and the most stimulative atmosphere.

Behind all these questions lies the larger one, which I must be content to indicate. Why do not English boys care more for learning than they do? Education has been immensely extended in all its branches during these fifty years, and far better organised. But one who returns from a long absence finds that there is disappointment with the results attained. He is told that the level of interest in "the things of the mind" has not, in any class of the community, risen, as people expected fifty years ago that it would rise, in a way commensurate with the increased opportunities our schools now supply. And wherever one travels abroad, in Mexico, in South America, in the Far East, one finds the heads of our firms complaining that the English youths who come out to them show less interest in their work than do their competitors from the European continent. The latter take pains to master the economic facts of the country. They learn its language. They do not spend their time in amusement as soon as they quit the counting-house in the afternoon, but work at subjects profitable for their business. This, more than anything else, is the reason why foreign competitors have been gaining upon us in many markets.

Yet the English boy is certainly not inferior in intelligence, or in character, to the boy of any other country. Why, then, does he not care more for his work in school, and care more for knowledge after he has left school? The desire for knowledge is natural to all, and especially to the young. Discipline is less hard to-day than it used to be, and teaching is more rational. Why, then, do our young people show less zeal for knowledge than those of many other nations, and cer-

tainly less than the Chinese? Is it the fault of the schools, or of the parents, or is it because the passion for amusement is now exceptionally strong? Or have other competing interests—such as that protentously engrossing interest in athletic competitions to which the constantly growing columns and pages devoted to "sport" in our newspapers bear witness—grown so rank as to choke the love of knowledge? I do not attempt to answer these questions, but they need an answer.

Instead of thinking of education as solely directed to enable people to make their way in the world may we not think of it as also teaching them how to enjoy the world? The desire for pleasure is natural, universal, useful, when flowing into the right channels. Life is not all work, and work is done best when sweetened by pleasure. May it not be the test of a good education that it fits men to enjoy the best pleasures, and among them to love knowledge, art, and nature, giving them springs of joy that well up from within, springs that do not fail with that decline in bodily activity and that pressure of cares and occupations which advancing years bring, but supply refreshment and consolation through all the chances and changes of this mortal life?

Perhaps our schools are trying to accomplish too much at once, and we might go further if we went slower and not always along dusty roads. Whether there is any ground for disappointment in the present situation it is not for me to say. I am content to summarise what others better informed have told me. And against their fears I will set the encouragement we may derive from such a conference as this, in which so many societies of teachers are represented. It gives evidence of the spirit and movement and of the many forms of activity that now animate the educational profession, of its eagerness to discover the more excellent ways, of the high ideals you, and others like you, have formed of what our schools may do for England, of your earnest efforts to turn these ideals into realities.

Roads from Rome. By Anne Allinson. 215 pp. (New York: The Macmillan Company.) 5s. 6d.—This book belongs to a type, and the type is that of the once famous Gallus and Charicles. Since Becker's time many have tried to realise for us distant days; Bird did it in "Joseph the Dreamer," and Warde Fowler, Dill, and Fustel de Coulanges have all written fascinating volumes. Prof. Murray is doing the same thing; and to-day Greece and Rome are becoming modern. In this semi-story the times of Clodia, Virgil, Ovid, and Trajan live again. A distinct attempt is made to represent Ovid in a more pleasant light than ancient scandal seems to allow; but the exile of Tomi would welcome Mrs. Allinson's sympathy.

THIRTY YEARS' PROGRESS IN GEOGRAPHICAL EDUCATION.¹

By J. SCOTT KELTIE, LL.D.,

Secretary, Royal Geographical Society.

YOUR selection of me as president for the year 1914 is suggestive. It is just thirty years since the Royal Geographical Society began that crusade on behalf of the improvement and elevation of geography, and a better recognition of the subject in education of all grades, which has had some noteworthy results, including, I venture to think, the foundation of the Geographical Association, which I congratulate on the prosperous and flourishing stage it has reached, and the great utility of the work it accomplishes. It was started in 1893, so that it may be said to have reached its majority.

I happened to be the "fly on the wheel" of the movement initiated by the Royal Geographical Society. In 1884, I was fortunate enough to be appointed inspector of geographical education, as it was called, to scour our own country, and the chief countries on the Continent, in order to obtain information as to the position of geography in educational institutions of various grades. The results were published in a report to the Council, in which certain recommendations were made, especially as to the position of geography in the two great universities. Oxford was tackled first, and fortunately the right man was available to make the appeal effective, and to obtain recognition of the subject as a serious study in the curriculum of the University. I need scarcely remind you how much we owe to Mr. Mackinder for the strenuous and successful efforts he made, as the first reader in geography, to obtain recognition of the subject at the University and secure for it a worthy place among the University studies.

The example of Oxford, Cambridge, and London became infective, and has been followed in several important centres—Manchester, Liverpool, Birmingham, Reading, Leeds, Sheffield, Aberystwyth, Edinburgh, Glasgow, within the past year Newcastle, Nottingham, and Southampton, and indirectly elsewhere. All this has not been accomplished without heavy expenditure on the part of the Royal Geographical Society, which has contributed, during the thirty years or so, thousands of pounds in subsidising not only Oxford and Cambridge, but other universities.

I recommend for careful perusal a report on geography in British universities which is published in the autumn number of the *Geographical Teacher*. It affords striking evidence of what has been accomplished up

to now in all the institutions of university rank in which the subject is represented, even on a modest scale; the same comprehensive programme is aimed at, embracing the fundamental bases of the subject and its many applications. We have such heads as the principles of geography; survey of the natural regions of the globe; land forms and the morphology of the continents; meteorology, climatology, and oceanography; human geography in its various phases; geographical methods and notations, and so on. To the university tutor, the schoolmaster, the text-book compiler of thirty years ago, most of this would have been a new language—an unknown tongue.

Let anyone who is old enough to recall the text-books of thirty years ago with their dreary lists of names and little more—"Colchester on the Colne, famous for its oysters"; "Peterborough on the Nen, near which is Fotheringay Castle, where Mary Queen of Scots was cruelly beheaded," and such-like items. No wonder that geography was rejected and despised by the universities if this kind of thing was all it had to say for itself. Then there were the featureless atlases and wall-maps, the value of which was estimated mainly by the number of names which they contained. Pictures, photographs, stereos, the lantern, were regarded as too childish to be used for serious educational or scientific purposes; while as for the many other appliances now available for geographical education, no one seems to have thought them possible. Out-of-door work in those days was undreamed of.

Need I remind you of the change in all these directions which has taken place during the last thirty years? Contrast the conditions then and now. It might seem invidious if I referred to any particular text-books or treatises, or maps and other appliances. I am sure it is unnecessary before an audience like this. The ever-increasing series of treatises and text-books which are being produced, and for which, therefore, there must be a demand, are no doubt familiar to you all. Many may be open to criticism in some respects, but all, from the most bulky and elaborate down to the modest elementary text-book, are on a totally different plane from those of thirty years ago.

Leaving the universities, let us refer briefly to the progress which has been made in secondary and elementary schools. A new epoch in the history of geographical education in England may be said to have begun in 1905 when the Board of Education issued its regulations for the teaching of geography in secondary schools. Perhaps the most im-

¹ From the presidential address to the Geographical Association, January, 1914.

portant point in the new regulations was that a definite number of hours a week—"not less than two periods of school work and one of home work"—were to be allotted to geography in secondary schools. Provision had to be made for a four-year course of study, and the course had to include the geography of the whole world, so that the custom of keeping the pupil at work on one or two particular continents, according to the exigencies of examinations, until he left school, was discountenanced. Particular attention was given in the Board's circular to the importance of practical exercises, such as "worked-out problems together with original maps and plans" in geographical instruction. Consequence had to be connected with cause, and reasons had to be stated with facts instead of presenting lists of place-names, rivers, communications, and so on, as catalogues to be learned without being understood.

When the Board's regulations were issued, teachers who had specialised in geography were few, and the regulations would have been a long time coming into practical effect if suitable manuals had not been forthcoming. The Board defined the spirit of the teaching it desired to establish, and gave the outlines of a scheme, but it left the actual working-out to the teachers themselves; and in most cases they had to obtain their guidance from manuals and text-books. Much had already been done by University Extension Lectures to teachers, by Mr. Mackinder and others. In London the late Dr. Roberts arranged such lectures in cooperation with the Education Committee of the London County Council. They were given mainly by Mr. G. G. Chisholm and Mr. A. W. Andrews, and helped many London teachers. The teaching of the subject throughout the country now underwent a change on account of the new conditions; from being classed as memory work which could be put into the charge of any teacher, geography became a reasoning subject requiring individual work by the student and sound knowledge by the teacher as much as any other subject taught on scientific principles. Too much attention was perhaps paid at the outset to the working of practical problems and exercises, but this has now righted itself, and the human note is not forgotten, while the scientific method of arriving at it is followed. What is more important than anything else is that the standard of work in geography is steadily rising. The subject is being treated more and more on a regional basis, and the work is consequently gaining in intelligence.

No teaching of science in schools is satisfactory unless the scientific method of study

is followed. There are many science subjects, but only one scientific method; and it consists in the collection and arrangement of facts—obtained so far as possible by personal observation and experience—with the view of discovering relationships and arriving at correct conclusions. By the introduction of practical exercises, both in school and out, geography has been brought in line with other subjects taught by truly educational methods. Geographical material is being used to stimulate intelligent inquiry and as a means of mental discipline, rather than as information to be committed to memory. The methods by which geographical science has been built up are thus illustrated, and a vocabulary is provided by means of which geographical facts may be interpreted. Combined with the collection and consideration of concrete facts, there must, however, be lessons and reading intended to inspire interest in the earth and its inhabitants, and to cultivate appreciation of what may be termed the intangible influences and factors of geographical character. When taught in this way, geography may be made one of the most valuable subjects in a school curriculum; for it provides not only the intellectual discipline of a science rightly studied, but also the human interest and sympathy of the most inspiring literature.

There are decided differences of opinion as to the place and utility of practical exercises in the teaching of geography, and also as to the scope and aim of the subject itself; but notwithstanding these differences, there can be no question as to the advance made in geographical instruction in schools in recent years. Examiners, inspectors, teachers, and writers of text-books all realise that the presentation of a collection of *dissecta membra* no longer constitutes a satisfactory course of geographical instruction. The pages of the *Geographical Teacher*, and those of other educational periodicals, show that the new movement is making steady and substantial progress. Increased provision has been made for geographical instruction in special classrooms and laboratories, and a teacher having special knowledge of geography either undertakes the whole of the instruction or organises it. The authorities which control the work of schools have also encouraged the new method by issuing circulars and memoranda containing advice and guidance as to the methods and aims of teaching. Since the publication of "Suggestions for Teachers and Others concerned in the Work of Public Elementary Schools" in 1905, containing a chapter which breathed the new spirit of geographical teaching, a number of similar documents have been published, including a detailed report on the

teaching of geography in elementary schools, published by the London County Council; a syllabus of instruction in geography in secondary and elementary schools, issued by the Royal Geographical Society; and a memorandum on the teaching of geography in Scottish primary schools, issued by the Scotch Education Department. All these publications illustrate the essential place which geography must occupy in the school's curriculum, and suggest the principles and methods which should be borne in mind in courses and lessons upon it. It is no longer necessary to advocate the claims of geography to an important place in any educational scheme; that battle has been fought and won, and the future of the subject in schools of all grades rests chiefly with the teachers.

As to primary schools, I do not think the advance has been so pronounced. The programme for instruction for these schools has been greatly improved on the best lines, and where teachers have been adequately trained to deal with it intelligently, the results are a great advance on what passed for geography a quarter of a century ago. But in the case of the younger pupils I fear it is difficult to do little more than to get them to read narratives. In the upper classes of these schools, however, more systematic work is prescribed in the official programme, and I believe the whole tendency is towards an improvement upon the methods and outlook of previous years. The inspectors of the Board of Education consider that geography is now on a much better footing than it was, and is often taught intelligently. Much depends upon the training which students in training colleges receive before they are turned out to carry on the work of education.

In certain institutions facilities are provided for training college students to go through a course of instruction in geography, with opportunities of actual practice in schools. I am not sure that this method is quite satisfactory; it would be well if all training colleges were as fully equipped for geographical work as they are in other departments. In no class of school can geography be satisfactorily taught on modern lines unless the teachers are as seriously trained in that as they are in grammar, arithmetic, or any other essential parts of their course. In certain training colleges, the subject is in charge of geographical specialists. This ought to be the case in all training colleges, as well as in the universities from which the supply of teachers for secondary and higher schools are drawn. But if the progress is as marked in the next quarter of a century as it has been in the past, there can be little

doubt that the existing deficiencies will be removed, and geographical education will be on as satisfactory a footing in England as it is in Germany.

The new regulations which have recently been issued for the position of geography in the training college curriculum are certainly an advance on those which were in force. Geography is no longer tied to history as it was before, and it is now on an equal footing with certain other subjects, but so far as I can make out it is still optional, and there is no assurance that a student will leave the college with a knowledge of geography sufficiently adequate to enable him to teach it to his pupils on modern lines.

But apart from the educational aspect of geography, what is its position in the country as a branch of knowledge? Is it to be regarded as a science? You find some scientific men in England who deny that geography is a science or can ever be a science, because for one thing it is a *graphy* and not a *logy*. It is remarkable if geography is the one thing in the universe that cannot be dealt with on scientific methods, producing a body of knowledge as systematically arranged as that included under geology, meteorology, astronomy, or engineering, and other sections of the British Association. Personally, it does not irk me whether geography is admitted to be a science or not. It is a department of investigation which deals with a field untouched by any other department—the earth as the home of humanity. Like other departments of inquiry, it can collect its facts and draw its inferences on scientific methods, with results which in many cases could be cited in the geographical output in Germany (and happily in a few instances in our own country) of the first importance towards the solution of problems intimately associated with human life and activity.

CONDITIONS AND RESULTS OF SCIENCE TEACHING.¹

By Prof. H. B. BAKER, M.A., D.Sc., F.R.S.
Imperial College of Science and Technology.

YOUR distinguished President of last year, Sir A. Geikie, dealt with the history of science teaching in schools. It is my intention this year to attempt to discuss the condition of things as they exist to-day. I shall do so with perfect frankness, perhaps even with indiscretion. It must be the right thing for us, as in all affairs of business, periodically to overhaul our methods, to examine our successes and failures, and to find

¹ From the presidential address delivered to the Public School Science Masters Association on January 13th, 1914, at the Imperial College of Science and Technology.

out, if possible, how the latter may be made to disappear.

Many of our difficulties come to us from the outside; we are hampered by the demands of outside examinations, and troubled, it may be, by unsympathetic colleagues. Some of the failures, however, touch us more closely; we have more than a suspicion that it is ourselves who are to blame. We start with boys whose keenness is evident at the very start; it is this keenness which gives to science teaching its particular and peculiar charm. It does not always persist; it may be that the boy is led away by the popular craze for athletics; it may be that he has an inconstant mind; or it may be that the more advanced parts of the subject do not appeal to him as did the first elementary facts. But there is one thing which will always command and keep boys' interest, and that is to see good experiments.

One of the first lectures I ever gave was to a form of small boys at Clifton. It was given in an ordinary class-room, but I had taken some trouble in setting up a rather striking experiment; there was no lecture assistant in those days—for a junior master, at all events. When the culmination of the experiment was reached, there was rapt attention, and then a small voice from the back broke out with, "Oh, please, sir, do it again."

Since that time I have always made a point of illustrating my lectures as fully as possible. The experiments take up very little time, especially if one cultivates the habit of talking while they are going on.

Another point on which I would lay special stress is the continual asking of questions, not formal questions, but rather those of a ruminative character. I do not mean questions on matters of fact, but rather asking reasons for such and such happenings, or asking for suggestions of explanations where the reasons are obscure. It is this which will distinguish between our lessons and formal lectures, which you will agree ought not to be given in schools. This asking of questions continually I believe to be of the utmost importance, and I have myself used it in the most advanced as in the most elementary lectures.

With regard to practical work, it was very largely due to your former President, Prof. Armstrong, that there came about, some twenty-five years ago, a great reform in the character of the chemistry teaching in schools. Until then we had been largely occupied with learning how to analyse a single salt, and we had got to the point of knowing what they were by one or two tests or even without; then mixtures of sometimes an astounding

complexity and powers of interference occupied our attention. Thanks mainly to Prof. Armstrong, a more intelligent system now prevails, but I confess I am not entirely happy about it. I am not quite convinced that the newer system leads to quite so much keenness as the old. I probably am wrong, but I believe that the sporting instinct to which the old hunting for a shy acid or base appealed had a good deal to do with the success which certainly attended the old system. It is very difficult in the newer system, though I know, of course, the most creditable efforts which have been made to overcome the difficulty, to prevent the boys having to *prove* something instead of to *find out* something. I do not think the system is wrong, but we have still to find out the best way of employing it. One thing is certain, that the new system makes greater demands on the master than the old. No longer can a master stay at his desk correcting papers or getting on with his research work; he has to be always moving about among the boys.

I wonder if there is any connection between the introduction of this modern system of practical teaching and the decay of research work carried on by science masters in the public schools? At one time it was not uncommon for a science master to do a great deal of research work. Tilden, Worthington, and Shenstone at Clifton, Francis Jones and R. L. Taylor at Manchester, Scott at Durham, and many others were among the foremost workers of their time, but now, among science masters, how few there are who do any research at all. I know four, but what a small proportion they bear to the whole number, and this although their number is at least double of what it was in the time which I am recalling. I know—no one better—what sacrifices it means to a master who has had perhaps five or six hours' work in school, and perhaps one or two hours' paper work afterwards. But, think of it, we have among the masters some of the finest scientific brains in the country, who have had a far better education than their predecessors. They could produce so much; how little are they doing! An advantage they have which cannot be gainsaid: they are in continual touch with active young intelligences whose stimulating influence it is impossible to over-estimate.

Think of a boy who is entering on a new and fascinating study, with problems bristling on every side, and problems which are unlike those of the philosopher which can be talked about and discussed, but which can never be brought to a definite conclusion. The problems with which science is faced can be settled, and settled once and for all, not by talking, not by dis-

cussion, but by experiment only. Our problems are definite, and, within limits, experiment will solve them. Within limits, I say, remembering Darwin's caution. A great chemist, chafing against the limitations even of experimental investigation, said to Darwin, "Why can't Nature answer a direct question, Yes or no?" Darwin's reply was, "She will tell you a direct lie if she can."

But to return to our boy of inquiring mind, the boy whom we have all known by the hundred; he is asking us questions daily to which we have to answer, "It is not known," or "So-and-so is investigating that very question." Think of the keenness that the boy will gain if he knows that it is in his own laboratory that the problem is being settled. Once the idea gets into the boy's mind that there is an end, that there is any finality about science, he had better be learning his Latin grammar!

As to the influence of research on the master himself, can it be anything but delightful? He will find in it a solace for all the petty troubles by which his profession is peculiarly beset. "In my laboratory," said Boyle, "I find that water of Lethe which causes that I forget everything but the joy of making experiments." This great chemist is said, though I have not found it in his writings, to have feared death on but one account, that after death he would know all things and no more have the delight of making discoveries.

Even the greatest atomic weight determinations, that of oxygen, was done by an American schoolmaster, Edward Morley, who told me that, during the eight years occupied by this magnificent investigation, he was actually teaching seven hours a day, and every part of the complex apparatus used, except the balance, was made by his own hands. Such labour is no longer necessary (thanks to Mr. Carnegie) in America, nor has it been in this country for many years.

One of the chief difficulties which besets a science master is that few of his colleagues will have sympathy with his work. There are some, but, I am afraid, not very many, classical scholars who have some knowledge of studies which are so different from their own; but too often there is actual hostility on their part to science subjects, and since the first years of a boy's life are usually under the charge of a classical master, there is often instilled into his mind a contempt for the subjects which may be useful to him in his after life.

In most schools which I know, there is a system of selection of the boys by which those of the best ability are induced to continue on the classical side. It is, with comparatively few exceptions, only the weaker boys, or those

whose ability has escaped notice, who are allowed to make science their chief study. But, in spite of this fact, which is known to most schoolmasters, how often is it triumphantly declared that a boy who has been educated on the classical side of a school is superior to one brought up on the science side.

I wish, for just one year, that the science masters could have their pick of the boys in all the public schools. I warrant that that statement would never be made again. I have often urged on headmasters the advisability of allowing more boys of pronounced ability to do more science at school. Over and over again I have been told that boys ought not to specialise at school, as if the sixteen or seventeen hours a week spent at classics were not more specialisation than the ten or twelve hours' science recommended. One might expect that, in these more enlightened days, more parents would rebel against a medieval system of education, but as a rule a parent does what he is told. He lets the boy specialise in classics, although his future career may require a scientific training. In a very large number of cases men have come to me, both at the Imperial College and at Oxford, who want to be doctors, engineers, and the like, who have done little or no science, even when the schools from which they came were exceedingly well equipped for science teaching. In nearly every case the reason was the same; the parent had consulted the classical master, and, taking what he thought was an expert opinion, had decided to let his boy spend his time on classics. I say "spend," not "waste," for it really is rather a pleasant thing to have a knowledge of Latin and Greek. It is pleasant, and even sometimes useful, to know the derivation of words, but since, if we may accept an estimate quoted by Emerson, five-eighths of the words in English are not derived, either directly or indirectly, from the classical languages, the argument would be much stronger in favour of boys learning Anglo-Saxon.

Latin and Greek ought to be regarded as luxuries, not as essentials, in education. It is to be hoped that in the near future there will be an organised revolt of British parents, and that they will demand that their boys shall be taught what will be of use to them afterwards—modern languages, including English, science, and mathematics. I suppose it is too much to hope that the new Education Bill, since apparently it is to touch the public schools, will help in making the education given in them more practical, doing, in fact, what classical masters will not, and science masters and parents cannot do. Too little has been divulged at present to know what the

scope of the Bill will be, but the broad scheme seems to aim at an easier transition for the boy from the elementary school to the highest education that the country has to offer. This will be all to the good with one or two provisos. The way is not barred now; it is well known that many boys who have started at an elementary school have passed through the Universities with great distinction. There exist free places at most of the secondary schools for these boys, and it is by no means uncommon for the clever boys to get open scholarships at the Universities. From my experience as a headmaster of a secondary school, and from the experience of others similarly placed, I should say it was a matter of grave doubt whether the number of such free places was not already too high. The number of clever boys in any class is quite small. By cleverness I do not mean the capacity for learning. Real cleverness, I take it, is the almost automatic power of picking out the essentials from a mass of inessentials—getting, in fact, to the root of the matter at once. Now it is too frequently the boy with a good memory, and that alone, who is picked out of the elementary school and sent on his upward way as something out of the common. Such boys have, of course, their proper and useful place in the scheme of things, but they are not going to do great things in the world. It is the other kind of cleverness that the country needs at the top, but there must be more than this cleverness even; the boy must have grit besides. He must be able to struggle and fight his way up, and, for this reason, let us earnestly hope that all the difficulties will not be cleared away. It is a ladder we want, not a moving staircase!

Of teaching as a career for the science man, I need say little to you, but there is one point which I should like to emphasize. It has become increasingly difficult of late years to persuade the best science men to take up teaching in schools as a profession. The initial salaries, it is true, are equivalent to those in other lines of work; it is the prospects that are wanting. If a man has proved himself capable in any line of work, he ought to be able to look forward with confidence to an adequate remuneration. It is well known that among the governing bodies of the public schools this is a much-discussed question, but they reluctantly conclude that nothing can be done for lack of funds. It is undoubtedly the case that the British parent whose sons go to the public schools has now very many more drains on his income, and he is unable, or at all events unwilling, to spend more on school fees. If the school fees are increased to pay adequate salaries to the assistant

masters, there will be a migration from the more expensive to the less expensive schools, a movement which I am told has already begun. If fees are not to be increased, how, then, is the money to be obtained? The answer seems to lie in the diminution of the salaries of the headmasters, which seem to many people disproportionately high. They are frequently seven or eight times the salary of the best-paid assistant-master in the same school, and in some cases the proportion is still higher. If this proportion were reduced to about three to one, something, at all events, could be done in the direction of giving adequate remuneration to the assistant master, and without damage to the efficiency of the school. If some such remedy is not applied, the scholastic profession will come to be the refuge for inferior men, and the consequence will be disaster not only to education, but to that which hangs upon it, the prosperity of the country.

RELATIONS AMONG THE STAFF IN SECONDARY SCHOOLS.¹

By FRANCES E. TOOKE, M.A.

Rutherford College Girls' School, Newcastle-upon-Tyne.

A SCHOOL can be, and often is, the most important influence in shaping the life of a man or woman. Is it not well, then, that we should consider from time to time what makes a good school and what we desire most for our own?

To my mind we need the right kind of staff, the right kind of head, with the right relation between them and the right relations between each of these and the children.

This is true of all schools, though I am thinking specially of the new secondary day schools, county and municipal, springing up all over the country. These have their traditions to make; they seem destined to play an increasingly important part in the training of the nation's children, and it is of the first importance that they should establish the best traditions and give the right training. This will depend on the men and women working in the schools. My experience has been confined to girls' schools, and in questions of detail I have only attempted to suggest for them.

To take first the heads: the points that matter most are that they should look on their profession as one of the noblest that can be followed, that they should care for young people, and have given proof of success in dealing with them. The higher their intel-

¹ From a paper read at the North of England Education Conference Bradford, on January 2nd, 1914.

lectual powers, the better; their schools must, however, not be means to some other end, but the main interest of their life.

We want heads who have not forgotten their own childhood, and who can therefore, enter into the joys and sorrows of their pupils; if they belonged in their time to the "troublesome" class of child, it may be all the better for their school. I am almost prepared to maintain that no thoroughly virtuous person should be a head (though it is useful for the head to have one or two on the staff)—for how can such an one understand the school-criminals' points of view?

We want heads who have been assistants and have not forgotten the fact, and so can sympathise with their staff; in a word, no "little tin gods" who consider themselves heads by divine right, and, in some mysterious way of different clay from parents, staff, and pupils. These autocrats, I am sorry to say, are not yet extinct. I have met some in girls' schools, and gather that they are not unknown amongst the headmasters. There cannot be hearty co-operation when the staff, for instance, feel themselves looked at from the other side of a gulf. Governing bodies give much time to figures, reports and building schemes; they have not all learnt yet that the human factor is the all-important one, and that more time and care given to the choosing of the right personality in their head, will pay them in the end.

Even more important than the head are the assistants and their relation to the head. They, too, must be men and women of high moral character, caring for their profession. We want them as well educated as possible, as well prepared for their work as possible, and with as great a variety in previous training and experience as can be secured. Here I confess to attaching more value to the place of previous school education than to technical training. No training college course, to my mind, helps a beginner as much as knowledge of the ways of a good school similar to the one in which he or she begins to teach. It will be a serious loss to our municipal secondary schools if they come to be staffed mainly by local teachers (though a certain number on every staff will be desirable), for the north has much to teach the south and the south the north; east and west should meet in the school world, whatever poets say of the world outside, if our pupils are to get the best we can give them. Each newcomer will then bring fresh contributions to the plans for improving ways and methods under discussion at staff meetings.

I take it that every well-conducted school has staff meetings, and that head and staff

discuss frankly together schemes for the future, mistakes of the past, difficulties of the present. When it is realised that the school is the concern of each one, that it is a co-operative business, then the staff have an interest in the plans they have helped to make and can carry them out in a way otherwise impossible. The senior members of a large staff should be responsible for the junior members teaching their subject, each one being left free to carry out the actual teaching as preferred, so long as the main scheme decided upon be followed. This makes for content—it is hard to teach in other people's ways—and originality is encouraged.

All cannot be specialists in charge of a subject, but some bit of the school affairs should be entrusted to the others—charge of games, library, clubs, &c., &c., according to their bent. Hearing plans talked over openly and from various points of view will help each one to keep his own bit in due proportion to the whole and to bear good-temperedly the thwarting of some cherished scheme because it cannot be fitted into place in the school mosaic. If the staff have this freedom for development, if they feel that they are trusted by the head, if they understand and sympathise with the common aim, then conditions are favourable for the right spirit in the school.

It is, however, fatal to the peace of a community if a discordant element be introduced; and it is essential to the welfare of a school that the head should have the predominant, if not the sole, voice in choosing the staff. We are all, I think, agreed that the right of dismissal should not rest solely with the head; but we all know, too, that some most excellent people cannot get on together, and if after a time of probation, say two or three terms, incompatibility of temperament or of method be revealed, the head should be free to move the square peg out of his daily round. This is less likely to be necessary if he has had the choosing of his helper; it is a matter of vital importance to him to get the right one, and no one else will be willing to devote an equal amount of time and trouble to the quest.

One more point. However well-chosen and harmonious in working the staff may be, quality will not make up for insufficient quantity. I am told that the L.C.C. scale is one teacher to thirty children and one over; that is not enough. In the lower forms thirty may not be too many, but upper divisions suffer if a considerable amount of individual work cannot be obtained for them. Children differ more and more as they get older in power of assimilation; independent thought can only be secured by having classes small enough

to allow of the teachers realising how the different brains work and what treatment each one needs. It is important, too, that the elder pupils should come into close personal touch with the senior members of the staff in a way only possible in small groups. Also, for the sake of the staff, possibilities of leisure are needful if they are to keep fresh and to find time for their own reading and for outside interests. They cannot be giving out virtue from themselves all the time. Again, local authorities must learn to be liberal as to staff; we can do with less magnificent buildings if there is to be saving somewhere, but no good work can be expected from overstrained men and women.

PERSONAL PARAGRAPHS.

MR. FRANK S. PRESTON has been appointed by the Council of Malvern College to succeed Canon James on his retirement from the headmastership. Mr. Preston is thirty-eight years of age, was educated at Marlborough, and entered Pembroke College, Cambridge, in 1894. He obtained a first-class Classical Tripos in 1897. He is now one of the masters at Marlborough.

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EDUCATION is again represented in the list of New Year's honours in the person of Mr. Robert Blair, Education Officer of the London County Council since 1904. Mr. Blair was originally a schoolmaster, and was at one time a master at Aske's, Hatcham. He became a science and art inspector in Scotland in 1894. He afterwards went to Ireland as Assistant Secretary for Technical Instruction. He was a member of the Mosely Commission to the United States in 1903. All educationists will congratulate him on the knighthood conferred upon him.

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MR. E. H. PRITCHARD, at present headmaster of the South Western Polytechnic Secondary School, has been appointed by the London Education Committee, headmaster of the County Secondary School, Chelsea, which will replace the Polytechnic School.

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MR. F. J. WELCH, headmaster of Christ Church School, Chelsea, has been granted special leave of absence for six days on full pay, so that he may attend functions and carry out his duties as Mayor of the borough.

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MR. ARTHUR W. MASON, the present senior master of the Tynemouth Municipal School, has been appointed headmaster of the Leiston Higher Elementary School and Pupil

Teachers' Centre under the Suffolk Education Committee.

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PROF. FOSTER WATSON, professor of education in the University College, Aberystwyth, is resigning his chair in order to devote himself to research work on the history of education. Prof. Watson, who had conferred upon him the title of Professor Emeritus, has been asked to maintain his connection with the college by delivering twenty lectures a year on the history of education for the next five years. Prof. Watson has contributed to THE SCHOOL WORLD from the date of its establishment.

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SIR C. HOBHOUSE, who celebrated his ninetieth birthday on January 2nd, gave to a representative of the *Morning Post* some of his personal recollections. As a boy he attended the Temple Grove Academy, East Sheen, where there were three remarkable institutions, "pudding before meat," "rag week," and "ladies" who superintended ablutions and administered a Dotheboys Hall concoction of brimstone and treacle. The first and third are well-known devices for economising. During "rag week," which was just before the holidays, the boys appeared in the tattered left-offs of their predecessors in order that they might be sent home in spick-and-span clothing. Sir Charles confesses that he cordially detested Rugby, which was then under the celebrated Doctor Arnold, so much so that even to this day he has a feeling of dislike for it. The bullying that took place was disgraceful, though he admits that he now appreciates the efforts of Doctor Arnold and the difficulties with which he had to contend.

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MR. W. H. C. JEMMETT, whose retirement from Lady Manner's School, Bakewell, was noted last month, has been appointed headmaster of Oswestry.

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THE REV. A. C. KNIGHT, Second and House master at Wolverley School, Kidderminster, has been appointed headmaster of King Edward the Sixth School, Stratford-on-Avon. The school is famous as that in which Shakespeare received his early education. Mr. Knight was educated at Epsom and Pembroke College, Cambridge. His first appointment was at Epsom, and since 1905 he has been at Wolverley.

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JANUARY has been a month of Conferences. The retiring chairman of the Assistant-masters' Association is Mr. J. C. Isard, who is bursar and senior resident master of the

Ley's School, Cambridge. Mr. Isard was at the Ley's as a boy, and returned to it in 1880 as a master, after having been placed in the Classical Tripos list in 1880.

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MR. ISARD is being succeeded in the Assistant-masters' Association by Mr. J. V. Saunders, Senior Classical Master and House Master at Hymer's College, Hull. Mr. Saunders was educated at King Edward's School, Birmingham, and Queen's College, Oxford. For four years he was a master at Leamington College, and after a temporary appointment at Wellington College he went to Hymer's in 1893. He has been a prominent member of the Association, of which he is now chairman, and for many years he has been concerned most intimately with the administration of the Benevolent Fund.

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DR. F. A. SIBLY has succeeded Mr. S. Maxwell as President of the Private Schools' Association. Mr. Maxwell, under whose leadership the Association has made steady progress, is headmaster of Manor House School, Clapham, of which he became head in 1898, after two years as a master of the same school. Dr. Sibly, who was educated at the Wesleyan College, Taunton, and St. John's College, Cambridge, has been at Wycliffe College, Stonehouse, since 1889. In his presidential address, after delivering an eloquent indictment of State control, he made a strong plea for teaching children reverence for, and self-control in, all that related to sex.

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MISS M. G. KENNEDY, who was an active supporter for the movement of higher education for women, died on January 11th. Miss Kennedy was a daughter of Doctor Kennedy, formerly headmaster of Shrewsbury, and afterwards Regius Professor of Greek, Cambridge. Miss Kennedy was one of the founders of Newnham College, and was closely associated with Miss Clough, its first principal; she was secretary of the College until recently. In 1888, in recognition of her great services to the cause of women's education, a sum of money was raised to found a Marion Kennedy Studentship for research to be granted annually to some student of Newnham College who has taken a good place in a Tripos and wished to continue her studies at home or abroad.

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DR. RICHARD WORMELL died on January 6th in his seventy-sixth year. He was a native of Leicester, and was educated for the teaching profession at the Borough Road

College and University College, London. He graduated with first-class honours in mathematics, carrying off the Gold Medal in Natural Philosophy in 1886. He was associated with the late Prebendary Rogers in his scheme for the improvement of secondary education, and was appointed second master in the new Middle-class Schools founded in Bath Street, under Mr. Jowitt as headmaster. Immediate success necessitated the transfer of the schools to Cowper Street, City Road, and upon these foundations was built the Central Foundation School. Dr. Wormell was appointed by Lord Goschen, First Lord of the Admiralty, mathematical professor at the Royal Naval College, Greenwich, and subsequently, on the retirement of Mr. Jowitt, he returned to Cowper Street as headmaster.

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MR. THOMAS WATSON, for thirty years headmaster of Pannal College, Harrogate, has received from his former pupils an illuminated address and cheque. Among the subscribers were Lord Cowdray, two Lord Mayors of Bradford, two Lord Mayors of Leeds, and two Mayors of Keighley. Mr. Watson, who is eighty-five years of age, is the oldest magistrate on the Harrogate Bench, and still attends the Court regularly.

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MISS EMILY ARMSTRONG is about to relinquish, after upwards of thirty-six years' service, the post of headmistress of Dame Alice Owen's School for Girls, Islington. This school is an offshoot of the boys' school, founded in 1613 by Dame Alice Owen, widow of Sir Thomas Owen, one of Queen Elizabeth's judges. Miss Armstrong was appointed the headmistress at the time the girls' school was opened.

ONLOOKER.

TOPICS AT THE EDUCATIONAL CONFERENCES.

MUSIC TEACHING IN ELEMENTARY SCHOOLS.

MR. FRANK ROSCOE, secretary of the Teachers' Registration Council, gave an address on the place of music in a national system of education, at the Conference of the Society of Musicians, held on January 1st. He said that although every trained teacher in our public elementary schools is rightly expected to have some knowledge of music, it is too much to expect that all teachers will be enthusiasts on the subject and will find time or opportunity to become really proficient. Not a few are highly successful, but what is required is that in every large school, and in every group of small schools, there shall be attached to the staff a trained musician able to maintain a high standard of achievement, to exercise well-informed taste and judgment in the choice of songs, to suggest

exercises and methods of teaching which will develop the vocal powers of the pupils and enable them to understand the language of music. He laid stress on the need for such special teachers, since there is always the danger that in advocating greater attention to any subject in our educational scheme we shall overlook the fact that the teacher in a primary school is already expected to possess at least the rudiments of omniscience and to impart each of them to fifty or sixty children simultaneously. Under these conditions it is absurd to ask the teacher to be a burning enthusiast and a shining light on every subject in the curriculum. The teacher may be wedded to history, or literature, or geography, and in that case music will probably seem to him to be comparatively unimportant. Like Aristotle, he may say, "As for music, boys had better learn to sing and play, since children must needs make a noise." But such a tepid feeling towards music is not likely to produce the needed results.

THE HOMES OF SECONDARY-SCHOOL PUPILS.

Dr. A. A. Mumford, of Manchester, explained to the North of England Conference at Bradford some of the physical factors necessary in higher education. He spoke of the home conditions desirable and generally though not invariably necessary if secondary education is to be beneficial. The conditions that seem most to require attention are good food, some measure of privacy and quiet study, adequate sleep, opportunity for relaxation and recreation, and, most important of all, good moral training, which, to be of any use, needs to be accompanied by example, for how often do we parents expect performance in our children we do not exact from ourselves? Hereditary endowment of intelligence is also a necessity, though, in Dr. Mumford's opinion, our "regulation" methods of education are as often engaged in suppressing as in encouraging innate endowment. If we want to increase the $\frac{4}{5}$ per cent. of children passing from elementary to higher education, the first requisite is to improve the home, and widen the interests and outlook of the parents. Was it a pure chance that the educational revival in the early nineteenth century received its force from the religious revival of the eighteenth, and that the religious element gave dignity and power to the economic expansion of this period of national growth? Has this any lesson for us to-day?

CANDIDATES FOR THE TEACHING PROFESSION.

Mr. A. L. Cann, of the Manchester Municipal Day Training College, in discussing the work of training colleges at the North of England Education Conference, spoke of the number of candidates offering themselves for the teaching profession. He said the necessary numbers of young people wishing to become teachers and capable of taking a university course are not forthcoming. Some increase may be expected when it has been made possible for every boy and girl of potentiality throughout the country to receive a secondary-school education, and, in addition, when the teaching profession has been made more attractive. But a sufficient increase cannot be forthcoming for some years. At present, when secondary schools

are sending in every available pupil for a matriculation examination or its equivalent, the total number of successful candidates is hopelessly inadequate. During the last complete academic year the total number of successful candidates in the matriculation examination conducted by the joint board of the four northern universities was 827. About 100 matriculated at the Birmingham University, and about sixty at the Bristol University. At the University of Durham the number of successful candidates was 268. In the world-wide matriculation examination conducted by the London University, 3,144 candidates were successful, and 924 were registered by the University as exempt upon various qualifications approved by the Senate. (For obvious reasons, the entrants to Oxford and Cambridge are not included.) Many of these matriculants enter no profession, while of the remainder the teaching profession claims only a part. It is worthy of note that no country—including Germany, with its century-old national system of education—has ever attempted to staff its schools with university graduates.

EYESIGHT AND SCHOOL WORK.

In a paper at the North of England Conference on the eyesight of children in relation to school work, Miss Margaret C. Macdonald said that, roughly speaking, 30 per cent. of children suffer from some error of refraction, and 2 per cent. from external eye affections. The teacher must avoid all methods of teaching that involve eye fatigue and strain; for a young child is unable to withstand the effort to retain the multitudinous visual and other sensory impressions that surround and are forced upon him every minute of the day without mental and consequent physical fatigue. All children under five, most children under six, and many under seven years of age, require at least an hour's rest during the period of daylight. Proper accommodation for such rest should be found in all schools, but until then many teachers have made shift with what they have, and in their schools the small tables of the babies' room may be seen upside down at the beginning of the afternoon session, and on little hammocks suspended by rings from the legs of the tables the babies may be seen sleeping. The method is by no means ideal, but is infinitely preferable to the old style, which may be seen in most schools, where the child's head falls over on the desk, and he sleeps in an uncomfortable cramped position the sleep of utter exhaustion. The protection of children's eyesight depends largely on school conditions. School conditions, whether we refer to those of lighting or of method, must not merely be adapted to the needs of normal children. In any satisfactory scheme of education we must arrange for an additional margin broad enough to allow for the needs of one-third of the children, the subnormal.

SALARIES OF ELEMENTARY-SCHOOL TEACHERS.

The president of the National Union of Teachers, Mr. A. Dakers, dealt, at the North of England Conference, with the failure in the supply of teachers, and directed attention to the inadequacy of present salaries. He said Sir W. Harcourt has put it on record that in his opinion £160 is the lowest income

on which a professional man or woman can live at a reasonable standard of comfort. He gave this as his reason for raising the limit of income-tax exemption. In the light of this statement the following statistics as to teachers' salaries may be examined. The figures are from the latest Government Blue-book:—

<i>Headmasters.</i>	<i>Headmistresses.</i>
One receives £560.	Below £160 85 per cent.
Below £160 47 per cent.	Two headmistresses receive less than £50.
One headmaster receives less than £50.	<i>Certificated assistant-mistresses.</i>
<i>Certificated assistant-masters.</i>	Fourteen out of 49,000 receive more than £160.
Below £160 82 per cent.	377 receive less than £50.
Two receive less than £50.	

These figures show that there is no teacher in any primary school who can be described as well paid. The solitary recipient of £560 can only claim to be wealthy in comparison with his 99,999 colleagues. No education committee can say that its teachers are generously paid, except on the principle which awards the sovereignty of the blind to the one-eyed man. Bradford and Leeds are not so bad as the North, East, and West Ridings, but neither of these towns allows its certificated assistants to attain to Sir W. Harcourt's "minimum standard of comfort." Of the salaries paid in the North and East Ridings it is difficult to speak with patience. It is perhaps sufficient to say that in these two areas there are several head-teachers whose incomes will be increased considerably when they retire from active service and enter into enjoyment of their Government superannuation allowances. To any teacher who thinks of entering the service of these authorities I say, "Wait and see if they accede to the demands for better remuneration."

RURAL TRADE SCHOOLS.

At one of the meetings of the Teachers' Guild, Mr. A. D. Hall read a paper on the organisation of agricultural education in England and Wales. The most notable deficiency in rural education is, he said, the gap between the primary school and the farm institute. The rural continuation school must be made a reality, and some contact must be kept with the growing boy between the ages of fourteen and eighteen. Its instruction should be real without being technical, and beyond this the school should aim at stimulus. We want vivid human beings, not technical experts. In the primary school itself agricultural education has little place. Nature-study is a step in the right direction, but until the country is prepared for a general conversion of primary into trade schools the less the schoolmaster meddles with agriculture the better. While the present style of elementary education proudly boasts that it gives every child an opportunity of rising, for one successful climber it creates a hundred minor functionaries—clerks and typists, and a vast mass of girls who can neither cook nor sew, and of boys whose brains have made no connection with their fingers. People may think that this outline

of agricultural education makes big demands upon the public purse; so it does, but agriculture is likely to play relatively a more important part in the national economy than it has been doing for the last century or so, and its future depends more upon the improvement of the men practising it than upon any legislative dealings with the land or its occupiers.

THE AIM AND OBJECT OF THE ESSAYIST.

At the annual meeting of the Association of Assistant-mistresses Mr. A. C. Benson gave an address on the art of the essayist. He said the appeal of the essayist to the world at large depends upon the extent to which he experiences some common emotion, sees it in all its bearings, catches the salient features of the scene, and records it in vivid and impressive speech. The essayist is therefore to a certain extent bound to be a spectator of life. He must not be too much interested in the action and conduct of life. He must be preoccupied with things as they appear rather than with their significance or their ethical example. The supreme fact of human nature is its duality, the tug-of-war between devil and baker, which lies inside our restless brains, and the confessed aim of the essayist is to make people interested in life, in themselves, and in the part they can take in life, and he does that best if he convinces men and women that life is a fine sort of a game in which they can take a hand; that every existence, however confined or restricted, is full of outlets and pulsing channels; and that the interest and joy of it are not confined to the politician or the millionaire, but are pretty fairly distributed so long as one has time to attend to them and is not preoccupied in some concrete aim or vulgar ambition. The essayist is the opposite of the romancer, because his one and continuous aim is to keep the homely materials in view; to face actual conditions, not to fly from them. If the essayist is apt to neglect the sublimities of life it is because he thinks they are likely to take care of themselves. He is deeply concerned with the charm and quality of things and desires to put them all in the clearest and gentlest light, so that at least he may make others love life a little better and prepare them for its infinite variety and alike for its joyful and mournful surprises.

THE PRONUNCIATION OF LATIN.

In his presidential address to the Classical Association, Sir Frederic Kenyon said the association can point to a good record of work done on behalf of the cause for which it was founded—the advocacy of the claims of classical studies and the improvement of the methods of classical education. First in time, and perhaps most definite, is its work with regard to the reform of Latin pronunciation in England. In principle, the battle of that reform has been won. It is true that Oxford maintains her ancient reputation as "the home of lost causes and impossible loyalties"; and that one great public school, after officially adopting the reformed pronunciation, has abandoned it on the plea that the private schools will not conform to it; indeed, it is almost tragic (if it is not perhaps comic) to see one of the greatest schools thus pathetically powerless to do what it believes to be right

because the preparatory schools which feed it refuse their permission. But in twenty-four out of thirty-nine of the greater public schools the reformed pronunciation is in practically universal use; in five it is in tolerably uniform use; in seven it is in partial use (generally in the higher forms); in only three is it not used at all. Out of 577 secondary schools within the purview of the Board of Education, 550 use the reformed pronunciation, and sixteen a variant of it; it is practically universal in girls' schools; it is regularly used at Cambridge and the newer universities, as well as in Scotland; and it is evident that in the next generation the transition will be complete, and the Westminster Play will be cherished like a specimen of the dodo.

THE PARABLE IN LITERATURE.¹

It is curious that there is no literature at all on the parable as such. Although the parable has always existed, although it has been intimately associated with the allegory, the fable, the folk-tale, the myth, no one has dealt with it in essay, book, or criticism. While at least thirty-five writers have written on Bible parables, no writer has attempted to collect the beautiful sporadic examples of parable which have existed in all ages and in all countries; or, a thing more to be wondered at, has touched on the parable as an educational method, although this method is at the heart of Gospel education.

Except in a few instances, no divines to-day ever follow in their sermons the advice given by the Gospels themselves, or care to examine the pages of Gregory of Tours, Barlaam and Josaphat, Kalila and Dimnah, Odo of Cheriton, James de Vitry, or the fifty other writers who have amassed parable from the lives of the Saints, the sayings of Persian, Arabian, Indian, Chinese, and less-known philosophies.

The parabolic view is at the root of a great deal of art and of ordinary life, and a mass of ordinary story needs but the vision to lighten it into parable. The office of parable is *to suggest and not to improve*, and over all such literature and such way of looking at story are written the words, "He that hath time to think, let him think." Thus parable is no monopoly of Christianity; it is persistent, and exists and flourishes in all ages and in all countries.

The stream of story, originating in India, travelled east to China, meeting there another stream, and west through Persia, Arabia, and Palestine to Constantinople. Probably Bagdad and Egypt became disseminating centres, and pilgrimages, monachism, Mussulman learning, and, later, the Crusades gave to western Europe the world-old stories of the Unicorn and the Pit, the Contrary Wife, the Caskets, the Monk Felix, the Pound of Flesh, the Desert Island, and many others afterwards used so fully by poets and story-tellers innumerable. "Buddhism originated, Islam distributed, and the Christian priest popularised the parabolic narratives."

Parable is at its best, and in its simplest forms is

¹ Abstract of a lecture delivered by Mr. Arthur Burrell at the annual meeting of the Association of Women University Teachers.

best understood, not by the bookish, the learned, and the educated, but by the wise, unlearned, poor. Therefore if an author wishes to obtain the fine flower of wisdom he goes, not to the imitative servants' hall nor to the young person fresh from Balliol or Girton, but to the gardener, the forester, the peasant, the artisan, who live in a wider life and look out on wider horizons; and we get the *Bettesworth Book*, the *Travelling Man*, the *Playboy of the Western World*, *Cottage Pie*, *Lying Prophets*, and *Mrs. Poyser* (who does not belong to our world at all).

Such books supply us with transcripts of the wisdom which comes from the eternal facts of life, facts which never change in any century or in any country. Our cultivated wisdom-literature is that of Mr. Bernard Shaw, a thoroughly different article.

Explanation, full explanation, nearly always spoils the parable, and where this literature reaches the high-water mark, as in the New Testament, the parables are rarely explained, discussion of them being reserved for subsequent meetings with the disciples alone. A French critic has said that if our Lord had never uttered anything except the parable of the Prodigal Son He would for that, and that alone, be entitled to a front place in the ranks of literature.

THE HEADMASTERS' ASSOCIATION.

AMONG the resolutions adopted at the annual meeting of the Headmasters' Association, the following deserve to be recorded:—

(1) That this association welcomes the issue by the Teachers' Registration Council of the conditions of registration, and urges all its members to apply at once for registration.

(2) That in view of the Government's expressed intention to deal comprehensively with national education by means of an Act of Parliament, this association affirms:

(i) That the creation of a national system of education is urgently needed.

(ii) That it should be the object of such a system to provide that in all parts of the country children of all ages may have the opportunity of enjoying instruction appropriate in kind and satisfactory in quality.

(iii) That the next step towards the attainment of this object must be the organisation of secondary education.

(iv) That the organisation of secondary education cannot be successfully accomplished without such a radical reform in the financial conditions as will make it possible to satisfy the increasing demand for teachers of high qualifications.

(v) That the basis of financial reform must be the assumption by the State of responsibility for securing adequate salary scales and pensions for teachers in all areas.

(vi) That when the State has assumed this responsibility, the Board of Education may reasonably require that all teachers shall be registered, and that all schools shall be inspected.

(3) That this association (i) cordially welcomes the action of the Board of Education in entering into

negotiations with the various university examining bodies, with the view of making school examinations more uniform and organic.

(ii) Approves of the establishment of two grades of school examinations, one designed to test the results of a broad general education, and to be taken by pupils of about sixteen; and the other of a more specialised character suitable for pupils of about eighteen.

(iii) Is of opinion that no material relief will be afforded to schools unless universities and professional bodies accept these certificates in lieu of their own entrance examinations, and trusts that the Board of Education will take steps to secure such acceptance as soon as possible.

(iv) Is of opinion that a co-ordinating authority to deal with questions of standard should be established by the Board of Education in conjunction with the Teachers' Registration Council.

(v) Reaffirms its conviction that acting teachers should be represented on examining bodies, and that schools should be allowed, subject to the necessary safeguards, to present their own syllabuses for examination.

(4) A resolution expressing the view that the time has not yet come for the abolition of external examinations for degrees, and at the same time urging that such examinations should not be regarded as permanent.

CAMBRIDGE UNIVERSITY LOCAL EXAMINATIONS.

SUBJECTS FOR JULY AND DECEMBER, 1915.

RELIGIOUS KNOWLEDGE:—Preliminary.—(a) St. Matthew xv.—end; or (for Jewish students only) 1 Samuel i.—xv.; (b) 2 Kings i.—xvii.; (c) the Church Catechism.

Juniors.—(a) St. Matthew; or (for Jewish students only) 1 Samuel; (b) 2 Kings; (c) the Acts of the Apostles i.—xv.; (d) the Church Catechism, and the Offices for Baptism and Confirmation in the Book of Common Prayer.

Seniors.—(a) St. Matthew, or (for Jewish students only) 1 Samuel; (b) the Acts of the Apostles i.—xv.; (c) 2 Kings; (d) Hebrews; (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; (f) the Church Catechism, and the Office for Holy Communion in the Book of Common Prayer.

ENGLISH LANGUAGE AND LITERATURE.—Preliminary.—(c) Scott, "The Lay of the Last Minstrel," Introduction and Cantos i.—iii.; (d) Lamb's "Tales from Shakespeare" ("A Midsummer Night's Dream," "The Winter's Tale," "Much Ado about Nothing," "Macbeth," "The Comedy of Errors," "Othello").

Juniors.—(b) Shakespeare, "The Merchant of Venice"; (c) Scott, "The Lay of the Last Minstrel"; (d) a paper of questions of a general, not a detailed, character on Scott, "Legend of Montrose," and Tennyson, "The Coming of Arthur," "The Passing of Arthur."

Seniors.—(b) Shakespeare, "The Merchant of Venice"; (c) Spenser, "Faerie Queene," Book I. (Clar-

endon Press text); (d) a paper of questions of a general, not a detailed, character, on Shakespeare, "Coriolanus"; Palgrave's "Golden Treasury of Songs and Lyrics" (Macmillan), Book III.; Macaulay, "History of England," chap. iii.

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

Geography. The British Isles; and general Geography.

Juniors.—(a) History of England. The paper will consist of three Sections on the periods (a) 1066 to 1485, (b) 1485 to 1688, (c) 1688 to 1832 respectively. Candidates may if they wish select questions from all three of the Sections, or may confine themselves to two or one of them. (b) Outlines of the History of the British Empire from A.D. 1784 to A.D. 1878. (c) Outlines of Roman History from B.C. 44 to A.D. 37.

(d) Geography. Outlines of Physical Geography, and the British Isles, with one of the following regions: (i) Europe, (ii) Asia, (iii) Australasia.

Seniors.—(a) History of England. The paper will consist of three Sections on the periods (a) 55 B.C. to 1845 A.D., (b) 1485 to 1714, (c) 1714 to 1867 respectively. Candidates may if they wish select questions from all three of the Sections, or may confine themselves to two or one of them. (b) History of the British Empire from A.D. 1784 to A.D. 1878. (c) Greek History from B.C. 431 to B.C. 359.

(d) Geography. The Principles of Physical Geography and one of the following regions: (i) Europe (including the British Isles), (ii) Asia, (iii) America north of Mexico (including the West Indies), (iv) America south of the United States.

LATIN:—Preliminary.—"Cæsar's Invasion of Britain" (Welch and Duffield).

Juniors.—(a) Cæsar, "De Bello Gallico," II.; (b) Cæsar, "De Bello Gallico," III.; (c) Virgil, "Aeneid," IX., 1-449; (d) Virgil, "Aeneid," IX., 367-818. Any two of these four to be taken.

Seniors.—Cicero, "De Officiis," III.; or Livy, XXI., 1-56; Virgil, "Aeneid," IX.; or Juvenal, "Satires," III., X. (Duff's Text).

GREEK:—Juniors.—(a) Xenophon, "Anabasis," II., 1-3; (b) Xenophon, "Anabasis," II., 4-6; (c) Euripides, "Hecuba," 1-725 (omitting lines 59-215, 444-483, 629-656); (d) Euripides, "Hecuba," 726-1295 (omitting lines 905-952). Any two of these four to be taken.

Seniors.—Thucydides, VI., 1-51; or Herodotus, I., 26-92; Homer, "Odyssey," XXI., XXII.; or Euripides, "Alcestis."

The Ocean. By Sir John Murray. (Home University Library.) 256 pp., 12 plates. (Williams and Norgate.) 1s. net.—This summary of the results of oceanographical research should find its place upon the library shelves both of teachers and schools. The older pupils should be encouraged to study it; teachers will find it a mine of information. The glossary, bibliography, and plates add greatly to its value.

HISTORY AND CURRENT EVENTS.

THE ideal history of the Church of England will not be written in our generation. We are still in the midst of controversies, and the controversialists find the material for their weapons of warfare in all ages of the Christian Church from the first to the seventeenth century. Those controversies are threefold according as they deal with the questions of government, of creed, or of forms of worship, and just now, though matters of creed are also involved, the latest dispute turns mainly on forms of government. Arising out of a conference among missionaries in the heart of Africa, the question has been asked: To what extent is the Church of England committed to the institution of episcopacy, and behind that is the problem known as that of apostolic succession. Those who are theologians pure and simple have their extreme theories, as to which we here and now preserve a respectful silence. But to those who, whether theologians or not, are students of history, the Kikuyu controversy recalls former stages of Church history in England and elsewhere. We know that from the fourth century onward, until the time of the Reformation, episcopacy of some kind at least was a universal institution, but backward from the fourth century we are involved in endless dispute, partly because the documents are so scanty.

NARROWING our inquiry, however, to our own country, and to the sixteenth and seventeenth centuries when all church questions were subject to violent dispute and frequent changes, and passing over the difference between Rome and England as to the validity of "orders" in the island church, we find three systems of church government which at first sight are opposed to one another, but which we find in practice capable of compromise. Episcopacy can be reconciled with presbyterianism, as in Scotland during the reign of James VI. and Charles I. Presbyterianism can be reconciled, nay, all but amalgamated, with that "lower form of religion," as we have once seen it described, which is called by its advocates, Congregationalism, and by its enemies Independency. John Eliot, the missionary to the North American Indians, described the New England system as a "sweet combination" of the two systems. The extreme partisans in each of the three divisions of English Christianity of course emphasise the distinction, so that the ordinary student of seventeenth-century politics sees only conflict. The Kikuyu incident is recalling to us some of those extreme views.

ULSTER, they say, is using the interval still granted before the passing of the Home Rule Bill to prepare a government which will then spring at once into working activity. We express, in passing, our wonder what this government will do with those inhabitants of their territory who are in favour of Home Rule, but proceed to notice the institutions which they are preparing to set up. Evidently these are regarded, in these days, as the minimum of what is expected from all governments. We are in Western Europe in the twentieth century far removed from the ideals of such a monarch as the Great King whose dominion was

overthrown by Alexander of Macedon. His idea was that so long as his satraps sent him a reasonable amount of revenue from their provinces, his subjects might do as they pleased. It is interesting therefore to see that our Ulster friends are proposing, in addition to the military establishment without which no government can exist, a legal committee, an education committee, a committee for customs, excise, and post office. How curious all this would seem to the folk of ancient times! What would they have thought if you had expected them to make laws, much less to educate the children and carry letters for their subjects?

IN Austin's "Jurisprudence," which was at one time a classic on matters of State, both internal and international, the question is discussed where sovereignty resides. The author believed it possible to locate in every instance the supreme authority which could make its will prevail in all matters of dispute. Much has happened since he wrote, and especially two great confederations have attained to world-importance which were only in embryo in his time, the United States of America and the British Empire. Some months ago, we were commenting on the difficulty of defining sovereignty as between the Federal Government in the United States and the several States which together compose that country, and now we have a problem of the greatest importance and at the same time of the greatest difficulty in our own affairs. What is the Imperial Government to do when one of the "daughter-nations" refuses to admit on acceptable terms their fellow-subjects from another part of the Empire? It is a serious instance of what in physics is treated as an amusing paradox, the impact of an irresistible force on an immovable body. May the wisdom which is the inheritance, *par excellence*, of the British people, find a solution of this apparently insoluble problem!

ITEMS OF INTEREST.

GENERAL.

SIR ERNEST SHACKLETON'S announcement of the plans of his forthcoming Antarctic expedition open a new chapter in polar exploration. His scheme consists of nothing less than the crossing of the Antarctic continent from Weddell Sea to Ross Sea. This will necessitate the use of two ships, one of which will convey the transcontinental party, and a party which will carry out scientific work at and about the Weddell Sea base, from Buenos Aires in autumn. It is hoped to land on this coast in about 78° S., and the march thence to the pole will, of course, be over unknown territory. From the pole the explorer can follow either Amundsen's or the Scott-Shackleton route, but he has in mind, if all has gone well, to strike a new line eastward of both, keeping up upon the plateau, and only making for the coast about Wood Bay, which would give him a total march of no less than 2300 miles, though the crossing might, at the shortest, be done in 1700 miles. The journey should be productive of geographical and physiological results of the highest interest, including a possible solution of the problem concerning the Vic-

torial range of mountains and their relationship with the Andes. Sir Ernest Shackleton hopes the long march can be accomplished in one season.

DR. MARIA MONTESSORI announces that her second international training course for teachers in her method of education as applied to young children, will take place in Rome from February 23rd to June 30th, 1914. Dr. Montessori herself will give the lessons, and new "Case dei Bambini" (children's houses), which have been founded in Rome, will give ample opportunities of observing the children. The work of directing the observation classes will be undertaken by four of Dr. Montessori's assistants. The course will consist of thirty lectures on the theory of her method by Dr. Montessori; thirty hours of practice work, either by Dr. Montessori or by one of the assistants under her direct supervision; fifty hours at least of observation in the Case dei Bambini. The lectures will be given in Italian, but will be afterwards translated into English and French to read to those students who wish to attend the readings in those languages. At the end of the course an examination will be held, and diplomas given to those who are deemed capable of applying the Montessori method of education to small children. The tuition fee for the course is £51. Of this sum, £10 is payable in advance to Dr. Montessori's secretary, Signorina Anna Fedeli, Via Principessa Clotilde 5, Rome, at the time of enrolment, the remainder being payable in Rome to Signorina Fedeli at the beginning of the course. All applications in this country for admission to the course should be made to Miss Gladys Penn Clarke, Rookwood, Torrington Park, North Finchley, N.

THE following resolutions were adopted at the annual meeting of the Headmasters' Conference held at the end of December:—(1) That this conference heartily welcomes the establishment of the Teachers' Registration Council and approves the general principles implied in the conditions of admission to the register which they have formulated. (2) That since there is now some prospect that a national scheme of education may be formed, the committee be instructed to consider possible methods of co-operation in such a scheme by the public schools and to report to the next conference. (An amendment was incorporated referring the question to a special sub-committee.) (3) That this conference reaffirms its general approval of the suggested new regulations for responsions at Oxford, and hopes that the Cambridge Syndicate will propose and carry a reform of the Previous Examination at Cambridge on similar lines. That, nevertheless, the conference is strongly of opinion that no reform of responsions at Oxford or of the Previous Examination at Cambridge can be finally satisfactory so long as Greek is retained as a compulsory subject. (4) That in order to attain uniformity, the committee of the Headmasters' Conference shall invite every member of the conference to pledge himself to adopt the reformed pronunciation of Latin, as recommended by the Classical Association, throughout his school.

THE annual meeting of the Association of Assistant-masters in Secondary Schools was held on January

1st to 3rd, at the London Day Training College. The following resolutions, which had been previously passed by the council, were submitted to the meeting, and carried after a short discussion on each:—(1) That this association approves of the conditions for registration recently issued by the Registration Council, as embodying the principles which the association has long and consistently advocated; and recommends all members of the association to place their names upon the register immediately. (2) That this association expresses its regret that the Board of Education has declined to accede to the request of the association that a clause be inserted in all schemes, and articles of government, to give assistant-masters served with notice of dismissal the right to be heard by governors, before notice of dismissal takes effect. (3) That this association strongly condemns the action of certain local education authorities, in putting out assistant-masterships to lowest tender. (4) That, in the opinion of this association, all assistant-masters should be given a proper number of periods in each week for correction of written work. (5) That all leaving examinations, qualifying for universities or professional courses, should be co-ordinated, so that any one examination may qualify for all university or professional courses.

AT the annual meeting of the Association of Assistant-mistresses, held on January 9th, the following resolution was passed:—"That this association affirms the principle that the payment for a full scholastic year's work should be the full agreed annual stipend, and in cases where the year is divided into three terms, the payment for a term's work should be one-third of the agreed annual stipend, whether the assistant-mistress is returning after the vacation or not."

THE President of the Board of Education received on January 14th a deputation of representatives of every grade of elementary, secondary, and technical education, which laid before him a proposal for improving the staffing of the schools and increasing the salaries of teachers. Sir John McClure introduced the deputation and laid before the President the following resolution, which was carried unanimously at the Conference of Teachers last October:—"That in the opinion of this conference it is advisable that a deputation representing national organisations of teachers should wait upon Ministers of the Crown to urge that substantial proportions of any further grants of public money to local education authorities, whether in connection with the forthcoming Education Bill or otherwise, should be definitely assigned to the specific purposes of improving the staffing of schools and increasing the stipends of teachers." In his reply, Mr. Pease promised to give the matter "sympathetic consideration."

A JOINT meeting, convened under the auspices of the National Union of Teachers, the Association of Teachers in Technical Institutions, the University of London Graduates' Association, and the Workers' Educational Association, was held on January 9th, to protest against the proposals of the recent Royal Commission to restrict the existing privileges of external

students of the University of London. The chair was occupied by Sir James Yoxall, M.P. The following resolutions were adopted:—(1) That this meeting, while welcoming any extension of opportunities for internal students, strongly deprecates any proposal that limitations should be placed upon the existing facilities for obtaining external degrees at the University of London. (2) That this meeting emphatically protests against the suggested exclusion of external students from the degree examinations of the University of London in the proposed faculty of technology, which will include engineering. (3) That this meeting records its emphatic opposition to any change in the organisation of the University of London which would (i) lessen the influence of the graduates upon its governing body or councils, and (ii) render it less able to continue the work it has successfully performed for more than half a century by its high standard and impartial examinations, open on terms of equality, and irrespective of collegiate attendance or certificates, to all comers of both sexes and of all creeds.

THE headmaster of Bradfield College has, we learn from *The Times*, addressed a letter to Mr. H. E. Morgan, of 55 Fetter Lane, E.C., in reference to his suggestion for the adoption of a business curriculum. In the course of his letter the headmaster of Bradfield says:—"A training in business methods for those boys who are destined for a business career in a public-school atmosphere, among all the influences that public-school life brings to bear, and aided by the daily companionship of others whose course of training and whose outlook is different from their own, would provide the most favourable medium for the development of that activity of mind and that understanding of other people's characters which, as you tell me, will be more than ever essential in the business world of the next generation. Without some such specialised training it is my belief that a public-school education will in the future prove of increasingly less value to boys whose future career lies in the sphere of commerce. With it the commercial world will gain a continuous reinforcement of young men possessed of qualities and of a character which it is at present losing. . . . At the beginning of the May term we shall institute at Bradfield for those requiring it such modifications of our existing routine as the case demands. In the upper parts of the modern side there will be special business classes, in which the necessary subject will be particularly studied, preceded by a preliminary period of lesser specialisation in the lower parts of the school."

THE Children's Theatre of Mrs. Percy Dearmer and Miss Netta Syrett, one of the numerous enterprises undertaken ostensibly for the benefit of young holiday-makers, shows us children dancing, playing with dolls, and imagining fairies, very much in the spirit of Mrs. Molesworth's stories. "The Cockyolly Bird," by Mrs. Percy Dearmer, is founded on "The Noah's Ark Geography." Miss Netta Syrett's three short plays, "The Fairy Doll," "The Enchanted Garden," and "The Strange Boy," have the same central idea, the coming true of the imaginations of imaginative children. The educative value of these performances lies in their

appeal to the simpler tastes of unspoilt children. Some of those we noted in the audience looked frankly uninterested, but expressiveness is not the *forte* of English children. We would suggest to the promoters as a variation on their next programme that the audience should be invited to participate themselves in the entertainment in one form or another, for there seemed little doubt that greater pleasure was enjoyed by the children on than off the stage. The increasing number of persons who believe in acting as a healthy and profitable part of education could find nothing to object to and much to admire in the Children's Theatre. To see any children attempt to act pleases the adult child-lover, and children who have any gift that way are as fond of exercising it as any other amateur. It is for the wise to direct the gift into wholesome channels, and the promoters of the Children's Theatre are doing this, though not perhaps more successfully, yet with a more single aim than the promoters of several other plays for children which have been presented at other London theatres during the holidays.

THE International Commission on Mathematical Teaching, of which the British members are Sir George Greenhill, Prof. E. W. Hobson, and Mr. C. Godfrey, will meet at the Sorbonne, Paris, on April 1-4, 1914, to discuss (i) the results obtained by the introduction of the calculus into the higher classes of secondary schools; (ii) the place of mathematics in higher technical education. The general opening meeting will take place on April 2, at 9.30 a.m., under the presidency of M. Lucien Poincaré, Director of Secondary Education, when Prof. P. Appell will welcome the members, and Prof. F. Klein, president of the commission, will deliver an address. Prof. Emile Borel and Prof. d'Ocagne will read papers. Conference tickets (gratis) and programme may be obtained on application to Mr. H. D. Ellis, joint hon. sec., Mathematical Association, 12 Gloucester Terrace, Hyde Park, London, W., before February 26. Other meetings, for which tickets may be obtained, include those of the French Philosophical Society, April 6-8, the French Physical Society, April 15-17, the Congress of French Scientific Societies, April 14-18. The French railway companies will grant a 50 per cent. reduction to holders of conference tickets.

THE Visual Instruction Committee of the Colonial Office has issued a book of lantern lectures on South Africa, the fifth of a series for which a special fund was raised by a committee of ladies presided over by the Countess of Dudley. For the production of this book a grant was made to the committee by the Rhodes Trustees. The book, which is illustrated by maps and views, is being published by Messrs. George Philip and Son, and the slides, as well as those previously issued, may be bought or hired from Messrs. Newton and Company, of 37 King Street, Covent Garden, W.C. The committee will next issue a set of lectures on the West Indies, and they contemplate completing the series with a book on tropical Africa.

THE Northern Universities Joint Matriculation Board recently made its report for the year 1913. The board examined 2,670 candidates during the year. Of these, 930 were candidates for matriculation at the

July examination, and 289 in September; 506 passed in July, and 130 in September; the percentage of failure being 45.8 and 55 respectively. For scholarships offered by local education authorities or by universities, there were 383 candidates. Of these 180 took papers qualifying for matriculation, 121 with success, the percentage of failure in this class being 32.7. For senior school certificates 237 candidates entered, of whom 157 obtained a certificate that was also a matriculation certificate, while three obtained a certificate that did not qualify for matriculation, the percentage of failure being 32.4. The exemptions from the matriculation examination registered during the year on account of examinations recognised as equivalent were 301, an increase of about 20 per cent. During the year, the Board has made recommendations to local education authorities for the award of 103 scholarships tenable at universities. Inspection or examination was carried out on behalf of thirty-four schools.

MR. NICKLIN'S "Greek Vocabulary for Schools," included last month in our list of most notable school books published during 1913, is published by the Cambridge University Press, and not by the Clarendon Press, as was stated.

SCOTTISH.

THE fortieth annual Congress of the Educational Institute of Scotland was held this year in the Marischal College, Aberdeen. The attendance was exceptionally large and representative throughout, and the addresses and discussions held the audiences together from beginning to end. Miss Fish presided over the proceedings with a distinction and grace that gave an increased interest to the meeting. She took as the main subject of her address the remuneration of teachers, especially of those teachers at the lower end of the scale. She made an elaborate analysis of the present position, and concluded with an eloquent and forcible plea for better terms for those who are playing a great part in national progress, and playing it also in a splendid manner.

THE REV. WM. MAIN, member of the Edinburgh School Board, delivered an address on day continuation classes. A considerable measure of success had, he said, attended the system of continuation classes in Scotland. In 1901, when these classes were first started, the number in attendance was 78,171; last year it was 145,000. That was a remarkable increase, but when they came to consider the number of young people in the country between fourteen and seventeen years of age, there was not much reason for congratulation. According to the last census there were 282,800 young people in Scotland between fourteen and seventeen years of age, and of these only 145,000 were receiving any measure of instruction. This meant that almost 50 per cent. of the youth of the nation were under no discipline and supervision at the most critical time in their lives. He was very reluctant to advocate a system of compulsion in order to bring the other 50 per cent. under authority, but the only alternative to that was to set up a system of day continuation classes, which young people would

attend in their masters' time and without loss of pay. They could only introduce such a system on a voluntary basis to begin with, and for its success it required the hearty support and co-operation of all employers of labour. If that could not be obtained then there was nothing for it but to compel them by Act of Parliament to have regard to the educational and moral interests of their young employees.

MR. HUGH M'CALLUM, Glasgow, in moving a resolution calling for the institution of a post-graduate degree in education, said that Great Britain was almost the only country in Europe that had not recognised the claims of education to a more honoured and more honourable place in the universities. The number of students at the various universities preparing for the teaching profession amply justified increased educational facilities being afforded to them. In Aberdeen University three out of every five arts students were intending teachers, and in Glasgow two out of every four. That being so, they were entitled to come to the universities and ask: "What are you going to do for us?" He gladly acknowledged the great part played by the universities in the past. The M.A. degree had equipped the ordinary elementary-school-teacher in a way which had won the admiration of all countries in Europe. But the time had come for a new forward step, and he trusted that before long every Scottish university would have in operation a post-graduate course for intending teachers.

THE Oxford Caledonian Society, in recognition of the founding of a new chair of Scottish history and language in Glasgow University, entertained Prof. Rait, its first occupant, to a complimentary dinner. There was a large and representative gathering, including Dr. Morrison (chairman), Sir William Osler, Sir Walter Raleigh, Sir James Murray, and Prof. Dicey. Prof. Rait, in replying to the toast of his health, said that the proposition that Scottish history should find a place in a Scottish university fortunately required no proof. The most distinguished of English historians of their own time had been the most deeply impressed by the importance of the study of the history of Scotland. The history of Scotland was receiving in increasing measure the attention of historians in Germany, France, and America, and it would be strange indeed if it was to continue neglected only on its native soil. He did not know of any other European country in which the past was a more living force than it was in Scotland, and he did not know of any country where it was more to be desired that the lessons of the past should continue to be known and understood by each succeeding generation.

UNDER the auspices of the Stirling Branch of the Educational Institute of Scotland a conference was held in the Town Hall, Stirling, to consider the question of "Administrative Areas with Special Reference to Rural Education." Mr. J. Anson Clyde, K.C., M.P., who opened the discussion, said that public opinion which had been fluid in this matter for many years had at length crystallised in favour of enlarged areas of administration. This result had been largely brought about by the abundant evidence

that had been produced that the rural child was gravely handicapped in the battle of life by the educational condition of the rural school. Almost everyone had come to recognise that only through enlarged areas would any thing like equality of educational opportunity be given to the dwellers in rural districts. Mr. M'Callum Scott, M.P., who also spoke, said that the machinery for rural education was not only antiquated, but out of gear. The enlargement of areas would give new life to rural districts, and at the same time would open up to teachers avenues of promotion from which they were at present shut out. A resolution favouring enlarged administrative areas for all educational purposes and asking for the appointment of a commission to delimit such areas was afterwards unanimously passed.

THE report of the Glasgow School of Art for session 1912-13 shows that the number of students working for the diploma in the respective groups were as follows:—Drawing and painting, 475; modelling and sculpture, 50; design and decorative art, 70; architecture (day and evening classes), 129. The Saturday classes for the further instruction of teachers had been most successful. The scheme of work included advanced courses in embroidery, metal *réoussé*, silver-smithing, enamelling, and wood carving. The report states that Mr. Anning Bell, one of the staff, has been commissioned to design the ceiling for the new hall in the British Museum, and to design three windows for the Hartley College Chapel, Manchester. During the session a course of lectures on the history of fine art was given by Prof. Baltus. These had been very largely attended, both by students and by the general public. Everywhere the report bears evidence of the wide outlook, the enterprise, and the splendid organising ability of the principal (and, it might be said, the founder) of the college, Mr. F. H. Newbery.

IRISH.

THE school grant paid by the Intermediate Board of Education to schools on the results of the examinations held last June has been calculated according to the following scale:—

FOR EACH PASS.

	£	s.	d.
Junior Grade	8	7	6
Middle "	10	1	0
Senior "	15	1	6

FOR EACH PASS WITH HONOURS.

	£	s.	d.
Junior Grade	10	1	0
Middle "	15	1	6
Senior "	22	12	3

FOR EACH RISE FROM A PASS IN 1912 TO A PASS WITH HONOURS IN THE SAME GRADE IN 1913.

	£	s.	d.
Junior Grade	1	13	6
Middle "	5	0	6
Senior "	7	10	9

THERE was no grant for preparatory grade pupils for 1913, but under the new Act of Parliament passed last session, the Board contemplates making a grant for pupils between the ages of twelve and fourteen for the current year, and has sent attendance books to

the schools during the Christmas vacation so that the attendances of such pupils may be marked. The Board states that this will be a necessary factor in computing the grants, but no further indication has been given as to the basis on which the grants will be paid.

THE Intermediate Board has also published the time-table of the examinations for this year. They will begin on June 16th, and continue daily until June 24th. This year for the first time both pass and honours questions in mathematical subjects will be printed on the same paper. It is also noteworthy that the time allowed for the mathematical papers is being lengthened. Arithmetic gets one and a half hours instead of one hour, and algebra, geometry, and trigonometry get each three hours. One would naturally expect that the language papers, too, should get three hours instead of only two, especially those set for honours, since, for example, it is by no means satisfactory that in a Greek paper alternative passages of unprepared translation should be set.

THE Department of Agriculture and Technical Instruction announces that it is arranging to hold in February special examinations in freehand drawing, model drawing, drawing in light and shade from a cast, and elementary design, to enable candidates who have already obtained not less than three successes towards the Irish teachers' drawing certificate, to complete the requirements therefor. The examinations will be held on February 20th and 21st.

THE Royal Dublin Society arranged for two sets of three lectures to be given in its lecture theatre during the Christmas vacation, suitable for a juvenile auditory. The first course was by Mr. Charles Green, on the four seasons in the sea, and the second course by Prof. Bayley Butler, on plant defences and warriors.

It was stated in the autumn that Mr. Birrell's scheme for a Treasury grant of £40,000 for the benefit of lay assistant-teachers was to be brought before Parliament early in the new Session, all the difficulties which threatened it having been smoothed over, but it may be that this statement was premature, as a severe attack was made upon the scheme and on Mr. Birrell just before Christmas by the Roman Catholic Bishop of Limerick. Dr. O'Dwyer claimed that the Catholic schools were their own; they belonged to the religious teachers, and would continue to do so. There would always be some lay teachers, but they would be few, and the Catholic people of Ireland would never tolerate any interference by the Government with religious teachers in the supposed interests of lay teachers. Mr. Birrell's scheme was an intolerable pretension; it was an intrusion on his part to require a certain proportion of lay teachers in Catholic schools. Further, Mr. Birrell's minima salaries, although quite reasonable in themselves—£120 a year for men and £80 a year for women—were an entirely unnecessary condition.

THE Bishop claims that the question of salaries is entirely one between the lay assistants and their employers. He further lays stress again on Mr. Bir-

rell's requirement of one lay assistant for every forty pupils, and asks what is to prevent him from demanding later one for every twenty. In fact, the Bishop sees that the freedom of the Catholic schools and ultimately their whole religious character are at stake, and he urges the heads of schools to defend their independence and deal with Mr. Birrell's scheme in such a way that it will be defeated. Perhaps the Bishop only wishes to liberate his soul as a final protest before the scheme is passed, but Irish education is in grievous want of money, a good case has been made out for better treatment of lay assistants, the Government is not asking the schools to employ more than the present number of such, and if the Government were to ask the schools to dismiss competent religious teachers in order to replace them by less competent lay teachers, then a more logical appeal could be made to the public, and would not be likely to fall on deaf ears.

WELSH.

PROF. FOSTER WATSON, who has for many years been professor of education at Aberystwyth College, has resigned that position in order to devote himself to research work. He has been invited to deliver, as emeritus professor, a series of lectures on the history of education. His successor in the chair is Mr. C. R. Chapple, lately lecturer in education and master of method in the college.

THE Elementary Education Committee of Newport has decided, at the instance of the Newport Schools Rugby Football Union, to provide a set of medals each year, to be presented to the champion school team of the town.

UNIVERSAL satisfaction is expressed at the appointment of Sir Edward Anwyl to be principal of the new Training College at Caerleon. He is a native of Chester, and a former classical scholar of Oriel College, and has been professor of Welsh at Aberystwyth for twenty-two years. He is chairman of the Central Welsh Board, and is widely known as a writer, both on the Welsh language and on theology. The Caerleon Training College, which is for men, is one of two which are being jointly established by the counties of Glamorgan and Monmouth, the corresponding one, for women, being at Barry. The principal of the Barry College is Miss H. M. Raw, formerly principal of the Bolton Training College. Both colleges are to be opened in September, 1914, and applications for admission are already being received.

THE special education of miners is receiving much attention in the South Wales coalfield. There have been for many years excellent and well-attended classes in the evening technical schools, in addition to several private "mining academies." There is also a mining department in the University College at Cardiff. The Coalowners' Federation recently acquired a large house at Treforest, made extensive additions to it, equipped it as a mining school, and engaged a strong staff. An effort is now being made to co-ordinate these various institutions by the adoption of a common scheme of instruction, all the authorities concerned being represented on a joint board. This plan was

considered at a conference called on December 22nd, 1913, by the Lord Mayor of Cardiff; the scheme was not accepted in its present form, as the schools were not prepared to give up their independence, and the Miners' Federation opposed it as being favourable only to the owners' interests. It was then proposed to strengthen the existing South Wales Mining Education Board by inviting the owners to join it, and the conference adjourned for further consideration of the matter.

EXTENSIVE arrangements are either actually in operation or contemplated in various parts of Wales for providing careers in life for boys and girls who have left school. Cardiff, for instance, is forming a juvenile employment section of its Education Committee, with a special department for dealing with domestic service, which is to grant certificates in cookery, laundry work, and housewifery, and to include representatives of the Girls' Friendly Society, Young Women's Christian Association, and Women's Labour League; Monmouthshire is to establish a Juvenile Employment Bureau at the County Offices in Newport, and advisory committees in connection with the local Labour Exchanges are in operation in many of the smaller towns.

THE Welsh County Schools Association and other bodies have considered the question of finding employment for older pupils, and the Welsh Appointments Board, which exists for the benefit of pupils above seventeen years of age from the intermediate, higher elementary, and technical schools, and students of the university colleges, has now been in active operation for about nine months; it consists of twenty-seven members and a secretary, and has its headquarters at the University Registry, Cardiff. At a meeting of the Board, held in London on December 22nd, under the presidency of Sir Herbert Roberts, M.P., the secretary reported that 170 names had been enrolled, and out of these sixty-three had obtained appointments through the agency of the board. These included two secretarial, fourteen clerical, and twenty-one teaching posts, and six positions as works chemist. One applicant had gone to Canada, two to the United States, one to South Africa, three to India, and one to the Straits Settlements. The board has secured the services of a number of Colonial and foreign correspondents, and arranged to receive particulars of all Civil Service vacancies. It has also under special consideration the provision of opportunities of employment for educated women.

THE report for the year 1912-13 of the chief inspector to the Central Welsh Board provides encouraging reading. The pupils attending the Intermediate schools numbered 13,528—or, if for purposes of comparison the newly admitted school at Mountain Ash be left out, 13,399—an increase of 311 (172) over the figures for 1911-12. There are about 300 more girls than boys; the table of ages shows a tendency for the pupils to enter the secondary schools at an earlier age than formerly, while the number of those above seventeen years of age shows a considerable reduction. The report records a remarkable improvement in the work of the schools, a claim which is fully borne out

by the reports of the examiners in the various subjects. The work in the lower and middle forms is especially satisfactory, and gives promise of good results in the higher examinations of the near future.

In view of the remarks recently made by the Board of Education concerning the retention of older pupils to do work that they might do at the university—even with the qualification that these remarks were intended to apply chiefly to small schools with very small upper forms—teachers will be grateful for the chief inspector's words: "If pupils intended for an academic career are to leave school fully equipped for honours work at the university the higher work that is now done in the schools must be encouraged and developed. The inspiration derived by the teachers from the successful accomplishment of advanced work tells with great force on the efficiency of the work through all stages of the course." The need of a sound general education for those whose training is required to include subjects bearing on their future career is strongly insisted on, and the suggestion is made that these "vocational" subjects should have allotted to them one-fourth of the teaching time. Allusion is made to the urgent need for financial aid to the schools, in view of the effect on them of the free-place system, and the range and complexity of the work demanded of them in the interest of the community. There are in the ninety-six Intermediate schools of Wales 354 assistant-masters, at an average salary of £155 8s. 7d., and 339 assistant-mistresses at an average salary of £125 9s. 4d.

RECENT BOOKS ON EDUCATION.

(1) *Secondary Education in England.* By R. F. Cholmeley. 178 pp. (Smith, Elder.) 2s. 6d. net.

(2) *The New Schoolmaster.* By "Fourth Form." 296 pp. (Smith, Elder.)

(3) *What is Education?* By Stanley Leathes. (Bell.) 2s. 6d. net.

(4) *A New Discovery of the Old Art of Teaching Schoole.* By Charles Hoole. Edited, with Bibliographical Index, by E. T. Campagnac. (Constable.) 7s. 6d. net.

(5) *Obliviscence and Reminiscence. Monograph Supplement to British Journal of Psychology.* By P. B. Ballard. (Cambridge University Press.) 4s. net.

(1) IF we mistake not, the name of Mr. R. F. Cholmeley is well known and highly respected in most places to which THE SCHOOL WORLD finds its way, and our readers will expect that what he has to say about the immediate developments of secondary education in this country is well worth listening to. They will not be disappointed. Mr. Cholmeley's original intention was to edit an up-to-date manifesto, to which he would himself have been a contributor, which was to have served the same purpose to-day as Dr. R. P. Scott's volume served some years ago. But the recent utterances of statesmen have quickened the pace, and so the larger project has been for the moment put aside. Mr. Cholmeley argues, with equal tact and cogency, that since an effective national system of education depends mainly upon an efficient service of teachers, the grants from the central Exchequer should be based upon "the expenditure which, in any given educational institution, may be required

in order to secure a supply of teachers qualified by ability and training for the work that is expected of them." This eminently sensible thesis is expounded in a style suitable as "an appeal to the people." We hope our readers will do their best to make it known to the people.

(2) In the volume entitled "The New Schoolmaster," the author, who conceals his identity by means of a *nom de plume*, has brought together, in a revised and much amplified form, a number of papers contributed by him to various periodicals. We think the republication quite justified. The book makes a wide and varied appeal, and is interesting from cover to cover. The writer certainly belongs, as he says, to "The New School," in the excellent sense that, having well acquainted himself with the currents and cross-currents of recent educational opinion, he sees what is good in them and what is likely to prove harmful, and writes about them in a manner which should prevent even his public-school *confrères* from setting him down as a faddist. The book reminds us somewhat of "A Housemaster's Letters," noticed in these columns some months ago; but we are glad to see that "Fourth Form" trounces the crude theory of the curriculum, and of the relation of parents to teachers, developed in one of the letters. It is good to know that so much healthy thinking is being done in the quarters from which "The New Schoolmaster" emanates.

(3) A volume similar to the above in respect of its origin and its somewhat miscellaneous contents is Mr. Stanley Leathes's "What is Education?" Readers of this book—and we hope they may be numerous—must not expect a very thorough-going discussion of the great question indicated by the title. It is sufficient that the answer, briefly stated and discussed in the first chapter, does very well to go on with. And the writer goes on with it in the remaining chapters. Here we find, what one would naturally expect, that he is most illuminating and suggestive when he is discussing what a historian and the First Civil Service Commissioner ought to know most about—history as a branch of instruction and examinations as an educational agency. Upon these topics he is full of matter. For instance—and we take a passage almost at random—"It is better to read Thucydides, Herodotus, and Demosthenes than to read Grote; it is better to read Tacitus and Cicero than to read Mommsen. On the other hand, it is better to read Maitland than to read Doomsday Book. The text-books are useful; the original authorities are useful; but the root of the matter is in the minds and the words of the wise men." Mr. Leathes has also helpful things to say about school and university examinations, the competitive spirit, systems of marking, the training of examiners, and so on.

(4) Education, regarded as a subject of study, is a very big subject, and each of the professors of education in our universities can do no other than try to extend our knowledge of that side of education with which he finds himself in closest sympathy. Prof. Campagnac, of Liverpool, who is, we believe, a classical scholar turned educational professor, has evidently undertaken a labour of love in editing the four best-known works of Hoole, the eminent seventeenth-century schoolmaster. We are glad that Prof. Campagnac has joined the too small band of scholars, including Prof. Woodward and Prof. Watson, in doing the excellent spade-work which will some day make it possible to write pedagogic history. For, as Prof. Campagnac says, "until the documents are collected and presented in a convenient form, it will be impossible to write and idle to guess at the history of teaching." This edition of Hoole is a pleasure to handle. It is also a pleasure to peruse, the scholar's

loving care for accuracy and finish being manifest throughout.

(5) Psychology for its own sake is not a subject for which we can afford space in these columns; but psychology for the sake of teaching is a subject to which an ever-increasing number of teachers are devoting attention, and for that reason we gladly notice Mr. Ballard's learned-looking monograph on "Obliviscence and Reminiscence." In pursuing his ordinary labours as a school inspector, Mr. Ballard had occasion to make the experiment of causing a class of boys, of average age thirteen, to learn a poem by heart, or as much of it as possible, in a given time. He accidentally discovered that after two days' interval more was remembered than immediately after learning, the improvement amounting in the aggregate to no less than 10 per cent. This unlooked-for result raised a variety of questions which Mr. Ballard thereupon undertook to investigate. We have now perhaps said enough to send many of our readers to the monograph itself, which we commend as a good example of a type of research mutually advantageous to psychology and to education. We note that the method adopted presupposes that a great number of experiments, carried out under conditions much less stringent than those of the psychological laboratory, check one another. Whether this method is exact enough to yield entirely trustworthy conclusions is a point upon which Mr. Ballard's brother investigators will doubtless have something to say.

CHARACTER AND CITIZENSHIP.

(1) *Moral Instruction*. By F. J. Gould. xii + 196 pp. (Longmans.) 2s. 6d.

(2) *Members One of Another*. By Nowell Smith. xii + 344 pp. (Chapman and Hall.) 5s. net.

(3) *A Primer of English Citizenship*. By Frederic Swann. xix + 268 pp. (Longmans.) 1s. 6d.

(4) *A Little Book of the Cardinal Virtues*. By William Glover, with an introduction by P. B. Ballard. 95 pp. (Chambers.) 6d.

THAT the training of character and the making of citizens is the ultimate end of education is an idea which continues to make headway, and happily there are not wanting excellent manuals for those who wish to translate the idea into actuality. Mr. Gould has favoured us with another of his virile and interesting books (1). On former occasions we have noticed his earlier volumes, and the memory of his fine "Youth's Noble Path" is with us yet. The present work is essentially a book for teachers, dealing as it does with the theory and practice of moral instruction. In his preface the author gives us an interesting page of autobiography, showing how varied and rich has been his experience as a teacher of moral instruction. No one can deny his right, on the ground of such experience, to venture his suggestions on a subject so peculiarly his own. He claims no discovery of new method, but simply recalls the teacher to fundamentals which have been in danger of submersion by overfull programmes. With part i. Mr. Gould has reprinted his co-relation scheme (see THE SCHOOL WORLD for January, 1913, p. 29), where it will be more likely to receive attention than in its isolated form. Mr. Gould displays again his skill in selection and narration. His hints as to how to say, and how not to say, things are likely to prove of the greatest value.

Mr. Nowell Smith, headmaster of Sherborne, has given us an exceptionally good volume of school sermons (2). His language is lucid and direct; his method is eminently practical. He does not burke the public schoolboy's special moral dangers, yet he

is more concerned with alluring to the good than flagellating the bad. But there is one defect in these sermons which deprives them probably of the full effect their merit deserves. They are rather too didactic and abstract for young minds. In this respect Mr. Smith might with advantage take a leaf from Mr. Gould's book, where he would notice the wonderful superiority of the concrete over the abstract method of illustration. The value of the concrete touch is finely illustrated by Mr. Nowell Smith directly he takes a subject where he cannot escape from it, such as the biographical sermon, "A Modern Saint," a portrait from life of Father Dolling.

Mr. Swann's "Primer of English Citizenship" (3) is for use in schools, and, in the main, is written down to the understandings of boys and girls. The subjects dealt with are: the King, Parliament, town and county councils, rates and taxes, courts and judges, soldiers and sailors, schools and scholars, the State and the child, masters and men, England and the Empire, the complete citizen. The connection between character and citizenship is well indicated by the author when he says, "It is hoped and believed that in the effort to become good citizens, and in the desire to promote the welfare of the State, may be found a plain guide to right action." The scheme of the book is to follow our constitutional growth as a nation. The author has a clear and interesting style, which can scarcely fail to make the subject attractive to pupils and teachers. Each chapter is skilfully subdivided, and concludes with an excellent series of questions for discussion and research. We have no hesitation in commending this book for use in schools.

We also commend (though for more elementary purposes) Mr. Glover's little book on the cardinal virtues (4). It includes a chapter on citizenship. The cardinal virtues are a rather formidable host—"Courage, contentment, ambition, self-respect, self-control, self-reliance, self-denial, obedience, love, truth, honesty, humility, faith, hope, justice, good temper, cheerfulness, gentleness, patience, perseverance, prudence, gratitude, reverence." The author singles out some eight of these for special comment. We endorse the verdict of Mr. Ballard in his preface: "The clear and terse style in which the book is written, the constant appeal to common sense, the homely instances, the variety of topics so dealt with as to suggest rather than satiate—all these help to render the book specially suitable for parents or teachers to put into the hands of their children."

RECENT SCHOOL BOOKS AND APPARATUS.

Classics.

Quantity and Accent in the Pronunciation of Latin. By F. W. Westaway. 111 pp. (Cambridge University Press.) 3s.—For private students and for those who wish to overhaul their own pronunciation this book is written. A good number of books have lately appeared in such matters, and the Poet Laureate does not stand alone. Mr. Westaway is, of course, out against the "old" way of speaking Latin, but he desires something more than the few rules that guide the newer pronunciation. He asks for a musical ear which does not confuse *ter die* with the English of *mori*. Notwithstanding Prof. Saintsbury and *The Guardian* the older method is doomed; and with it we hope will go the chaos of home and Colonial speech. We have always said that the people who could help most are the English publishers who in a very short time could agree by means of a small committee of

dictionary-makers on a standard of phonetic representation. That is the first step; and when Colonial teachers and we knew how words were pronounced, not how they should be pronounced, then questions regarding standard pronunciation, reformed spelling, "rot" in English speech, and the like, would be easier to attack. A clear preface gives us the writer's position, which insists on a certain amount of phonetics, but he does not disdain the use of devices, e.g., in the directions for the saying of *modo, nisi, villa, posse*. The selected passages marked according to the system of Dr. Bos would be more useful if written in the phonetic symbols now used in England. To the list of errors on p. 93 may be added *dramatis personae*, and dozens of others much worse than the majority of those given. A useful device copied from phoneticians is the sub-numbering of syllables to denote length; but so far as we see nothing is said about wave in tone or modulation, both of which might have been expected to find a place. We need a book on Latin reading aloud.

English.

The Place of English Literature in the Modern University. A lecture by Sir Sidney Lee. 29 pp. (Smith, Elder.) 1s.—The publication of inaugural lectures by well-known writers is a very valuable practice, and much really helpful work comes thus to light in Germany, America, and in this country. Our lectures are more vivid than the theses of Germany and the scholarly booklets of France, and it is always unfair to expect that the printed lecture will repeat the effect of the living voice. Sir Sidney Lee's lecture to the East London College is mainly a defence of criticism, but it is unfortunate that no details are given, and we are left in doubt as to what criticism consists of, when personal taste and personal malignity have been subtracted. In France there seems to be an art of criticism if not a science; but even the *Edinburgh*, writing only a few years ago, denies this for England. The speaker laid great stress on the formation of a good library, but surely not enough stress on the fact that an English student does not know what the word library really means. The articles from *The Times* and *Morning Post*, reprinted at the end of the lecture, are weak and inconclusive. Many utterances demand qualification—e.g., "There comes a time in the career of every book when a final decision is reached as to its general merit." "No one writes good English who has not read good English with appreciation and intelligence." (Had Bunyan?) "A people without intellectual commerce with other peoples has never done anything in literature." (Did the Greeks do nothing?) Surely the reference to Bacon's Essays (p. 5) is an error.

The Works of Tennyson, with Notes by the Author. Edited, with Memoir, by Hallam, Lord Tennyson. 1033 pp. (Macmillan.) 10s. 6d.—This beautiful book has not only all the author's valuable notes, but additions of great insight are made by the editor. It is surely a great mistake to decry the writing of necessary notes; the complaint against our school-books, of which this, notwithstanding its cost, ought to be one, is that unnecessary notes are so often written. "Crossing the Bar," we think, is still left difficult for all that the note says. Pilots are not on board throughout the voyage.

American Literature. By W. J. Long. 481 pp. (Ginn.) 5s.—Mr. Long is already known for a very breezy history of English literature, and the present volume is written on the same lines. The front-piece (Poe's cottage) is suggestive, though many

Americans would not take the kindly view of Poe which the author presents. But Poe and Lanier and Irving deserve all the care bestowed upon them, and Englishmen ought to know that brave men have lived besides Longfellow and Emerson. The book is fully illustrated; some delightful title-pages are given, and, of course, the book is easy, bright, and interesting, a contrast to many of our own histories. The criticism is generous except perhaps in the case of Whitman, whose fame yet waits for recognition; at the risk of swelling the size of the volume we should have liked much more quotation—and no examination papers. But the list of useful books is admirable.

The Vision of Piers the Plowman. Translated by K. M. Warren. 168 pp. (E. Arnold.) 2s. 6d.—Miss Warren's name is "good" for anything to do with English, and it is exhilarating to find that Langland has now in the past few years been modernised on three occasions. In this attempt no discussion of the questions that make the book so interesting as a human document is permitted; but surely we have not heard the last of the composite authorship. Miss Warren's version is quite faithful, though we miss the rough, very rough, verse; and probably the poem will have to endure another version. Modernised in some way it must be; for people will not take the trouble to read the old rum-ram-ruf. We wish some enterprising publisher would reprint the old black-letter edition; why do we dislike the very form of our ancestors' books?

Tales for Children from Many Lands. 10 vols. 128 pp. each. (Dent.) 1s. 6d.—The ten volumes of this series are delightful; the text is good, and the illustrations, though varying in merit, are in many cases very beautiful. Mr. Rackham, Mr. Herbert Cale, Mr. Railton, and the brothers Robinson are among the artists, and among the editors are Ernest Rhys, F. C. Tilney, and Miss Beatrice Clay. The series takes in King Arthur, Robin Hood, Per-rault, Bayard, Andersen, Gulliver, La Fontaine, and Æsop. There is also a volume of Spanish tales, much wanted, though we miss from it "The Bird of Truth" and "The Knights of the Echoes." The binding and general look of the series is most attractive. We hope the stories will be followed up, for there is a wealth of work waiting to be done notwithstanding the efforts of many publishers and learned editors. Spain, Italy, Sicily, Brittany, China, Japan, Sweden, are among the countries which have not yet been fully revealed to us; and Russia, Roumania, and Greece possess a great deal that is worth careful editing. A library of tales from all these countries, if the books were similar to those before us, would be a treasure to any school. The French are better than we in this respect, though, of course, the "Contes de toutes les nations" in thirty volumes are not quite for the school.

Outlines of Victorian Literature. By Hugh Walker and Mrs. Walker. 224 pp. (Cambridge University Press.) 3s. net.—This is an abridgement of Prof. Walker's larger and well-known book. It is *sui generis*, as the other is, and is one of the most valuable helps to the student that has been written; for the writer is one of the most widely read men in this subject that can be found. The book contains six chapters—"Carlyle," "Poetry," "Novels," "The Historians," "Biography," "The Fragments that Remain." Each chapter is complete; each is suggestive, and each sends the reader away with a desire to know more. More can be got from the larger book, but there is plenty of life, anecdote, and sound criticism here. A well-read teacher with a good library

might have two years' fascinating work with this book, for every page and sometimes every other sentence demands and repays a reference to texts. "Erudition extraordinaire," says the *Mercure de France* of the larger book, and it is equally true of this.

Macaulay's Lays of Ancient Rome. Illustrated in colours. By Norman Ault. 144 pp. (Williams and Norgate.) 3s. 6d. net.—This is an old favourite, admirably printed, and illustrated with a number of effective pictures. It is well suited for a gift book. Mr. Ault has probably never seen the treading of grapes, or he would have tucked up his ladies' dresses a little higher; but his soldiers and his old men are fine. It is a pleasure to see such a book.

Practical Speech Culture, for Business and Professional People. By A. C. Cox. 88 pp. (Ralph, Holland.) 1s. net.—Proper voice production cannot be learnt without a teacher; but this book will help the student to go on by himself when he has once been put in the way of practice. There are pictures to show the proper pose, and the shape of the mouth in articulating, which are of great help; and a number of useful exercises. We can recommend it as a very useful and cheap book, and we hope it may induce many to do better than the husky gabble of the "refined" or the snarl of the vulgar. The worst of it is, that speakers are all unconscious of their own faults, and that is why they must have a teacher.

History.

The History Teacher's Magazine, October-December, 1913. (Philadelphia, U.S.A.) 20 cents each copy.—These three numbers complete the fourth volume of the American "History Teacher's Magazine." They maintain in a remarkable degree the interest and value of their predecessors. We feared when the magazine began to appear nearly five years ago that it would not be easy to keep up a regular supply month by month of articles limited in their scope to the teaching of history. So far our fears have proved to be groundless, for the latest issues seem to be as fresh and vigorous as were the first.

In the October issue the outstanding contribution is a paper on the new culture-history in Germany, by Prof. A. B. Show, of Leland Stanford Junior University. In an ably written survey he sketches the life and work of Prof. Karl Lamprecht, of Leipzig, and estimates his influence as the would-be founder of a new socio-psychological school of historians. The November issue opens with a discussion of the question of "The Propriety and Value of the Study of Recent History," by Prof. C. H. Hayes, of Columbia University. Of course, no American historian could well refuse to advocate the teaching of recent history, and Prof. Hayes makes a strong plea for it. The same issue contains an elaborate tabulated summary of the "mortality" in the history examinations of the Normal College in New York. The solemnity with which this inquest post-mortem is conducted makes it diverting. The paper of questions, the fatal devastations of which are recorded, passed through nine separate processes at the hands of fifteen persons before it was finally discharged at the candidates. In December Prof. H. C. Vedder, of the Crozer Theological Seminary, treats of "The New Church History" in a scholarly article, wherein he sets forth the effect which modern historical criticism has had upon the study and teaching of ecclesiastical history.

Select Passages on Duty to the State. By J. G. Jennings. 126 pp. (Oxford University Press.)

2s. 6d.—Although this is a volume intended primarily we suppose for Indian students, it may very well supply a want in English schools, for books on government such as that noticed immediately below are not for the young, and in Mr. Jennings's book there are to be found the exact quotations which point to the undying interest of man in his management of fellow-men. The arrangement appears to be graded according to the difficulty of thought, and yet every extract is well calculated to excite interest. It seems to us wonderful that no one should have put together such an array of extracts before; Epictetus, Aurelius, Plato, Aristotle, Bacon, Addison, Adam Smith, Ruskin, T. H. Green, Fielding Hall, and many other writers, including at least one Indian of note, are represented. The gaps are, of course, noticeable; and J. S. Mill is greatly in evidence, while Seneca, Augustine, and the "Imitation" are absent; but a compiler cannot survey all literature. A further volume might deal with foreign work, which will supply much beautiful thought. Certainly this book gives young people the raw material for much self-inquiry. It may be purchased in two parts, 1s. 4d. and 1s. 8d. each. The editor of this volume would do good service if he were to collect from general literature what may be regarded as sanctions for morality, especially if it were possible to put these in such a form as would be intelligible to the young; such a book would be welcomed by teachers and scholars; but it would require very judicious editing.

The Government of Man. By G. S. Brett. 318 pp. (Bell.) 3s. 6d.—This is an attempt to bring into immediate contact ethics and history; and from the first chapter to the last ideals are corrected or enforced by references to events. An interesting *résumé* of early civilisation is given, and the steps from pack to totem group, and on to the domestication of animals and to consequent agriculture are traced. Great importance is assigned to the rise of Ionia as one of the marvels of history; thence we arrive at Plato and Aristotle, to whom as the apostle of individualism Mr. Brett gives more space than to any other thinker. Through Roman times we are led to the Middle Ages, but the fourteenth century gets little consideration, and we pass to Hobbes and Rousseau. No very modern problems are dealt with, and no conclusions are drawn. But all through the book data are supplied for the reader, and there is not a difficult passage; the tone throughout is high, and although the writer does not preach, he seems to be in sympathy with the dictum of the ethics, "Strive so far as possible to put on immortality." Suggestions for further reading are supplied in appendices.

Geography.

Commercial Geography of the World. Part ii., *Outside the British Isles.* By A. J. Herbertson; revised by James Cossar. 383 pp. No maps. 80 pp. of statistical tables. (Chambers.) 2s. 6d.—This is a revised edition of Prof. Herbertson's well-known book. The basis of the work is the natural region, and no attempt has been made to cover the whole ground of commercial geography, the treatment being by sample. The quantitative part of the book is decidedly unequal. In the text there are many cases where the information is given in a form suitable for the establishment of comparisons between one country and another, but in the large amount of statistical matter in the tables at the end of the book practically no attempt has been made to treat the large mass of numerical material geographically. Most of the tables give the trade figures for separate countries, and the quantities are measured in values; the periods

for which the averages are taken are not consistent; and there are but three pages of tables which provide world summaries.

Commercial Geography of the British Isles. By F. Mort. 152 pp. Maps and diagrams. (Oliver and Boyd.) 1s.—Half this book is given up to a general introduction which deals with clearness and ability with the geographical factors that influence commerce and the commodities that enter largely into commerce. One small objection might be raised to the fact that the statistical tables relating to the production of various commodities in different countries fail to give estimates of world totals. The British Isles are treated first generally, and then the three countries in turn. Adequate prominence seems scarcely given to the agricultural industries of Ireland, and the explanation of the location of the world's greatest cotton industry in Lancashire is baldly and didactically tabulated under four heads, one of which is "Proximity to Important Markets," without additional explanation. Objection might reasonably be taken by the modern teacher to the bald summaries in tabular form which give the principal imports and exports of the chief ports and the countries of origin and destination of articles of British foreign trade. For example, the pupil is faced with the fact in isolation that we get matches from Sweden.

A Comparative Geography of the Six Continents. By Ellis W. Heaton. 219 pp. Diagrams. (Ralph, Holland.) 1s. 9d. net.—This book is a specimen in Mr. Heaton's well-known style of a comparative treatment of the six continents, intended to be a junior geography of the world on a scale required for the "Junior Locals." The highly generalised and conventional map-diagrams and tabular statements will be familiar to readers of other books by the same author. The net result of Mr. Heaton's method is typified in such compact statements as "British South Africa thus recalls the Argentine country in its grassy pasture country and its comparatively numerous railways. Ostriches take the place of cattle; gold of silver." "Dairy farms and sheep runs occupy the eastern plains" of New Zealand.

A Junior Geography of the World. By B. C. Wallis. 310 pp. (Macmillan.) 2s. 6d.—"A Junior Geography of the World" is the latest addition to Macmillan's "Practical Modern Geographies," and it fully maintains the high standard of the volumes which have appeared already in this series. Part i. deals with world geography, and part ii. with the continents in detail. The author is particularly successful in explaining the climatic conditions of the various regions, the methods of finding latitude and longitude, and other difficult parts of the subject. Throughout the book the descriptions are written in an interesting style, and the information is trustworthy and accurate. The descriptions are supplemented by practical exercises of a most instructive and suggestive type. The book is profusely illustrated with excellent maps, diagrams, and pictures; Figs. 94 and 172 are models of what maps in a geography text-book should be. Fig. 77 is a type of map which is of little use. Carefully prepared memory maps on a network of lines as suggested on pp. 137-8 are to be deprecated; rough sketch maps to illustrate written questions should be sufficient for all practical purposes.

A Map of the Hudson-Mohawk Gap. 1 sheet 18 in. x 22½ in. Scale, 20 miles to 1 inch. (Sifton, Praed.) 6d. net.—Teachers will be pleased to have this map and to make use of it. The area includes New York, Montreal, Philadelphia, and

Buffalo; nearly the whole of Lake Ontario, and Lake Champlain. The map is the first of a new series of publications of the London School of Economics, under the title "Contour Maps of Critical Areas." There is one criticism of this map of some importance: what is the country like east of the Hudson? It would probably have been better to have included another forty miles to the east, for the special character of the omitted area is of some historical value, especially in class teaching.

Mathematics.

Essays on Mathematical Education. By G. St. L. Carson. vi+139 pp. (Ginn.) 3s. net.—It is probably strictly in accordance with the genius of the English people that the agitation for the improvement of the teaching of mathematics has largely resolved itself into a series of experiments with methods devised by enthusiastic teachers, while the discussion of fundamental principles has not been conspicuously prominent. There has been a general consensus of opinion that the methods employed up to fifteen years ago were in certain respects unsatisfactory, but there has been far less agreement as to what the aim of mathematical education should be, or by what methods these aims should be attained. The truth is that the problem is not a purely mathematical one, and cannot be solved as such. It is largely, if not predominantly, psychological, and psychology is not yet in a position to provide a definite solution. Mr. Carson, in the essays before us, brings a very definite and useful contribution towards the elucidation of the questions under consideration, by his discussion of the essential characteristics of a mathematical science. A clear understanding of what mathematics is, necessarily precedes the definition of ends to be attained by teaching it, and teachers cannot fail to profit by reading the remarks on these matters. We do not think there is much room for disagreeing with Mr. Carson regarding the nature of mathematics, but when we consider aims, psychological elements begin to creep into view, and divergence of opinion necessarily arises. With regard to method, the only safe remark is that there cannot be uniformity. The chapters on "Intuition" and "The Useful and the Real" will be found very suggestive in this connection. We consider that these essays will be found most helpful by all who are concerned with the teaching of mathematics.

Squaring the Circle: A History of the Problem. By E. W. Hobson. 57 pp. (Cambridge University Press.) 3s. net.

Trisect any Rectilineal Angle by Plane Geometry. Solution by H. Devine. 20 pp. Second edition. (Hodges, Figgis.) 1s.

The tribe of circle squarers, angle trisectors, and perpetual-motion mongers is hardy and persistent. Unfortunately there is no short and easy method of convincing these gentlemen that some fallacy lurks in the deductions they draw from their usually very complicated and ingenious constructions. For the future, all such people may be advised to read Prof. Hobson's little book, though we fear very few of them are in a position to appreciate the proof of the transcendence of π there given. The work contains four chapters, of which the first gives a general account of the problem, the second narrates the history of attempts to obtain the value of π by geometrical construction, the third deals with the application of analysis to its evaluation, and the last with the question of its transcendence. The history of the problem extends over a period of at least 3,600 years, the earliest document relating to it being the papyrus of

Ahmes, whose value corresponds to 3.16. . . The proof of the transcendence in 1882 by Lindemann may be said to have brought the discussion to a close.

Regarding Mr. Devine's attempt to trisect an angle, we need only say that the proof he gives is fallacious. There is nothing in his construction to justify the conclusion that the points marked U and X coincide.

Higher Algebra. By W. P. Milne. xii+586 pp. (E. Arnold.) 7s. 6d. net.—This rather portly volume is indicative of the influence which the critical examination of the foundations of mathematics is beginning to exercise upon the teaching in schools and colleges. Conscientious writers like Dr. Milne are now careful to indicate whether proofs they offer are rigorous or not, and in the latter case to show where and why the proof lacks conclusiveness. In his preface he makes an apology for the presence of proofs defective in rigour, and his defence for admitting them, is, we think, quite legitimate, namely, perfect rigour is too severe for the class of students he has in view. As it is, there remains an abundance of hard nuts for them to crack. The whole of chapter ii. will be found pretty stiff reading, but it is the key to the book, and when it has been mastered little difficulty should be found elsewhere. This chapter is entitled "Irrational Numbers—Limits and Convergence of Series." It begins with a discussion of some inequalities in order to familiarise the student with ϵ , which plays such a prominent part in modern analysis. Next a number of sequences are discussed, leading up to irrational numbers, which are defined by means of Dedekind's "Schnitt Postulate." Then comes convergency of series, and, lastly, double series, in connection with which large use is made of summation diagrams. These diagrams are also freely used in discussing the binomial, exponential, logarithmic, and allied series. For the rest, the contents of the book as a whole correspond fairly closely to those in other well-known text-books, though Dr. Milne's methods of treatment present many novel and interesting features. Dr. Milne has definitely limited the scope of his treatment, sometimes in a rather unexpected manner. For example, he does not show that the rational algebraic function is a continuous function of the variable, but he gives examples of discontinuity. We have only to add that there is a splendid collection of examples and of subjects for essays.

Science and Technology.

Weeds: Simple Lessons for Children. By R. Lloyd Praeger. x+108 pp. (Cambridge University Press.) 1s. 6d. net.

The Story of Our Trees. By Margaret M. Gregson. xii+160 pp. (Cambridge University Press.) 2s. 6d.

To many teachers these two latest volumes of the "Cambridge Nature-Study Series" will be very useful. No plants are more worthy of attention than the marvellously efficient types we distinguish by the title of weeds, or are more likely to arouse the interest of properly guided pupils. Mr. Praeger shows himself fully conscious of the wealth of material for school work in nature-study which the subject affords, and wisely keeps in the foreground its practical importance in agriculture. The book obviously is not supposed to be a formal manual of elementary botany, but it would have lost none of its value by distinguishing clearly fruits from seeds—terms which are repeatedly confused. It is nevertheless essentially scientific in treatment throughout, and brings out very clearly and simply the nature of several aspects of modern botany into which children can enter with zest. A word of special commendation should be given to the sets of

practical exercises. In rural schools the book will be invaluable. It is well illustrated by forty-five clear diagrams and three plates from photographs.

Mrs. Gregson has arranged her book on trees in twenty-four lessons, each for a special week in the year. They all contain suggestions for useful practical work which, however, is by no means confined to tree-study. Indeed, many of the exercises, as well as several of the excellent illustrations, are unnecessarily concerned with herbaceous types. It is not easy to understand, *e.g.*, why, in a book on trees, seed-dispersal should be illustrated by a figure of the dandelion fruit, and all mention of the hairy seeds of the willow and poplar be omitted. The title of Fig. 7 is erroneous.

An Introduction to Zoology. By Rosalie Lulham. xv+457 pp. (Macmillan.) 7s. 6d.—Naturalists who are more interested in the external characters and habits of living creatures than in the details of their internal structure will give this book a cordial welcome. It deals with common British invertebrate animals, two thirds of the volume being devoted to arthropods. The volume is very largely a record of personal observation, and excellent new drawings from life by Miss V. G. Sheffield form the great majority of the 328 illustrations. There is thus in every chapter a freshness of treatment which makes for very pleasant reading, even when the facts recorded are not novel. Teachers wishing for inspiration for nature-study lessons on invertebrates will find the book exceptionally useful, and the great extent of the ground covered makes it excellent for reference. It would be an acceptable gift-book for a biologically inclined boy or girl. It is much to be hoped that the author will be encouraged to bring out a book on similar lines on common British vertebrates.

Applied Biology: An Elementary Text-book and Laboratory Guide. By Prof. M. A. Bigelow and Anna N. Bigelow. xi+583 pp. (New York: The Macmillan Co.) 6s. net.—Used as a combined text-book and practical guide for a year's course of five hours per week—its declared purpose—this manual would provide an intelligent student with "the essential facts, and especially the great ideas, of the science of life," so far as these are to be gathered from the study of biology. The authors rightly point out that apart from its obvious applications to economics, and to human physiology and hygiene, biology has certain phases of value in the intellectual and æsthetic life of all cultured citizens. It is in this wide sense that the title describes the subject-matter of this admirable book. By avoiding emphasis of the technical terms of botany and zoology, and by describing details merely as illustrations of the broad principles of the science, the authors have framed a course of study which is likely to be of interest to the general reader as well as of great value to professed pupils in biology. The style is easy and interesting, and the illustrations are numerous and carefully selected. A *Teachers' Manual* (ix+113 pp; 1s. 8d. net) to accompany the book, gives detailed suggestions regarding its use.

Miscellaneous.

SIR ISAAC PITMAN AND SONS, LTD., have sent copies of the early numbers of *Pitman's Commercial Self-Educator*, which is to be completed in sixteen fortnightly parts at 7d. net each. This publication is intended for those students who are unable to attend classes such as are found in all the great towns where tuition in business subjects can be obtained. The articles cover a wide range, from the discussion of business qualities and salesmanship to lessons in

commercial arithmetic, French, and digesting returns. The information which is conveyed is sound and eminently practical, and should prove of benefit to the readers; the drawback which suggests itself, however, is that most students will not desire to study all the facts set before them, and will probably find more information in a separate text-book of the subject which they choose to study. A bright feature of each part is a short biography of "A Leader of Commerce"; in the first part, Lord Pirrie, in part iv., Sir William Priestley.

MESSRS. NEWTON AND CO., 37 King Street, Covent Garden, W.C., have just issued a new catalogue of the lantern-slides which they sell and let on hire. We note among other sets of slides of great interest, pictures of clouds, by Dr. Lockyer, slides on prehistoric man in Britain, by the Rev. H. N. Hutchinson, the sets of geographical slides issued by the Diagram Company, the complete sets of slides of Canada, &c., issued for the Visual Instruction Committee, sets of slides to illustrate Gardiner's and Green's English histories, as well as sets of slides to show the processes of many modern manufactures. Teachers who require either slides or lanterns should certainly communicate with Messrs. Newton.

EDUCATIONAL BOOKS PUBLISHED DURING DECEMBER, 1913.

(Compiled from information provided by the Publishers.)

Modern Languages.

"A Grammar of the German Language." By G. H. Clarke. Revised edition. viii+404 pp. (Cambridge University Press.) 5s.

"The Oxford Book of Spanish Verse, Thirteenth-Twentieth Century." Chosen by James Fitzmaurice Kelly. 406 pp. (Clarendon Press.) 7s. net; on Oxford India paper, 9s. net.

Marguerite Audoux: "Marie Claire a Villeveille." edited and adapted by A. G. Philip. (Oxford Junior French Series.) Edition Autorisée. 110 pp. (Clarendon Press.) 1s. 6d.

English: Grammar, Composition, Literature.

"A Handbook of Précis-Writing with Graduated Exercises." By E. Derry Evans. viii+106 pp. (Cambridge University Press.) 2s.

"Beowulf, with Textual Footnotes. Index of Proper Names and Alphabetical Glossary." By A. J. Wyatt. xvi+242 pp. (Cambridge University Press.) 8s. 6d.

Charles Lamb: "Essays of Elia." xxiv+336 pp. "The Last Essays of Elia." xxiv+302 pp. By A. Hamilton Thompson. (Cambridge University Press.) 2s. 6d. each.

Milton: "Lycidas, L'Allegro and Il Penseroso." Edited by Oliver Elton. 56 pp. (Clarendon Press.) 1s. net.

The Children's Classics—Series II., No. 61: "The Dove in the Eagle's Nest." (Abridged.) By Charlotte M. Yonge. 128 pp. (Macmillan.) Paper cover, 5d.; cloth cover, 6d.

"Old Time Stories and Old World Customs." Three parts in one vol. By A. Gertrude Caton. 254 pp. (Macmillan.) 1s. 9d.

Shakespeare, The Tudor—"The Facts about Shakespeare." By W. A. Neilson and A. H. Thorndike. 282 pp. (Macmillan.) 1s. 6d. net.

"The Chisholm Readers." Books III. and IV. Edited by Louey Chisholm. Book III., 208 pp. Book IV., 240 pp. (Jack.) Book III., 1s. 3d.;

Book IV., 1s. 4d. (Books I. and II. were published in October.)

"An Anthology of English Verse." By A. J. Wyatt and S. E. Goggin. New edition. 388 pp. (University Tutorial Press.) 2s. 6d.

History.

"A History of England and the British Empire." Vol. ii., 1485-1688 A.D. By A. D. Innes. xxxii+553 pp. (Rivington.) 6s. net; also a library edition, 10s. 6d. net.

Geography.

"The Madras Presidency, with Mysore, Coorg, and the Associated States." By Edgar Thurston. xii+294 pp. (Cambridge University Press.) 3s. net.

Cambridge County Geographies, with illustrations and maps—"Merionethshire." By A. Morris. x+106 pp. "Northumberland." By S. Rennie Haselhurst. xii+182 pp. (Cambridge University Press.) 1s. 6d. each. Pocket edition of "Northumberland," round corners, 1s. 6d. net.

Atlas Geographies, Senior Series—"Africa." By Franklin and Griffiths. 116 pp. and 30 maps. (Johnston.) 1s. 6d. net.

Mathematics.

"Exercises from 'A New Algebra.'" Parts i.-iv. By S. Barnard and J. M. Child. 282 pp. (Macmillan.) 2s. 6d.

"Junior Geometry." By A. G. Cracknell. 284 pp. (University Tutorial Press.) 2s. 6d.

Science and Technology.

"Sound: An Elementary Text Book for Schools and Colleges." By J. W. Capstick. viii+296 pp. (Cambridge University Press.) 4s. 6d.

"The Story of Plant Life in the British Isles." By A. R. Horwood. 254 pp. (Churchill.) 6s. 6d. net. "Elementary Practical Chemistry." Part i. By Frank Clowes and Bernard Coleman. Sixth edition. 241 pp. (Churchill.) 3s. 6d. net.

"Who's Who in Science, 1914." Edited by H. H. Stephenson. 666 pp. (Churchill.) 10s. net.

"Applied Mechanics for Engineers." By J. Duncan. 732 pp. (Macmillan.) 8s. 6d. net.

"Text-Book of Botany." By J. M. Lowson and M. Willis. (Indian edition.) 613 pp. (University Tutorial Press.) 6s. 6d.

Pedagogy.

"The Purpose of Education: An Examination of the Education Problem in the Light of Recent Psychological Research." By St. George Lane Fox Pitt. x+84 pp. (Cambridge University Press.) 2s. 6d. net.

"Lessons on the Kingdom of Israel." By C. C. Graveson. 136 pp. (Headley Brothers.) 1s. net limp cloth; 1s. 6d. net cloth boards.

"Stories of Jesus." By Nora W. Blake. 136 pp. (Headley Brothers.) 1s. net limp cloth; 1s. 6d. net cloth boards.

"Jesus the Hero." By Florence B. Reynolds and Herbert I. Waller. 136 pp. (Headley Brothers.) 1s. net limp cloth; 1s. 6d. net cloth boards.

"Period of Conquest and Judges." By Gerald K. Hibbert and Maurice L. Rowntree. 136 pp. (Headley Brothers.) 1s. net limp cloth; 1s. 6d. net cloth boards.

"Early Collegiate Life." By J. A. Venn. viii+286 pp. (Heffer.) 5s. net.

"The Training of the Twig: An Essay on the Religious Education of the Young." By the Rev. C. L. Drawbridge. New and revised edition. (Longmans.) Cloth, 1s. net; paper covers, 6d. net.

Miscellaneous.

"Fortieth Annual Report of the Oxford and Cambridge Schools Examination Board for the Year Ending October 31, 1913." 52 pp. (Cambridge University Press.) 1s. net.

"University of Cambridge Higher Local Examination and Examinations for Certificates of Proficiency. Forty-fifth Annual Report of the Syndicate, Presented to the Senate, October 21, 1913." 20 pp. (Cambridge University Press.) 6d.

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Year Book Press Series of Unison and Part Songs for Schools—No. 93, "Good Night." (Unison song.) 4 pp. 2d. No. 94, "Ripple On." (Unison song.) 4 pp. 2d. No. 95, "You'll Get There." (Unison song.) 3 pp. 1½d. By C. H. H. Parry. (The Year Book Press.)

Year Book Press Series of Anthems and Church Music—No. 7, "In Dulci Jubilo." By R. L. Pearsall (1795-1856). Edited by Sir Walter Parratt 10 pp. (The Year Book Press.) 6d.

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Inaccuracy in Arithmetic.

CAN any of your readers oblige me with information upon a particular point. I want to make an examination of the mind of a boy who is brilliantly good at languages, quite good at algebra and geometry, and unsound in arithmetic. I am convinced that this unsoundness is due to no special want of aptitude but to the existence of what I might call defective points in his training, bad joins, flaws.

Let me illustrate by my own case. I was taught arithmetic rather sloppily as a boy, and in many of my earlier examinations I got very bad marks. As I grew older I discovered that almost every sum that went wrong went wrong through certain definable unsoundnesses. I added $9+8$ as 16, as often as I made it 17, and I was sketchy as to the product of eight nines. In everything else I was mechanically accurate; I even added right with $8+9$, i.e., if eight came first in my mind; but I had these two bad habits. I drilled myself right on these points so soon as I understood them clearly, and I ceased to have any reason for believing that I was "bad at arithmetic."

Now I think most boys who are "bad at arithmetic" are probably so for exactly the same reason, because of some undetected habitual vice of the kind I have instanced. This seems to be so obvious, that I am sure there must exist a properly arranged series of drills by means of which the specific error of any boy in these elementals may be rapidly detected. Where is it to be got? It ought to be available in every properly equipped school. H. G. WELLS.

Little Easton Rectory, Dunmow.

A Simple Method for Determining Refractive Indices.

It does not appear to be generally known that many hollow vessels, such as test tubes, crystallising dishes, even the common tumbler, or a bulb-shaped *carafe*, will suffice for a very simple and convenient method of determining refractive indices.

The principle of the method is at once grasped by looking through a glass of water at a gas-burner or electric bulb some feet away. The light is seen, of course, through the middle of the water. If the arm and body be slowly rotated, the light passes to the edge of the glass, and finally disappears. This limiting position marks the maximum deviation through the vessel, at tangential incidence and emergence. The supplement of the angle of maximum deviation is twice the critical angle, as is shown in the diagram.

The practical experiment is best made with a round crystallising dish, with vertical sides, filled with liquid.

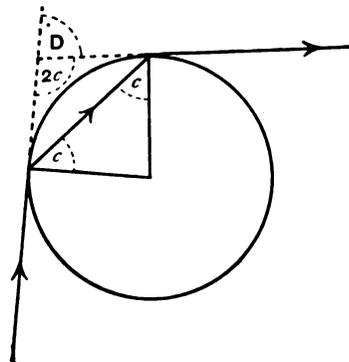
This is placed upon a sheet of paper on which is ruled a straight line. The vessel is adjusted so that the shadow cast by one edge falls along this line, the source of light being a lamp or burner on the same level some feet away. The line now gives the direction of the tangential incident ray. After observing the light directly through the middle of the liquid, the eye is gradually moved round until the last glimmer is seen just to disappear at the edge of the vertical side of the dish. A ruler laid along the line of sight then marks the direction of the emergent tangential ray. A pencil line is drawn along this, and the double critical angle, the supplement of the angle of deviation, is directly measured. As the angle measured is twice the critical angle desired, a fairly accurate value of this latter, and therefore of μ is easily obtained, even in this apparently rough way, without optically worked surfaces. Indeed, a common tumbler of water will suffice to give the values of μ both for water and glass, the observation for the latter being made through the solid glass base of the tumbler. A circular paper-weight or a glass rod will also serve.

As a drop of liquid is circular in horizontal section, a hanging drop may be used, and it seems probable that highly accurate results may be got by using a hanging drop on the spectroscopic table, substituting a microscope, focussed on the edge of the drop, for the usual telescope. The details of this are being further investigated. F. G. DUFTON.

Leeds Grammar School, January, 1914.

The Revision of Spelling.

ENGLISH spelling is perhaps the greatest difficulty in our early education, owing to its extremely anomalous character. This apparent lawlessness by which the spoken does not follow the written sound is, of course, due to the retention upon the printed page of letters and collections of letters now either dropped in our speech or pronounced differently from what they were. The retention of misleading letters is to some extent valuable on historical grounds, but makes it most difficult to teach children or foreigners how



to learn to read English; and, it may be added, it is doubly difficult for foreigners. It may be asserted that a child of average ability will take four times as long to learn English, as at present spelt, as it would take him to learn it as spelt on the plan proposed by the Simplified Spelling Societi. German children learn to read their phonetic language in about a year, and once they have mastered it is theirs for ever. Mr. Robert Lowe, when he was Minister of Education, said that he never could get a sixth standard boy to read decently to him, and in my thirty-five years' experience as a Government inspector of schools I can say that, although I found scholars who had been obliged to spend from six to seven hours a week in learning to read English in the lower classes of our elementary schools, I have rarely been completely satisfied by the performances of even seventh standard pupils. No doubt their unsatisfactory results are in part due to the overcrowding of the curriculum with other subjects in the upper classes and the necessary limitation of the time for residing there. But the fact remains that in order to acquire reading of the right kind an undue proportion of the time, already short enough, allotted for elementary education must be taken up in order to teach a child to read, and, let me add, spell satisfactorily. And here let me say that spelling has been allowed to go by the board to a large extent, it having been felt that more time had been given to it than could be reasonably spared from other more important subjects.

Indeed the difficulty in teaching reading and spelling has been made manifest by the manifold methods employed in dealing with them. Thus we have the old-fashioned alphabetical method, by which the names of letters are used in spelling in an absurdly illogical way, thus P.i.g. which should spell "peige" spells pig, and C.a.t. should spell "sate." This irrational method, under which most of us have suffered, is giving way to phonic methods, by which whatever phonetic basis there is to the language is first drawn upon; irregular words being afterwards gradually introduced. Perhaps the best form of phonic teaching is that inaugurated by Miss Nellie Dale, but she does not profess to teach reading rapidly and therefore much time is still lost under it. Then there is the "look and say" method which teaches reading through the eye, not the ear, and the eclectic method, advocated by Prof. Meiklejohn, a combination of the "look and say" and phonic methods. None of these, however, not even Prof. Sonnenschein's ingenious but unnatural system, has triumphed over the obstacles created by our difficult system of spelling. Here it may be stated that German, though already a practically phonic language, has recently had its spelling further simplified, shedding all redundant letters in order to make the teaching of reading and writing as simple as possible. Is not this a good example for us, provided by the people who are our most formidable rivals intellectually, commercially, and navally? But how are we to effect this change, and what line is it to take? Prof. Rippmann has explained that the scheme of the Simplified Spelling Societi is a reasonable compromise between a purely phonetic system of spelling and our present system, or want of system. I have given this plan my careful personal consideration, and must confess myself an adherent to its general principles, with, perhaps, slight modifications into which I cannot now go. Its advantages are that it will not only enable children to learn to read and spell much more rapidly, and pronounce more correctly, but that it will help in the teaching of shorthand; not render it necessary to throw over our existing founts of type; make it easier, through phonic teaching, for

children to acquire Continental languages; and, above all, by making the English language a phonic one for foreigners, give it the opportunity of becoming more and more a world language. But how is this great reform to be introduced? Obviously, by the Board of Education, and not necessarily in the first instance by compulsion. Let its effects be tested against the present system by capable teachers in different parts of the United Kingdom. When these are proved superior to those of former systems let it be taken up generally in the infant schools and carried right through the school course.

If it is objected that you will have two systems of spelling in vogue, our present system and a new system coming up to take its place, the natural reply is that those who have learnt on the old system will continue to read books printed by its principles, and that these therefore will be very gradually ousted from the book market, and will always remain in libraries for consultation by those interested in earlier spelling on historical and etymological grounds. But here let it be said that the simplified spelling will reveal as well as obscure the derivation of words, more especially their Teutonic origin, as shown, for example, by the word mother, which will come to be "muther," more closely connecting it with the German "Mutter" than the present mother. The only formidable difficulty in the way of this reform will be the obtaining of a consensus of opinion upon the correct pronunciation of English by the English-speaking peoples, for we must join hands with the United States in this matter, as that country is, I believe, prepared to do. The easiest way out of the difficulty is to realise that for the present a variety of pronunciations of the same word may, for the time, be accepted. The pronunciations of the north and south of England will have to be reconciled, or, in some instances, tolerated, together. Certain letters which, according to Horne Hook, are apt, like soldiers, to drop off in a long march, will have to be saved as they are saved in Scotland, Ireland, and the U.S.A., i.e., the letter "h" after "w," the final "g" and the final "r," and generally an arrest must be made of the absence of tone in the pronunciation of our vowel sounds, which is depriving our language more and more of its vocal beauty.

ALFRED P. GRAVES.

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SIXPENCE.

THE TROUBLE IN HEREFORDSHIRE.

By T. RAYMONT, M.A.

Goldsmiths' College, University of London.

THE friends of education can scarcely complain that in recent times the object of their solicitude has received too small a share of public attention, or that it has been too little noticed in the daily Press. But when so serious a national interest as education begins to receive the sort of attention that is yielded to a flaring advertisement, or to a Punch-and-Judy show, its friends, whether professional teachers or not, must surely experience much searching of heart. The uproarious doings of the juvenile population of certain places in Herefordshire have, of course, their amusing side, which the newspapers have naturally made the most of. But when one's laugh is over—what then? We may be sure that even the immediate parties to the dispute, and especially the teachers, regard the chaos into which the schools have been plunged as altogether deplorable. Nothing but a stern sense of necessity, mistaken or otherwise, could have brought about this result. The friskings of the young lambs of Herefordshire are a grotesque reminder, quite unsuited to the gravity of the case, of the existence of educational problems that are by no means peculiar to that county.

To most readers of this magazine, and certainly to the writer of this article, the wider issues involved are of much more interest than the merits of the local quarrel. As to the latter, every fair-minded man would wish to hear both sides. What, then, is the case of the local authority? Briefly stated, it is that the area over the educational destinies of which it presides is large and thinly populated; that the schools are necessarily scattered; that an overwhelming proportion of them are small

country schools; and that in such a district the teachers cannot expect to be paid salaries commensurate with those paid in urban and industrial areas, where the schools are relatively fewer and larger. For this abstract proposition there is doubtless much to be said. But the teachers are not content to deal in abstract propositions. They have an awkward way of insisting upon concrete facts. They point out that the county rate for education is one of the very lowest in England—too low to be mentioned without a blush of shame. They point out, too, that the proportion of the cost of education borne by the rates is abnormally low in Herefordshire; and that whereas that proportion is significantly rising throughout the country as a whole, in Herefordshire it is actually falling. They describe the hopeless situation of a teacher for whom, as is the case in Herefordshire, there is no prospect of an improved income as the years advance, and by whom fifteen years of service receive no more recognition than fifteen months. Not only so, but they allege that the absence of a definite scale makes everything depend upon the caprices of particular bodies of managers, and leads to unfair discrimination between one teacher and another, especially when a teacher happens to have a friend (or an enemy) at court. Added to all this, there is the economic fact that the cost of living has everywhere gone up in recent years; whereas the remuneration of Herefordshire teachers remains practically where it stood at the passing of the Act of 1902. Finally, as everyone who knows the schools is well aware, the duties of a country teacher are multifarious and onerous, because, though the children may be comparatively few in number, they comprise all ages and all stages within the limits of elementary-school life.

Upon the merits of this dispute, regarded as a question of simple justice, little needs to be said, for public opinion outside Herefordshire has expressed itself with remarkable unanimity and strength. But upon the wider questions involved, something does need to be said. Is it true that counties like Herefordshire have no faith in popular education, and do not want it? Or is it rather that they have no faith in *the kind of education* that is still so largely given in rural schools, and do not want *that*? Speaking for the "Liberal Education Group of the House of Commons," Mr. J. H. Whitehouse, M.P., tells us that in the rural schools the old "unenlightened adherence to a code fixed for all kinds of schools" still prevails, "with the result that so far elementary education in the rural districts has not had any material, or indeed noticeable, influence in promoting interest in the pursuits and occupations of the country, or in preventing boys from drifting as rapidly as they can to the towns and cities."¹ Similarly, Mr. Hoare, M.P., speaking for the "Unionist Social Reform Committee on Education," tells us that "the farmers and landowners, not without reason, have got it firmly into their heads that the elementary school is a useless and sometimes harmful institution, and that the sooner a child is got out of its enervating atmosphere, the better for all concerned"²; and Mr. Hoare's Committee, like Mr. Whitehouse's, believes that the first need with regard to rural education is to reform the rural schools.

If these views be correct, the reputation of the Herefordshire farmers for common sense may yet be partly saved. But not their reputation for justice. For it is not the fault of the teachers, but of the system under which the teachers work, if the rural schools are not doing all that they ought to be doing for the rural populace. Why is it that elementary education has never been favourably regarded in the country districts? Why was it that the rural school boards would never have compelled children to go to school at all if the screw had not gradually been turned by the central authority? Partly, no doubt, because the farmers wanted the children for the purpose of frightening away the crows. But partly also because rural schools were never designed to meet rural needs. On Mr. Lowe's initiative, the teachers wandered for decades in the barren wilderness of the "three R's." Big blunders of that kind are not obliterated by a few strokes of the official pen. The effects are still with us. The rural schools suffered

more than the town schools from a clerky system of instruction, and they are taking a longer time to recover.

We are thus led to another reflection suggested by these lamentable transactions in Herefordshire. The relation between the central and the local authority for education is not yet sufficiently determined; and the result is that local authorities vary enormously in the thoroughness and faithfulness with which they carry out their duties. And no wonder; for whilst a penny rate produces upon an average throughout the country three shillings a child, in some districts it produces ten shillings, and in others only one shilling. In order to convince people that a greater proportion of the cost of education should come from Exchequer grants, it is not enough to talk vaguely about education as a national concern. People must be convinced that the present system is really unfair as between one district and another. The suggestion has recently been made that, since the worth of education depends chiefly upon the quality of the teachers, and since the teachers' salaries account for some 70 to 75 per cent. of the total cost of maintenance, the State subsidy should be apportioned to the amount spent on salaries, or perhaps should just cover that amount. In some such direction as this the solution of the difficulty would appear to lie, and it is to be hoped that the suggestion will receive most careful consideration.

Meanwhile, the teachers of Herefordshire cannot be expected to wait for some possibly far-off readjustment of central and local burdens, and for the effects upon the minds of their agricultural employers of possible reforms of rural schools. But upon at least one aspect of the struggle all teachers can afford to look with mild satisfaction. It was not entered upon without the previous exercise of great patience, and it has not been conducted without the dignity that befits an association of educated men and women. There was no hasty or ill-considered "down-tools" policy; and the language of menace has been conspicuous by its absence. We are glad, indeed we are proud, to know that the elementary-school teachers bear themselves in these trying circumstances at least as correctly as did another profession which recently took occasion to insist upon a proper recognition of its pecuniary interests. Strikes are bad, as surgical operations are bad, and apparently they are equally unavoidable. But up to the time at which we write, the teachers have certainly given to whomsoever it may concern a salutary object-lesson upon the novel topic—How to Conduct a Strike.

¹ "A National System of Education," pp. 22-3.

² "The Schools and Social Reform," chap. v.

THE HUNDRED YEARS' PEACE.

GREAT BRITAIN AND THE UNITED STATES OF AMERICA, 1814-1914.

By A. JOHNSON EVANS, M.A.

THE two great English-speaking countries have been at peace for a hundred years—at least no war has broken out between them—and this year we are going to celebrate the occasion. On what do we congratulate ourselves? On the absence of quarrels, and so on the want of opportunities for going to war? Or on the wisdom and patience which has, in the presence of provocation, so guided the responsible statesmen of both countries that they have avoided the calamities of what might well have been described as internecine warfare?

A glance over the history of the century we have completed will show that it is the latter alternative which must supply us with the matter for our review. Not the happiness of having no history, but the perhaps higher happiness of having fallen into temptation and having been saved from the consequences.

First, there have been boundary questions such as we might almost expect to arise between two States that have a common boundary of some three thousand miles, much of which, when the lines were first laid down, ran through quite unknown parts of a still undeveloped continent. Even the north-east boundary was at one time a matter of dispute, and in 1838-9 the limits of the State of Maine were the subject of a small border warfare, a dispute which was happily ended in 1842 by the Ashburton Treaty. But it was in the north-west corner of the United States, long unsettled, that the most serious difficulties arose. The Spanish Government in 1783 foresaw that the British colonies of that day would, if they attained independence of the mother country, be a conquering force, and Charles III. was consequently unwilling to join his cousin of France in the help he was giving to the "rebels." It was only the hope of regaining Gibraltar in the scramble that induced His Catholic Majesty to fulfil his duty under the terms of the Family Compact of 1761.

The Spanish forecast was justified, and the history of the United States during the nineteenth century was that of one long advance westwards. We omit, as outside our subject, the methods by which the territory of the thirteen original States was extended at first to the Mississippi, and afterwards to the Rocky Mountains; but in the first half of last century, both British and American settlers were pushing westwards towards the Pacific, and it was found neces-

sary in the interests of peace to agree (1827) on a joint occupation of "the wilderness." As the new territory became colonised, the interest in its boundaries grew, and for some time there was a loud popular demand in the Republic that they should claim all the coast so far as the then Russian possession of Alaska. Wiser counsels, however, prevailed, and in 1846 the territory in dispute was divided between Great Britain and the United States by continuing westward the line of the forty-ninth parallel of latitude which marked the boundary from the Great Lakes to the Rocky Mountains.

No sooner, however, had the new territory been admitted to the list of States under the name of Oregon than a small local dispute broke out, the story of which has not got into the ordinary text-books, but which is still preserved in the memory of the western settlers. The island of Vancouver belongs to Great Britain, its southern extremity faces the point of division between the two countries on the mainland, but is separated therefrom by two or three channels, broken by islands. To whom should these islands belong? The story is told that the islet of San Juan was occupied for a time jointly, and that a question of jurisdiction which arose over a pig killed by a man angry at his neighbour's trespassing made the matter of such importance that it was referred to the German Emperor, who gave his decision in favour of the United States (1872).

All the world knows that Russia sold Alaska to the United States in 1867, and that in recent years the question of the extent of its coast southward became an important matter between Canada and the United States because of the development of the Yukon goldfields and other settlements in that region. When Canada wanted a port for her second trans-continental railway the matter became urgent, and there was much legal dispute as to what is meant by "the coast." In the end, the quarrel was adjusted by arbitration in 1903, and again the United States were held to be in the right in the main points of their contention. So the Pacific coast has been finally divided between the two Powers on what we all hope is a lasting foundation.

All questions of gaining territory from one another were laid to rest as between Great Britain and the United States by the Treaty of Ghent, which we are celebrating this year. That treaty also, or rather the contemporary cessation of European war, put an end to any practical enforcement of the British doctrine of life-long allegiance, and to the consequent seizure of sailors on board American vessels; but there have not been wanting other occa-

sions of strife, especially during the four years of the great Civil War. That war cut off the supply of raw cotton from the Lancashire mills, and thus caused great distress among the wage-earning classes of that county; but, in spite of that, the sympathy of the lower middle classes in this country was with the Northern States, who were determined to put an end to the schism in their Republic. They believed that slavery was essentially the question at stake, and they felt that the cause of the poor and down-trodden was the same all the world over. Unfortunately, many of the richer folk in England sympathised with the Southern States, partly owing to an impression, derived from many sources, that these were fighting the battle of aristocracy against an upstart democracy, and partly because of a belief that they were right in their claim to secede from the Union if they thought good to do so. Many of us have read in the pages of *Punch* for the year 1865 his noble apology for the abuse he had poured on Lincoln and his cause during the years of strife.

Such being the attitude of British public opinion, we can turn to those matters which gave rise to soreness and something more between what still claimed to be the government of the United States and the British authorities. Great Britain recognised the Southern States as a "belligerent," thus contradicting the claim of the Northern States to regard them as rebels. In the first year of the war the Confederates sent two agents to Europe to gain sympathy, and, if possible, material assistance. They embarked in a British mail packet, the *Trent*, which was stopped by a United States man-of-war and the two agents taken off her. Public feeling in Great Britain rose high, and the ministers of the day demanded, with threats of war, that the two men should be surrendered. *Punch* had a cartoon representing Britannia looking across the Atlantic with a lighted match on the muzzle of a gun. But Queen Victoria, under the advice of her wise Consort, intervened, and, with an expression of regret that the United States commander had exceeded his instructions, the incident closed. The most useful comment is that, if he had seized the ship and taken her into one of his harbours, there would have been, according to international law, no cause for complaint.

The third matter is the case of the *Alabama* and connected questions. This vessel, the name of which was to become so famous during the next decade, was built in Liverpool to the order of the Confederate States, and, owing to slackness on the part of the British Government, was allowed to embark on her career

as a privateer. She and other such ships did much damage to the shipping of the United States, and, when the war was over, the triumphant Government claimed compensation from Great Britain for her alleged breach of international law. A long story could be told of the diplomacy in the matter, and of the large claims that were made. But at this distance of time it is unnecessary to do more than say that in 1871 the whole matter was submitted to a court of arbitration sitting at Geneva, which, interpreting British duty rather higher than had previously been regarded as necessary, awarded the United States some three millions and a quarter in full compensation for all claims. The incident is remembered now chiefly as one of the earliest successes in the modern method of settling disputes without going to war.

Finally, we may refer to the "Monroe doctrine," which has at intervals been elaborated by our American cousins in the course of their emergence from the international isolation on which they at one time prided themselves. When Spain fell under the power of Napoleon, and the course of events began of which *the* Peninsular War is a large part, the Spanish colonies in South America found it necessary to set up government on their own account, a proceeding which they found eminently satisfactory owing to the oppression from which they had long suffered at the hands of the mother country. When the reactionary Powers of Europe, having put down the revolt of the Liberals in the Peninsula in the 'twenties of the nineteenth century, proposed to complete their work by helping Spain to reassert her authority across the Atlantic, Great Britain stepped in with her then invulnerable navy, and "called a new world into existence to redress the balance of the old"; in other words, she protected the nascent South American Republics for the sake of her own growing commerce.

In this action Great Britain was supported by the United States, whose President, James Monroe, in a message to Congress, laid down the rule that all interference of European Powers with the affairs of the American Continent would be regarded by them as an unfriendly act. The circumstances in which this principle was thus first stated ensured it a friendly reception from Great Britain and thus by the rest of Europe. Europe did not then realise, any more perhaps than the Americans themselves, how far the principle could and would be developed, but we need do no more than refer to the troubles in Venezuela at the end of last century when the *amour propre* of our people was hurt by American insistence on their right to arbi-

trate in the matter. But then the length of time during which Great Britain and the United States had, in spite of the difficulties to which we have referred and of others that we have omitted, maintained peace one towards the other, was beginning to make a prejudice in favour of friendly feeling, and in the war which the United States was then waging against Spain, apropos the troubles in Cuba, it is well known how Great Britain "held the ring" and isolated the war with her benevolent neutrality, even though she saw the colonies of Spain which she had once (1763) given away, coming into the possession, or at least under the control, of her great daughter.

It is now many years since Prof. Freeman wrote an essay entitled "George Washington, the Expander of the British Empire." With the growing closeness of relation between John Bull and "brother Jonathan," the paradox of that essay tends to lessen, and in this year 1914 we may not only celebrate the happy issue out of all our afflictions, but also lay the foundation of an alliance which should go far to assure the peace of the world.

FADFIELD: CHAOS UNILLUMINED IN ENGLISH EDUCATION.

By Prof. HENRY E. ARMSTRONG.

A middle-class school but how superior to schools for us in the general teaching. If one learnt nothing out of school at Eton and Harrow, would what one learns at the school enable one to keep up with the sons of traders? I doubt it!—BULWER-LYTTON, 1857.

ALTHOUGH, in his recent address, published in the February issue of *THE SCHOOL WORLD*, Vice-Chancellor Sadler condemns the conclusions advanced by Principal Griffiths at Birmingham, he admits that the state of our English education is chaotic but considers that it is one of cheerful chaos. Not being gifted personally with Dr. Sadler's Mark Tapley-like disposition, I have difficulty in associating cheerfulness with chaos of any kind, certainly with that which reigns in education. The worst feature of the situation is that we find ourselves in chaos, in chaos atropic, notwithstanding, if not in consequence of, the ever-flowing stream of inquiries instituted by Dr. Sadler and others and the vast amount of vapourous writing and talk let off, year after year, in the press and on public platforms. Had we but gone about our own work in our own way, without eternally bothering ourselves what other people under other conditions were doing, had we made systematic use of our own experience to our own ends, we should have made solid progress. As it is, the tree has no sooner begun to grow than we have uprooted it; in fact, we cannot make up our minds to cultivate any crop steadily.

In place of sense, we allow sentimentalism to rule everywhere: indeed, we seem to be fast losing all stability of character and virility; there is even danger—grave danger—of our sinking into the vicious deeps of co-education. Perhaps the most serious feature of all is the way in which teachers are now being misled into the devious and shadowy paths of psychology, that too by a chief inspector.

Dr. Sadler gibes at Principal Griffiths but his own admissions suffice to confound him:—

The English education which Principal Griffiths reviewed is at the moment torn asunder by hesitancy as to ideals. It is puzzled, self-critical, harried by doubts, untouched by passion or faith. And on this sort of thing almost any amount of money is wasted. It has not in it the spark of life. It slips into routine. It is frightened of making a venture. It plays for safety. It dare not fight."

The Vice-Chancellor, however, seeks to give comfort by telling us that

there are many signs, though Principal Griffiths seems to have allowed them to escape him, that the time is coming when a clear purpose will take the place of harassed uncertainty and when the main body of English education will feel the exhilaration of a clear aim.

These signs, he says, are the attendance at holiday courses; the audiences that Madame Montessori *may have* if she come over here to lecture to us; the sale of Mr. Edmond Holmes' books. He might have added—our devotion to the Kinematograph Show, the performance of stage plays at music halls, even the introduction of new dances, such as the Tango; *and* the suggestion that is now seriously made that *Misses* should give "sex-instruction" to young children in the schools all over the country: next we shall have the unexpurgated *Decameron* and Burton's *Arabian Nights* brought in as School Readers.

Surely, from a man of Dr. Sadler's experience and position, we have the right to expect saner and sounder doctrine than this. Mr. Holmes, by his own confession, went the wicked ways of the Inspector until almost the last year of his professional life—and then achieved salvation suddenly at the hands of an engaging schoolmistress in a remote village; he who had been gibing at the clerics all his life had previously done nothing but play into their hands. His books are read because they are naughty, not because their doctrine is specially nice. Madame Montessori's methods were devised for defectives—is this perhaps the reason why Dr. Sadler thinks she will attract us? If teachers are "to spring to their task with cheerfulness and hope and rejoice in the success of their labours," they had much better go out into the highways

and byways and learn how the world does its work than dissipate their energies, when they ought to be holiday-making, at educational revival meetings, where all is talk and performance is the last thing thought of.

Lord Bryce, in his recent inaugural address, pertinently asked "Why do not English boys care more for learning than they do?" If he went into the schools and could appreciate the manner in which boys are asked to learn and what they are asked to learn, he would have no difficulty in answering his own question; he would realise that our youth is sufficiently clever to see that what is put before it is not worth learning, as a rule. Before we attempt to make continuation schools compulsory, we must see to it that we make the preliminary training effective.

Dr. Sadler tells us that growth, not decay, is the cause of the confusion. But what kind of growth? It availeth little, however much a wheat plant may tiller at its roots, if there be no corresponding development of ripened heads of grain—mere straw is of little value except as chaff. Still less are we likely to produce a crop if we constantly uproot our plants and begin to sow afresh. Our one great need in education is the abolition of presuming amateurs and mere men of affairs and the creation of a coherent and effective expert opinion. The College President has held University Education in bondage in the United States of America by depriving teachers of their freedom of action; we shall be wise if we realise in time that there is danger of a like autocratic system growing up in our midst.

Before all things we need to develop a constructive policy. Formerly, we were looked upon as being a practical people, who quietly set about doing things—now, in so far as education is concerned, we are nothing but a nation of talkers of whom Dr. Sadler has long been the uncrowned king. A few small dictators of limited outlook are ruling us. Surely he has given up sufficient of his leisure to study and self-training and has now enough knowledge at his disposal to advocate a definite policy of action. We do not want any more thoughts added to our chaos or definition thereof; we want deeds, deeds that will help us to hold our Empire and do justice to our responsibilities. No doubt, teachers are full of enthusiasm—we have not a few good teachers and here and there good schools but you cannot either bank or live on enthusiasm.

It is sufficient to glance through the issue of THE SCHOOL WORLD in which Dr. Sadler's address appears to realise how extraordinarily indeterminate is the state of affairs scholastic

in our country. To begin with, Headmasters are rated for having for once had courage to say honestly what they think—for having said, in so many words, that the splutter that is being raised over the pronunciation of Latin is ridiculous and that they will no longer be a party to the farce of mere accentual reform.¹ At the back of their heads, doubtless, is the expectation that the time is not far distant when it will be recognised that the truth lies more nearly in the direction indicated warily but significantly by Mr. Benson—who has rendered such service of late by his continued protests against the classical system—a few pages later on, when he says:—

I do not myself regard the literary influence of Latin very enthusiastically. . . . The disuse of Latin as an element of literary education is not a practical question just yet [a clear indication that, in his opinion, it will be soon]. . . . The claims of English are paramount.

This last from an Englishman in the year 1914! Surely Article One in our creed of English education should be that we endeavour, before all things, to teach the art of reading and of reading in our own language. With all our talk, we have not yet brought home this elementary principle to the minds of the teachers, still less of the Board of Education and of school authorities generally. Yet forsooth we have been all the time in the hands of the literary class. From the days of Matthew Arnold downwards we have been under the rule of the Oxford spirit; it is this that has rendered real progress impossible. Mr. T. E. Page can perhaps recall a meeting of teachers at which I made the last of a series of vain efforts to secure more attention to reading in the schools of a county which has prided itself of late years on being to the fore: when one of the most capable of the teachers present said finally that he was fully aware of its importance but that reading was impossible in their schools—or words to that effect—I could only feel that it was useless to sacrifice further time in attempting to help men so disposed, especially as my literary colleague showed no burning desire to aid me.

At Birmingham, as a past president of the educational science section, I thanked Principal Griffiths warmly for his address. Let me say that his questions were sent not broadcast but solely to Directors of Education and that nearly half of them replied. The fact that so much fault has been found with the address

¹ It may be argued that as 550 out of 577 schools now speak the reformed tongue, the change is accepted generally as desirable. It would be well, however, if we knew whether the change were made through conviction or in order to placate the authority. It is well known that pressure has been applied by the inspectorate and it has been so easy a case to deal with. The ease with which the change has been effected is, however, a striking illustration of the danger to which education will be exposed if dominated by State authority—it may not be chaotic but it will be wooden in its uniformity

is almost proof that it was very good; had everybody been prepared to agree with him, it would have been proof that there was very little in his implications. I had the temerity to say that we are held back by the old Universities—especially Oxford; until these are reformed there will be no real educational health in the country. Vice-Chancellor Sadler is a typical example of the Oxford system: it is impossible for him to be constructive; Principal Griffiths, on the other hand, illustrates the advance that Cambridge has made: he has got down to the bedrock of experiment and can do things. Mr. Benson's paper on the influence of the older Universities on the curricula of secondary schools is a complete justification of my contention. Though President as well as Fellow of a Cambridge College, he does not hesitate to say—By rigidly limiting alternatives, by retaining what claims to be a general education but is, in reality, a meagre kind of specialism, and by taking advantage of the necessities of class-instruction and the co-ordination of subjects, the older universities lay a paralysing hand on the school curriculum.

Where does cheerfulness figure in this description? Surely it is chaos dark and deadly. Mr. Benson says outright:—

The chief difficulty is the congestion of the curriculum . . . our first aim must be to create a new balance; a literary education with a tincture of science on the one hand, and a scientific education with an admixture of literature.

Parenthetically, I may say that we of the scientific fraternity ask for no special treatment. In the past we have "enjoyed," as a rule, just as much literary training as the others: most of us have had what they have had and our scientific training has been out of school if not in Dr. Sadler's holiday courses. The scientific fraternity, at the present time, on the average, are not a bit worse than the literary fraternity as literary performers—in fact, Dr. Sadler compliments Principal Griffiths on having delivered "an address which was racy and well written—brilliant and witty but rather sardonic": and I venture to think that Prof. Baker's address, printed in the same issue of THE SCHOOL WORLD, will compare not unfavourably with Mr. Benson's.

Huxley, in one of his most brilliant addresses, so far back as 1861 pointed out that modern civilisation rests upon physical science.

The whole of modern thought is steeped in science; it has made its way into the works of our best poets and even the mere man of letters, who affects to ignore and despise science, is unconsciously impregnated with her spirit and indebted for his best products

to her methods. I believe that the greatest intellectual revolution mankind has yet seen is now slowly taking place by her agency. She is teaching the world that the ultimate court of appeal is observation and experiment and not authority; she is teaching it the value of evidence; she is creating a firm and living faith in the existence of immutable moral and physical laws, perfect obedience to which is the highest possible aim of an intelligent being.

But of all this your old stereotyped system of education takes no note. Physical science, its methods, its problems and its difficulties will meet the poorest boy at every turn and yet we educate him in such a manner that he shall enter the world as ignorant of the existence of the methods and facts of science as the day he was born. The modern world is full of artillery; and we turn our children out to do battle in it equipped with the shield and sword of an ancient gladiator.

Posterity will cry shame on us if we do not remedy this deplorable state of things. Nay, if we live twenty years longer, our own consciences will cry shame on us.

Huxley's opinion was in no way justified, it seems. From 1861 to 1914 is more than twenty years yet neither has any one cried shame upon the people of those days nor have we, their successors, shown the least tendency to cry shame upon ourselves—feeble utterances such as mine and a few others do not count. The Board of Education has quietly wiped the Science and Art Department out of effective existence. Our newspaper Press too knows nothing of science—but then we are told that it is controlled by Oxford men. Mr. Benson's appeal, therefore, scarcely justifies our regarding the outlook as that of a cheerful chaos. The blackness of black night surrounds us now as much as it did in 1861: the forces of clericalism still oppose progress. Until works take the place of words there will be no real advance. The organisations we have created barely touch education at present: they serve mostly to administer the funds and provide occupation for architects and builders—these and the army of officials engaged in administrative work, not the pupils, are the people who have most benefited from "education" of late years.

At the time of the war between Russia and Japan, the distinguishing characteristic of Japanese intelligence was the manner in which that nation selected out from our western experience the elements of good and applied them scientifically to their own purposes. The inquiry the Japanese have conducted into our ethical system does not appear to have afforded them satisfactory results; it might be well to consider if we should not now ask them to come and discover for us, if possible, if there be any elements of good in our educational

practice. We apparently cannot see the leaves for the trees: ourselves we make no attempt to bring together the scattered threads of our own proved experience. If it desire to serve the country, the Board of Education will do well to get rid of its office of special inquiries and reports—an office of talk—and will erect in its stead an Office of Works: but the architects it then employs must be practical educated men versed in the application of scientific method, not uncultured literary specialists.

AN EASTER IN SICILY.

By DE V. PAYEN-PAYNE.

IN spite of the vigorous booming of Mr. Douglas Sladen, most people of moderate purses imagine Sicily to be beyond their means, even if they have managed to visit Rome and Naples, and learnt how cheap are the Italian circular tours and the Italian hotels. Three or four weeks in Sicily cost little, if anything, more than the same period in Rome, as the extra thirty shillings on the fare is easily recouped by the money saved on hotel-bills. And in Sicily even now one can get right away from civilisation, if one wishes, and come across peasants living much in the same way as their ancestors did in the days of Theocritus. But for those who prefer civilisation, there are in the chief towns of Sicily as excellent hotels and shops as in any other provincial towns of Italy, and the best—such as the Villa Igiea and the Excelsior at Palermo, the Villa Politi at Syracuse, and the Castello a mare at Taormina—cannot be excelled at Rome itself.

The traveller who wishes to visit Sicily within the limits of an ordinary Easter holiday cannot go far from the recognised quadrilateral of Palermo, Girgenti, Syracuse, and Taormina. These include most of the gems of the island; and although a traveller with three months at his disposal might easily spend it there with profit, yet he would scarcely discover more charming spots. The best way of reaching Sicily is by the excellent boats of the Italian State Railways from Naples; they run daily in connection with the 6 p.m. express from Rome, leave Naples at eleven, and reach Palermo at eight the next morning. Even the worst sea-traveller will be scarcely incommoded by the Mediterranean at this time of year; while the journey by rail, crossing the Straits of Messina on the ferry, is much longer, and the best trains run at night.

The first thing that will strike the traveller when he lands at Palermo is the oriental note of the town. If he has been to Egypt he will recognise that indescribable odour of the East which no one who has once smelt it ever

forgets. He will also find a distinct increase of temperature, and light summer suits and panama hats will be quite welcome. It is a good plan to leave a heavy coat at one's hotel in Paris or Milan for the return journey. The experienced traveller always concentrates on essentials; he never tries to see everything in a town, but makes up his mind beforehand by reading and inquiry what he wishes to see, and gives himself plenty of time to see these essentials, while not forgetting that he is on a holiday, and so leaving time for strolling *à l'aventure*. Unless much money is to be spent on cab hire, hotels should be chosen not too far from the chief sights of the town.

In Sicily the architectural student has a feast of delight—first, the native Sikelian mounds, then the glorious temples of the Greeks, the less important Carthaginian and Roman remains, followed by the Saracenic arch and that most curious mixture of the Norman design carried out by conquered Arab workmen. Finally comes the heavy hand of Spain with its baroque Jesuit churches. To one who knows the Norman work in England and France, it is fascinating to find it again in such an unexpected place—not quite the same though, for the Arab workmen mingled their own style with it unconsciously as in the beautiful cloister at Monreale. This cathedral, founded by the piety of the Norman conquerors four miles from Palermo, is quite the best thing there, with mosaics outrivalling those of S. Mark's itself. A whole day should be given to it. Another must be spent at the Cappella Palatina, similar in architecture and mosaics to Monreale, with which may be combined the cathedral near by. Other churches, such as the Eremiti and La Martorana, and the museum with its remains from Selinunte must be visited, and whatever other sights interest or amuse the individual traveller.

The fish market, for instance, may please some with many a *genre* subject for a sketch; others may enjoy a walk by the sea or in the public gardens of the Villa Giulia, with the bold group of statuary of the brothers Canaris and the three-legged emblem of Sicily—the ancient Trinacria—which has been copied by the Isle of Man; others to climb Monte Pellegrino, which stands out so boldly from the harbour; to others again the Teatro Massimo may appeal, the largest opera house in Italy—if not in Europe. All will be amused by the elaborately painted carts of the Sicilian peasants.

But whatever else is missed, a day should be kept for a visit to the ruins of Segesta; the temple is more lonely and impressive than even those at Paestum. The motor-car trips there are expensive, but by taking the ordinary

morning train from Palermo one can obtain a conveyance at Segesta station to the ruins and back for six *lire*, leaving ample time to see them and to discuss the lunch one has brought. Those with more time can push on to the ruins of Selinunte, but everything there lies on the ground overthrown by an earthquake or by the Carthaginians. When the railway is completed between Castelvetro and Girgenti, the traveller will not have to return to Palermo. The first week will almost have gone by now, and it is time to move on to Girgenti, with Doric temples finer than any in Greece. Their situation on the old city wall, with the Mediterranean as a background, when seen from the modern town, is surely one of the finest that man can imagine. Two or three days can be spent here at the Hôtel des Temples, and those who are numismatists may care to visit the brothers Caltagirone and secure some of the most beautiful coins of antiquity—the tetradrachmas of Syracuse. This town must be the next halt, and it takes a long day to reach it from Girgenti, right across the centre of the island.

Here the student of Thucydides will feel at home, but unless he is a sturdy walker we advise him to charter a cab to visit the Euryelos and walls of Dionysius. By no means should he miss the Scala Greca, up which the Greeks brought their material from the port. The Roman amphitheatre and the Greek theatre, where some of the plays of Æschylus were performed for the first time, with its beautiful view across the Porto Grande, can easily be visited on foot. Then there is modern Syracuse—now contained in the island of Ortygia—with its cathedral, formerly the temple of Minerva, where divine worship has gone on uninterruptedly for a longer time than in any other building in the world, with its museum, containing the Venus of Syracuse, with its fountain of Arethusa and a vigorous modern statue of Archimedes.

If we give four or five days to Syracuse we shall find our time growing short. Catania need not detain us; it is an entirely modern commercial city, the several predecessors of which have been buried successively beneath the lava of Etna. Still, if the traveller has time between two trains to stroll through the town, he should not miss the statue of Bellini with the notes of "La Sonnambula" carved on the pedestal. It will take the eager mountaineer two days for a trip to the top of Etna and back, and Easter is not the best time for the ascent. But we must by no means pass Taormina, with the most beautiful sunset effects seen against the background of

Etna. The Greek theatre is the one lion of the place; but after vigorous sight-seeing a rest to digest all one has seen will be welcome, and a choicer spot could not be found. It is, perhaps, too much devoted to tourists, but it is essentially picturesque and paintable. Here we may rest until it is time to return to England and work. Messina in its present state is but a mass of wooden sheds surrounded by ruins—a most impressive sight to one unacquainted with earthquakes. It is well worth while spending an hour to visit it. Then the return may be made to Naples either by train across the straits or by boat from Palermo. If the latter plan be adopted, a halt of a few hours should be made at Cefalu.

The cost of such a trip should not exceed £25 for necessaries, the second-class circular ticket (Cook's 5,226) costs £12 or £13, to which have to be added supplementary tickets to Girgenti and Syracuse. Hotels need not cost more than ten *lire* a day, especially if an arrangement is made previously by letter. Everyone will take with him the indispensable Baedeker, and the State Railways issue an illustrated account of Sicily for a *lira* that is very well done. Before starting, Freeman's monumental torso of a history may be read, or the shorter account he wrote for the "Story of the Nations" series; Hare's "Cities of South Italy and Sicily" may afford some hints, as may Mr. Sladen's "Queer Things about Sicily" and "Sicily, the New Winter Resort." For those who read Italian the "Italia Artistica" series is invaluable; in it there are monographs of Girgenti, Siracusa, Catania, Taormina, Etna, and Palermo, with quantities of reproductions of splendid photographs.

DESIDERATA IN SECONDARY EDUCATION.¹

By CYRIL NORWOOD, M.A.

Headmaster of the Bristol Grammar School.

IN secondary, as in all other education the demands of most vital importance are, first, the characters and, secondly, the professional competence of the men and women who actually teach. It is a matter of common admission, however, that to-day in both respects the teachers are falling off, if for no other reason, at least because of this, that the supply of candidates is rapidly dwindling. In secondary education there will always be some able and ambitious persons attracted by the few prizes which it has to offer, and there will

¹ From a paper read at the North of England Education Conference, Bradford, on January 2nd, 1914.

always be some drawn to it by simple love of the child, thinking little of poverty; true shepherds and pastors, through whom it comes about in all ages that the salt does not lose its savour. But neither one class nor the other are numerous enough to man the vessel; meanwhile, for the ordinary man of good education, good character, good physique, and good ability, the total inducement of the profession is too low. For the rank and file there is no particular prestige, no social recognition, a salary which makes marriage a lottery, and provision for old age barely possible, and no pension. I shall not trouble you with statistics to prove these statements, for the truth of them has been notorious at any time during the past twenty years. But if it be the nation's aim in education to manufacture souls of good quality, I submit to you that it is making the blunder of sweating its labour: it has not learned here, as elsewhere, underpaid labour is dear labour; it is asking its teachers to breed men when it does not give them enough to be full men themselves. Here is our first plain issue. Until the total inducement of the profession is made sufficient, the right persons will not be forthcoming in sufficient numbers. They will not be produced either by regulations of the Board of Education or by conditions approved by the Teachers' Registration Council; they can only be produced by the payment of sufficient salaries.

I have mentioned the Teachers' Registration Council, and the thought of the hitherto successful issue of its labours moves me to say that if we do not think clearly and realise the paramount necessity of increased remuneration for the teacher, the very success of the Teachers' Registration Council will only make the position worse than it was before. It was laid down, and quite rightly laid down, that after December 31st, 1918, every applicant for registration must produce evidence satisfactory to the Council of having completed successfully a course of training in the principles and methods of teaching, accompanied by practice and supervision; further, this course must have extended over a period of at least one academic year. Hitherto the teaching profession, in spite of all its drawbacks, has been able to depend upon a fairly constant supply of men who, following the line of least resistance for most of their lives, have eventually found themselves schoolmasters; if they lacked the energy, luck, influence, or ability which would have enabled them to create another opening for themselves, they could always teach, for teaching required neither training nor specialisation. But now the position is to be

considerably altered. Between himself and the enjoyment of his "soft option" the young man finds the barrier of one year's professional training fixed—a barrier that may be difficult to surmount by reason of expense or through loss of time, but a barrier which will check supply for this reason most certainly of all, that it will make intending candidates stop and think. They will say to themselves, "Is it worth my while to spend a year on this special training?" and a great number of them, when they consider the salaries which they may ultimately expect to earn, will answer that question in the negative.

This new regulation, which allows us only five years' grace, makes action necessary in two directions, and in both right action cannot fail to have far-reaching influence for good in secondary education. It makes it necessary to increase salaries, or the supply of teachers will dwindle until there is a serious dearth; it makes it equally necessary to take seriously in hand the whole question of the training. It stands to reason that in education, as in everything else, the trained man must be better than the untrained; but our national position hitherto has been that while it is very important to train the primary-school teacher, the secondary-school teacher does not matter at all; train the men who deal with the vast mass of the nation's children in the elementary stages, but hand over the picked children, who are to carry their education much further, to anyone you like.

In no other way can one explain the figures which were quoted by Principal Griffiths at the British Association that the State elects to spend £700,000 on the training of elementary-school teachers, and £5,000 on secondary-school teachers. As a matter of fact, men do not become trained at all, and there does not exist at the present time, either at the universities or elsewhere, schools large enough to train the very considerable number who will need to be trained when 1918 has run its course. Moreover, there is a fairly general feeling, among headmasters at any rate, that the trained man, as he issues from the training school at present, is not particularly likely to be better than the untrained. He is not by any means likely to be of necessity a reasonably good disciplinarian, and he not infrequently indicates the fact that he has been trained by airing a somewhat ostentatious indifference to professional problems and educational discussions as rather being subjects in which he has already taken a diploma and written the last word. Whether this feeling is entirely justified or not, its existence among a considerable number of the responsible men

who are actually handling the secondary schools must be both recognised and faced. The result must clearly be that we must prepare for the reception of a greatly increased number of candidates for training, and we must by conference and by collaboration work out a system which will command general confidence and respect. We have five years to do it, and we have not a month to waste.

When the Board of Education first seriously took over the administration of a large number of secondary schools, one contribution was made towards the creation of a national system. A fairly definite syllabus of work was imposed on all schools alike; a large number of subjects became virtually compulsory; a return in detail of the hours and minutes spent upon each subject was required and rendered. Such a step may have been necessary at the time, for the secondary schools were in an inefficient state. But the result was excessive uniformity and the promotion of a general feeling among the headmasters that they need be eager neither to study the particular needs of their locality nor to express their own ideas and their own personality so much as to work closely within and up to the regulations of the Board. These regulations have since been relaxed in considerable measure, but the effect remains. Taking one town with another, one district with another, the secondary schools are very much alike over all the country. I submit that there is a definite need for more freedom of experiment both in curriculum and organisation: our uniformity may be efficient, and with good inspection may be kept so, perhaps improved; but the vital spark may be quenched.

A little later a second contribution towards the creation of a national system was made when from all schools earning the full grant under the regulations it was required that 25 per cent. of the pupils should be accepted without payment of fee. It has always seemed to me that this regulation was crudely conceived, and that the benefits that have resulted have not been unmixed. There did not appear to lie behind it any clear thinking covering the whole field, and in a good many cases it seems to have meant the capture of schools by one social class, to the detriment of another social class. I am all in favour of the schools of the nation being no respecters of classes, but we are not in the same social condition as certain younger countries often held up as examples, and the plain moral is that we should go slowly. I do not see what magic lies in the percentage of twenty-five that should make us conclude that it is the right number everywhere, nor do I see that any great care was

taken to see that the education offered in the secondary schools was the sort of education that would be of most advantage to the children of those classes from whom the "free-placers" were chosen.

Now, I think it is by no means so important that all classes should sit side by side in the same schools, as that the schools should be of all types; all should be efficient, and every child should be able to get to the one which he needs. I put it to you that the State-aided secondary schools cover only a small part of what should be the field of national secondary education, and that, however ingeniously we may staff, equip, and fill those particular schools, we cannot hope to deal with our task in its full range. In the first place, we end our elementary education at fourteen, or, in special cases, at thirteen years of age, and thereafter throw the product broadcast on to an industrial system which, with apparently infinite ingenuity, converts a large proportion into casual labourers, often unemployed, sometimes unemployable. That is a vast subject in itself, but a national system of secondary education, as I conceive it, will have to prevent this appalling waste.

In the second place, we have outside the State-aided secondary schools a very large number of private schools of extremely varying degrees of efficiency and inefficiency. They may be most valuable centres of educational experiment; more frequently I fancy they tend to approximate to that Cavendish Academy which nurtured the tender, opening mind of "Kipps." In the third place, there exists also a large number of boarding schools also of very varying degrees of efficiency and inefficiency, ranging from those which provide for children at a rate of pay which necessitates their being either not properly taught, or not properly fed, and very possibly neither, up to those more splendid institutions, the great public schools so-called, which for their adequate treatment would require a paper to themselves.

I hope that I may have made it clear that in our manipulation of the State-aided secondary schools, as they exist to-day, we are not facing the national problem on national lines, and so far we have not, save in a very imperfect way, broken down class barriers, or developed any successful system of cross fertilisation, so much as gone some way towards developing a "two-caste" system, consisting of those who have been educated in schools under the Board of Education, to use a convenient phrase, and those who have not. Meanwhile, outside these two favoured but mutually exclusive classes there is the great

welter of all that part of the nation's youth which, after it leaves the elementary school, receives no further education save that of the streets and of the factory. I believe that the chief need of secondary education in that national organisation which we hope to create, is to find some system great enough and wise enough to care for the case of all these classes which will make the England of the next generation.

I will speak of a few parts of this great problem as they occur to me, and first of the largest class of children now set to earn wages in their early teens in conditions which make continued education impossible save for the exceptional. We need to develop a system which will make a real secondary education possible for that percentage of those—whatever that percentage may be—whose outstanding ability constitutes their undeniable claim. We need to open out avenues of access to skilled trades, and I believe we shall do that best if we cause those who have it in them to become skilled craftsmen to spend half their time in the workshop and half in the technical school. We must recognise equally that half, perhaps, of the whole great number with which we have to deal cannot become skilled craftsmen, and we must provide an un-specialised education, both mental and manual, but, above all, physical, which shall make the critical years of fourteen to eighteen a gathering ground of strength and not a seed-bed of early decay. I conceive then in this nation of my dreams a national system under which none before the age of eighteen shall work more than half-time, under which the greater number shall enjoy a training which shall not only develop the mind, but co-ordinate hand and brain and eyes and lay the foundation of good physique; and this I believe to be true secondary education.

Above this general un-specialised training I would build, if I could, a system of great variety, both of technical and vocational schools, in which, however, the foundation of a general culture would never be forgotten. In connection with these, the secondary schools, as we know them to-day, would find their place, providing for a part of the population specially fitted for them and so specially chosen. And these would themselves be of various types, shading away from the old type which makes the humanities and science its chief concern, to schools directly designed to meet the special needs of localities, and to schools so vocational in character as to approximate to the technical.

It stands to reason that secondary education in our national system would become a

genuine thing and not, as it is at present too frequently, unreal and incomplete. The boy or girl who sets out to carry through a four years' course would be expected and—save for good reason shown—would be bound to complete the four years; and the same rules would apply to the seven years' course which the best schools would then supply, as they do now. We should not have the pretence of the fourteen-year-old posing as a finished product of a secondary school nor the sixteen-year-old posing as a University undergraduate. A secondary school as defined by the Board is a school which offers to each of its pupils a progressive course of instruction in the subjects necessary to a good general education, upon lines suitable for pupils of an age-range at least as wide as from twelve to seventeen. I had occasion lately, in the light of this definition, to take out an analysis of the ages of boys in attendance at the secondary schools of Somerset, Gloucester, and Bristol. I found that in Somerset 27 per cent. were under twelve, in Gloucester 32 per cent., in Bristol nearly 16 per cent.; on the other hand, those over sixteen in Somerset formed 5 per cent., in Gloucester 5 per cent., and in Bristol 7 per cent. The figures published by the Board of Education did not permit me to discover—and perhaps they were meant not to permit me—what the drop in the percentage was as you passed from the fourteen-years-old to the fifteen-years-old, and from these again to those who were completing the full course.

But we have cause at the present time to be anxious, not only about the education of the poorer classes, but also quite as much about the education of the middle class. A very considerable number of these, through the operation of a number of varying social motives, are being diverted to the private schools and to the cheaper boarding schools. Such schools may play a very valuable part in the system if they are efficient. It is a large "if." Some we know to be doing most useful work; some we think may be; many we have every reason to be very suspicious of. The claim I make is simple, the rule which I would enforce is drastic in its operation. Every form of school should be liable to public inspection, and that inspection should be scrupulously fair, but by no means superficial.

I make the demand primarily in the interests of the children, for we have no more business to leave their minds and souls at the mercy of an educational adventurer or humbug than we have to expose their bodies to the treatment of an unqualified medical practitioner. I make the demand secondarily in the interests of the efficient private schools themselves, for

this is emphatically a form of competition in which the fittest do not survive. No good school need fear inspection, and I have never yet heard any reason advanced which would cause one to hesitate for an instant to demand that there should be compulsory inspection to see that buildings are sanitary, food good, and the staff duly qualified and properly paid.

When I look at our secondary education as a whole, and particularly at the portion of it which consists of the great public boarding schools, I seem to see a need, not so much of less athleticism, as of less materialism in our ideals and our outlook. Year by year as a nation we make more and we spend more; year by year this seems to be reflected in our great schools; they grow more elaborate in style and more costly to maintain.

There is also a danger that right through the whole of our secondary education there may be too much of selfish ideals, and that our children may go through it and learn to desire solely the material rewards which they hope to gather. Therefore, I would fain fill the whole of it with the spirit of social service. I would welcome the Cavendish movement in so far as it spreads the ideal of service among old public schoolmen, but I have the doubt in the back of my mind that if the schools were wholly what they ought to be, such a special call to the best educated would not be necessary. In the ideal State social reform would not be necessary, since all the tissue would be healthy; but we are very far from that condition of well-being to-day. Some advance we might make if through all our secondary schools we could bring home the lesson that higher education means wider responsibilities and is itself a call to service, if all our pupils could realise the words of John Ruskin that the "highest and first law of the universe—and the other name of life—is help, and the other name of death is separation."

College Zoology. By Robert W. Hegner. xxiv + 733 pp. (New York: The Macmillan Co.) 11s. net. —To present in a volume of this size "a bird's-eye view of the entire animal kingdom as we know it at the present time" is plainly a task of no little difficulty. Dr. Hegner has accomplished it with marked success, by dint of restricting structural detail to the features of greatest significance. He has thus found room to emphasise vital physiological processes, and to consider briefly the relationship of his types to their environment, as well as to compare them with the members of related groups. The common vertebrates especially are discussed largely from the natural history point of view, in a manner which gives a good idea of the everyday events in their lives. The book will probably take immediate rank as a text-book for university students, and a convenient and trustworthy book of reference for the higher forms of schools. It contains no fewer than 553 carefully selected illustrations.

APPARATUS DESIGNED BY SCIENCE MASTERS.

THE annual exhibition of apparatus and books in connection with the meetings of the Association of Public School Science Masters was held this year at the Imperial College of Science on the invitation of the president of the association, Prof. H. B. Baker. From year to year this exhibition has grown, and this year the hall was filled so completely with the exhibits of members and of the apparatus-makers that the publishing firms had to be accommodated with stands in an adjoining corridor. Anyone interested in educational matters has in the exhibition an excellent

opportunity of comparing the apparatus shown by the principal dealers in the country, and such visitors are cordially

welcomed by the association.

The exhibits by members of the association were this year more numerous than last, and many of them were both interesting and useful.

An apparatus for determining the expansion of water during freezing was shown by Mr. King, of Plymouth College. The size and nature of this neat little piece of glass apparatus is shown in Fig. 1. The vessel is filled one-sixth full of mercury, and is then weighed.

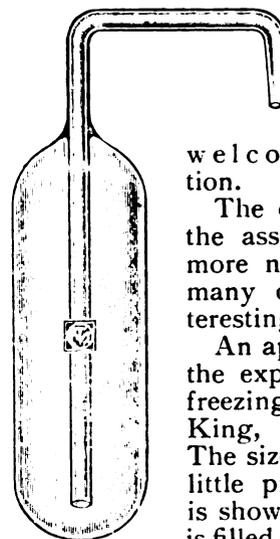


FIG. 1.

air is next sucked out of it through small-bore rubber tubing, and the apparatus is inverted in water. The small quantity of air remaining is displaced by putting the inverted vessel into a beaker of water, boiling, and allowing to cool. Any small quantity of water in the capillary may be neglected or expelled by gentle warming. Another weighing gives the weight of water. The apparatus is then warmed to fill the capillary with mercury, and, with the capillary end dipping into mercury, it is cooled by ice-cold water. Freezing from the top is made to occur by surrounding the apparatus with ice and adding alternate layers of ice and salt. The mercury expelled during freezing is weighed. The apparatus is made by Messrs. Townson and Mercer.

The Rev. W. Burton, of Whitgift Grammar School, showed numerous pieces of apparatus, all made of inexpensive materials, and most of them capable of reproduction by the science master or his laboratory assistant. Mr. Burton's sink plug is likely to prove useful and popular. It consists of a hollow earthenware

plug with a perforated base. It is somewhat more than an inch high, and the top of the plug fits just below the level of the trough. Solid matter in the sink can be flushed into it, and the plug and its contents can then be lifted out by means of a flange on its inner edge.

The abnormal expansion of water Mr. Burton shows by means of an apparatus which consists of a short wide piece of glass tubing, which has a narrower piece of tubing sealed to each end. The lower tube is bent upwards until it is parallel to the wider tube, the graduated stem of a broken thermometer is sealed to it, and the top of this tube is left open. Mercury, equal in volume to one-seventh of the total capacity, is poured into the apparatus, which is then filled up with distilled water. The upper narrow tube is next fitted with a thermometer reading to $\frac{1}{10}^{\circ}$ C., a water-tight joint being made with a ring of rubber tubing round the stem of the thermometer. The change of volume of the water is shown by the mercury in the graduated tube, the contraction or expansion of the glass being eliminated by the expansion or contraction of the mercury.

Mr. Burton also exhibited a home-made form of magnetic balance, in which the balance magnet is a knitting needle held in a binding-screw, to the top of which is soldered a sewing needle. The latter rests on grooves cut in the edges of a broken Gillette razor blade. When the magnet is horizontal, the position of its tip on a vertical millimetre paper scale attached to a small strip of mirror is noted. The deflecting magnet is raised or lowered by means of a boxwood depth-gauge fitted with a vernier. A piece of thin brass wire bent round the horizontal magnet constitutes the rider, and the position of the rider is read by noting its reflection in a horizontal strip of mirror, on which is pasted a paper scale.

Experiments with foot-bellows and tubing were shown by Mr. Durrant, of Marlborough. Pressure changes, with accompanying side-draughts, may be seen by suspending silk fibres on either side of a main current of air. The effect of successive puffs is a considerable increase in the range of the main current. The silk fibres are more sensitive than gas-jets. Mr. Durrant also showed an experiment in which air is driven through a small jet into a wider glass tube. The consequent reduction, or increase, of pressure in the neighbourhood of the jet is demonstrated by means of small side-tubes sealed into the wider tube and dipping into coloured water. A curve can be plotted showing the variation of pressure with the distance of the jet from the opening of

the side-tube. The experiment would make a good exercise for boys working in a physical laboratory.

Chemical apparatus was almost absent from the exhibits of the members, but Mr. Lester, of Eastbourne, showed some cheap and simple atomic models, which should prove useful to science teachers. These models are illustrated in Fig. 2. They consist of cardboard discs, on which are printed the names, symbols, atomic weight, and valencies of the common metals and non-metals. The discs are attached to one another by simple wire clips representing valencies, and formulæ can be built up rapidly. Variable valencies can be shown, and equations, double decompositions, chemical substitution, and the position of atoms in space can be illustrated readily. The models are small, and are intended for the use of students,

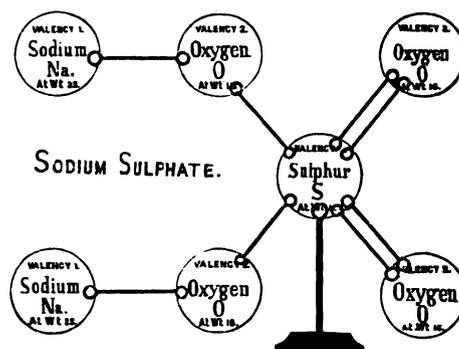


FIG. 2.

but a larger set for demonstration purposes is in preparation by the makers, Messrs. Philip Harris and Co., Birmingham.

Both Mr. Eccles, of Gresham's School, Holt, and Mr. Siddons, of Harrow, showed apparatus for experiments on moments. Mr. Eccles fixes a half-metre measure to a block of wood by means of a hinge at one end. The block is held in a clamp, so that the measure may move freely in a vertical plane. The weight of the measure is found previously, and is taken as acting at its centre. Into the measure are fastened two eyes—one above, to which a dynamometer is attached, and one below, from which a weight is suspended. The dynamometer can be inclined at any angle to the measure. The apparatus is particularly useful for demonstrating that the moment of a force about a point depends upon the perpendicular distance of the point from the line of action of the force.

Mr. Siddons's apparatus is on the principle of a bicycle crank. A strong bar of wood, about half a metre long and an inch wide, has at its centre a circular extension representing the chain wheel of the bicycle. The bar, re-

presenting the cranks, is mounted on brass blocks clamped to retort stands by means of an axle passing through its centre. It can, therefore, swing freely in a vertical plane. A weight is attached by a string to a point on the circumference of the circular centre. Some point along the bar is then chosen, and at this point is suspended a weight sufficient to balance the central weight. For convenience in attaching weights, holes are bored through the bar at regular intervals.

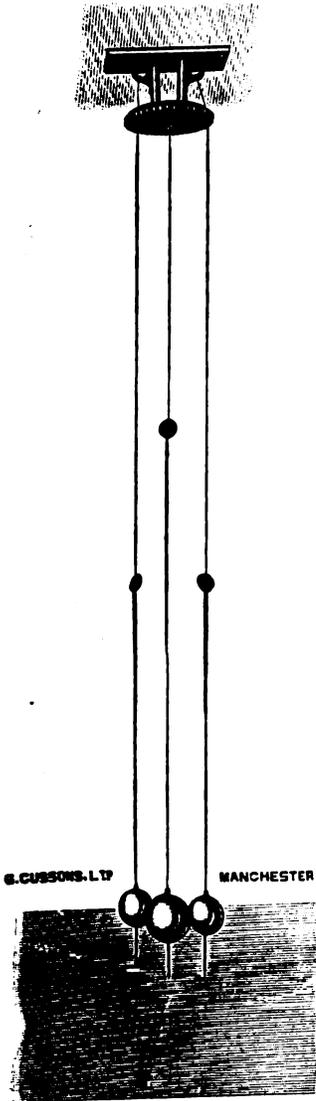


FIG. 3.

above, and one below the protractor. The angle the string makes with the bar can be read on the protractor, and can be varied by raising or lowering the pulley or by altering the distance of the stand from the suspended wooden bar. The weight on the string can be altered at will, and the pull in a vertical direction can be read on the spring balance.

Mr. Goodwill, of Carlisle Grammar School,

exhibited a simple and most effective vector balance. It is represented in Fig. 3. The apparatus consists of steel balls, two or three, suspended by long threads so that they hang just in contact. Pointers are attached under the balls, and the suspending threads are adjusted in length to bring the pointers as near as possible to a piece of drawing paper on the bench below. The suspension allows the lines of centres of the three balls to be inclined at various angles. If one of the balls be drawn aside, steadied, and released, the velocity changes which occur on collision can be determined graphically from the observed amplitudes and directions of swing before and after collision. When two balls are drawn aside, the short threads attached to them are brought round two tall pins, stuck upright in the bench, and both ends are held under the same finger pressed on the bench. When the finger is lifted, both balls are released together.

By means of this apparatus the "mass ratio" for a pair of particles is determined as

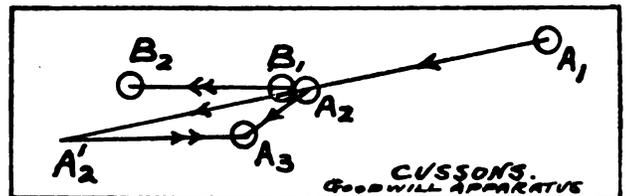


FIG. 4.

the ratio of the magnitudes of the velocity changes they produce in one another by mutual action, the "law of interaction" can be exhibited easily, the principle of "conservation of momentum" can be verified, and the "coefficient of restitution" for the material of the balls can be determined.

Fig. 4 illustrates the use of Mr. Goodwill's apparatus for determining the mass ratio of two balls A and B, and verification of the law of interaction. Mass A is drawn aside (Fig. 4) to any position A_1 from position of rest A_2 . A is released and strikes B, which is driven from position of rest B_1 to position B_2 , while A swings out to some new position A_3 . These positions being observed and marked on the paper beneath, A_1, A_2, A_3 is produced to A'_1 , so that $A_2 A'_1 = A_1 A_3$. Then the ratio of the mass of A to that of B is that of the length B_1, B_2 , to the length A'_1, A_3 , this being the ratio of the velocity changes which the balls produce in one another by their mutual action. B_1, B_2 is always parallel, but opposite in direction to A'_1, A_3 .

The apparatus gives trustworthy results with inexperienced observers. It is inexpensive,

and it can be obtained from Messrs. Cussons, of Manchester.

An improved apparatus for showing the change in length of an iron bar, when it is magnetised, was shown by Mr. Calvert, of Harrow. It is illustrated in Fig. 5. A soft iron bar is clamped at one end, and rests at the other upon a small roller. To the roller is fastened a long pointer, the lower end of which carries one thread of the bi-filar suspension of a small mirror. The second thread is attached to an arm carried by a vertical rod, and it can be raised or lowered slightly by means of a screw, so that the weight of the mirror may be properly distributed between the two threads. The ends of the threads hook on to the pointer and the arm by small metal loops. The operation of hooking on the

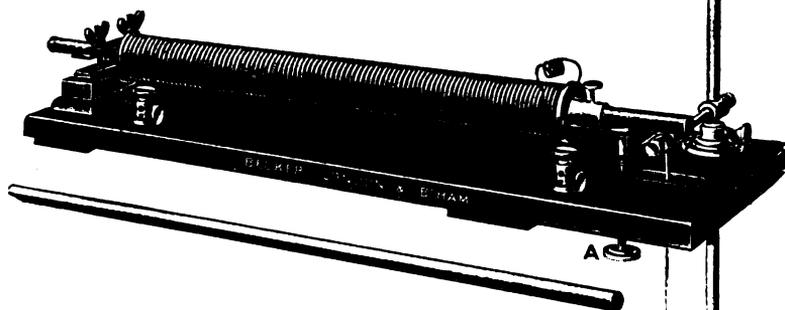


FIG. 5.

mirror and adjusting it takes about a minute. Trouble due to vibration is avoided by the short suspension of the mirror.

A beam of light is reflected from the mirror to the opposite wall of the room, a very small movement of the mirror producing a comparatively large movement of the spot of light. The magnetising coil is wound on a brass reel, which slips over the iron rod, and is clamped to it by means of a set screw. The coil must be attached to the rod itself, or the tendency of the bar to set itself in a certain position with respect to the coil will mask the changes in length.

With this apparatus it is found that (1) for small magnetising forces the extension is more or less proportional to the force; (2) for greater forces the extension becomes less and is zero for a certain value; and (3) for forces above this value a retraction takes place.

The Continents and their People: South America. A Supplementary Geography. By J. F. and A. H. Chamberlain. 185 pp. Photographs. (New York: The Macmillan Co.) 3s.—We have noticed favourably previous volumes in this American series of supplementary geographical readers. The matter presented in the book before us is equally interesting and well illustrated, as in the previous books; there is a good chapter on the cocoa industry of Ecuador, and another on the coffee industry of Brazil, while the Amazon has a chapter to itself.

THE PREFECT SYSTEM IN THE WARWICKSHIRE SCHOOLS.¹

By BOLTON KING, M.A.

Director of Education, Warwickshire Education Committee.

I FANCY I may take it for granted that we are all agreed on two points. First, that the supreme object of education is to make good citizens; next, that however much we believe our schools to have accomplished—and I certainly am one of the believers—we are not content with what has been done. Particularly is this true of the development of character, of our output of responsible, vigorous, sensible, unselfish men and women. Our schools have done much, very much. They have raised the whole standard of our civilisation, they are fast scotching certain forms of evil, they have taught humanity a better manner. But at a certain point the advance seems to stop. The gain has been negative more than positive. The shaping of character has been something imposed from without, not assimilated within, and when the outward pressure is removed, its effect tends to vanish. There is too often a reaction directly the child leaves school, for he has been shining by a reflected and not by his own light. Hence partly the flabbiness, the want of moral courage, the shirking of responsibilities, the powerlessness to solve new moral problems, which hinder our national growth.

I have been asked to describe the prefect system in Warwickshire schools. If I wanted to quibble over words, I could say I cannot do this, for there is no system. When the Warwickshire Education Committee and some two dozen head teachers put their heads together to see—with much misgiving and hesitation—if we could adopt the principle of self-government in elementary schools, we felt that if it was to have a chance, there must be no fixed plan, that every school must work out its own system, that to attempt to stereotype even the best of models would be fatal. The result has been that we have variety of experiment, till each head teacher has made it his or her own personal piece of work, that there is freedom and inventiveness, and therefore life. Every teacher who has taken it up is

¹ From a paper read before the London County Council Conference of Teachers, January, 1914.

an explorer, and scarcely one but has made his or her own particular discovery. Detailed instructions from headquarters would have ruined the whole thing. There is, therefore, no system to describe. What I can do is to state the leading principle, to illustrate its working, and trace the result. And I want to emphasise the fact that what I am going to say is taken almost exclusively from the written and verbal reports of head teachers—reports to which I owe a grateful acknowledgment.

Now, I have first to convince you that the principle is a possible one. Doubtless many of you are asking yourselves the questions we asked in Warwickshire when the idea was first suggested to us. We are all familiar with monitors. It is easy to train children to put out books and papers, fill inkpots, take down names of late-comers, keep the weather records. But the prefects are very different. They have to deal with persons, not things. They have to act on their own, to rule, to punish; they are the authority in a self-governing democracy. Prefect rule is easy at public or secondary schools with boys of seventeen or eighteen and the tradition of generations behind them. But how, we asked, can boys of eleven and twelve, with no such tradition, learn the sense of responsibility, the self-restraint, the courage, the thought for others, that fit them to have authority?

Anyone who has studied individual children knows how much they think, how strong is their sense of right and wrong, how eager they are to justify any trust in them, even at ten or eleven years, sometimes younger. And there is the supreme fact that almost all children are naturally good, that they want to do right and please, that what they need is an outlet for their honesty and chivalry and love of praise, but that if these instincts can find no vent, they fester and turn to evil.

Well, the principle has been tried. I know of its working in several schools; I could count on the fingers of one hand those where it has been only a qualified success; I know of only two where it has been tried and abandoned. One head teacher after another tells of its marvellous results. How it has made manly boys and womanly girls of children who at the best had kept their good to themselves; how the whole school has easily responded; how swearing and foul talk and smoking have disappeared, or nearly so; how manners in street and road have been metamorphosed by the new code of honour which has arisen; how the parents have risen up and blessed it; how the work of the teachers has been lightened; how corporal punishment has nearly gone; how new activities of school life have appeared spontaneously; how the whole relationship of

teachers and children and parents has been changed.

I want now to elaborate certain aspects of prefect rule. I will collect my illustrations from a considerable number of schools—schools of no single type, but large town schools and small village schools, boys' schools, girls' schools, mixed schools, even an infants' school, schools where the children come from the artisan class and schools where they come from the very rough and poor. And first, as to the effect on the prefects themselves. The universal comment is that it has given manliness to the boys—made them serious, not afraid of responsibility, ready to stand up for the right. Their whole nature develops, and develops from internal growth. The principle "reorganises," says a headmaster, "but each boy has a soul which he must develop himself. I could mould him to my pattern if I wished, but I do not wish. I want to point the way, but he must go himself." Nothing is more striking than the use that prefect rule makes of undeveloped or wrongly developed natures. A big girl in a mixed school, surly and resentful of interference, on whom the ordinary influence had made no impression, was as a last experiment made a prefect. "The result," writes the master, "startled us all—both teachers and children. She seemed gradually to become a different girl. She became quite nice in her manner to all around her, and was ever ready to do anything for children or teachers." It is the simple principle of trust, and a child once trusted will expect through life to be trusted, and will deserve it. "Being trusted at school," a girl prefect writes naively, "so shall I want to be trusted at work." Their thoughtfulness for others grows, most readily in the girls, but scarcely less in the boys.

A boots prefect, whose business it was to inspect boots every morning, was concerned how to reform certain chronic cases of water-logged and dirty footwear. One morning he bought a pair of his own to replace an offending pair. Other boys followed suit, and since then only one boy has been reported for dirty boots. Another prefect at the same school brought a suit of his younger brother's clothes (it is not reported what the younger brother thought of it) and gave them to a dilapidated boy, with the sequel that it cured the latter of his slatternliness once and for all.

The prefect's whole mental outlook is changed. Authority is no longer an alien thing, the presumption is no more than that it is something bad in itself and to be resisted. When you take your own share in enforcing discipline, you see its excellencies. When you stand on a pedestal, you want to stop

there, and it is worth a little constraint. You feel yourself somewhat *in loco parentis*, and you find a satisfaction in guiding the unruly with a snaffle bit. We do not realise how much tact a boy or girl of twelve can show. "My son is more considerate for the feelings of others since he became a prefect," writes a father; "he is more thoughtful when passing judgment on others," writes another. And so practical capacity, leadership, the power to influence, develop. The prefects' meetings are businesslike and mature to a degree that councils and committees might often envy.

The prefect is constantly called upon to face some new moral problem, some new sphere for duty. His moral sense is always growing with exercise, and he gains a practical, working knowledge of ethics which is worth all the moral lessons in the world.

So much for the prefects themselves. The effect on the other children is, of course, not quite the same. They are still under authority, but authority wears a more homely look when it is wielded by those whom they have themselves elected, especially as every decent boy and girl looks forward to the day when he may rise himself into the governing class. They are a democracy, and their pride demands that their government shall be respected and obeyed. And the obedience is almost absolute. "The school as a whole," says a headmaster, "admires the self-respect, unselfishness, uprightness, manliness, care for the honour of the school which is so evident in the prefects. I have just," he adds, "been reading an old log-book, and I was struck by the number of entries complaining of the conduct of children out of school. Since the prefect system has been adopted, these complaints have entirely disappeared." This brings us to one of the best points in prefect rule. The teachers may keep discipline on the school premises; they cannot have an effective control outside. The prefect's eyes are everywhere. The streets and roads are their own particular beat, and admirably they police them. The following report is typical: "There has been less quarrelling in the public streets, less annoyance of the general public, less noisy and boisterous conduct, better manners, and greater care and respect for the aged and helpless." Bullying is roughly suppressed; boys are not allowed to annoy neighbours or passers-by; they are stopped from running behind vehicles or climbing the posts of dangerous and delightful vantage; stone-throwing becomes a thing of the past. There is just a danger perhaps that the children may become uncannily virtuous. But there is no smugness in the virtue. Every child gets a vision, dim it may

be, of his share in a corporate existence, of the honour of a school to be upheld, of the supreme infamy of bringing discredit on the organisation to which so much of his life belongs. Here is the true school of citizenship.

I think, however, it is always advisable to give the prefects some slight coercive powers; there is plenty of choice as to the particular form of punishment allowed. And there is always in reserve—at least with boys—the unwritten law of physical persuasion. But it is remarkable how little the power to punish is needed. As a rule, the prefect's mere order is enough; in bad cases the culprit is hauled before the prefects' court, and the dread tribunal—just but inexorable—drags out the truth.

It is the enthronement of public opinion, before which mischievous boys as well as auguster personages must bow.

I turn to the last of the good things the prefect rule brings—last, but not least—the relief to the teacher's work. A head teacher is like the Imperial Parliament; he must delegate, if he is to find time to do his own work properly. And the boys and girls to whom he hands much of his disciplinary power can do the job more effectively than he can do it himself, for the wisest of head teachers knows less of his pupils than they know of one another. Thus he is saved much of the worry from troublesome pupils; he rarely needs to cane; there is little to complain of personal cleanliness; the unpunctual are worried into punctuality; the friction with parents is lessened; he has few complaints from outraged farmers and tradesmen. Besides, there are so many ways in which the prefects can take things off his hands. The lavatories, the corridors, the playgrounds are effectively policed, and no longer require a teacher's presence. The prefects march the children into school without a hitch. The girls manage the children's dinner; the needlework secretary and treasurer take over the whole business of sales of garments. Boys (I confess I have not heard of a girl doing it) keep ruthless order if the teacher has to be absent from the class-room. I have heard of a girl prefect preparing day by day the books and apparatus for a teacher's evening class. Recently at a school which had been closed for alterations, the prefect came spontaneously for a week or more to get things ready for the re-opening, and the school, though it practically had to be reorganised, was able to start its normal work on the first day. Then there are the supererogatory activities, which are almost the surest symptoms of a school's health, but which mean overwork for the teachers if they undertake them them-

selves. Here the prefects are in their element. They make most of the arrangements for school functions, they organise botanical or historical excursions. Occasionally they start a school journal with editor and a numerous staff. At one school they manage a sort of employment bureau for boys leaving school.

It only remains to add a few hints to those who are persuaded to introduce the principle into their own schools. As I said at the start, a prefect system, if it is to live, must be home-made, and I carefully avoid any reference to rules. Rules, by the way, should be reduced to a minimum, for they discourage initiative and the breaking of new ground. My notes will be mainly in the nature of warnings.

First, there are many schools where prefects are impossible. The President of the Board said lately that he hoped to see them in every school. I am afraid that is not practicable. Under a martinet, or where the headmaster has little faith in children, or where he is fussy and interfering, prefect rule would be a sickly and anæmic growth.

Next, even at the best schools, it cannot spring up in a night. It needs long and careful preparation. Week after week the headmaster must give his talks to the school on responsibility, courage, unselfishness, and what not; and not till his instinct tells him that the response has come may he start. Head teachers who have tried it are unanimous that this preliminary work must cover nine months or a year. When the start is made, let it be an imposing one. There must be a great school function with managers and parents; the head teacher must address the children earnestly, may I add, religiously; the prefects must be solemnly chosen and publicly receive their badges.

When the system is once started, it must go of itself. The head teacher's attitude should be that of a wise parent, who interferes with his children as little as possible, but is eternally watchful. The prefects must feel that they have to do their work themselves and rely on themselves, not on the teachers; but occasions will arise when the head teacher must put in his word, and this is generally best done sooner rather than later. And the relations between the head teacher and the head prefect must be very close. Here comes in the question of reporting offences. It would scarcely seem necessary to enter a caution against tale-telling, but unfortunately experience shows that it is needed. Tale-telling is an evil tradition of elementary schools, and I hope that one of the results of prefect rule may be to scotch it. But there are rare occasions, as every public schoolmaster knows, when it is a head boy's first duty to report, and there is

perhaps no greater test of a boy's moral courage than that he does so then. It is better though that when a head prefect reports a child he should do so as spokesman for the whole body of prefects; if he has not got them behind him, it is doubtful whether he is fitted for the post.

Lastly as to the choice of prefects, and here I would say one thing only. Experience of existing systems points strongly in favour of the prefect being elected by the children themselves, *i.e.*, the children in Standard IV. or V. and upwards. A successful prefect must always be popular, must by preference be physically strong, must command the children's respect; and because a child behaves well in the class-room under the teacher's eye, it does not follow that he does so out of sight. Children are unerring judges, and in the choice of prefects they very rarely made mistakes. The head teacher may, of course, *ad majorem cautelam*, retain a veto. There is only one exception to the rule—the case of the child who shines neither in work nor play, but has solid qualities that have not yet found their vocation. Such children sometimes make the best of prefects, and to be made a prefect may change their whole development, but they have small chance in a popular election. It is as well, therefore, that the head teacher should retain the power to co-opt, but he should be very careful how he puts this power into force.

THE CURRICULUM OF A RURAL SECONDARY SCHOOL.¹

By W. ALDRIDGE, B.A., B.Sc.
Shepton Mallet Grammar School.

THE school in which I have conducted all my experiments during the last sixteen years is an old grammar school foundation, dating from 1627, which, owing to mismanagement in the past, lost all income from its endowment, and was resuscitated and reorganised in new buildings at my appointment as headmaster. The whole of its income is derived from fees and from grants obtained from the Board of Education and from local education authorities. It is a boys' school, with an average attendance of from seventy to eighty, all of whom, except about half a dozen boarders, are day boys. It is situated in a small market town of about 5,000 inhabitants, which supplies about one-third of the pupils. The rest come from the surrounding villages up to a distance of some ten or twelve miles, by rail, cycle, pony, &c.

¹ From a paper on "Rural Education: its Shortcomings and its Needs," read before the Teachers' Guild at the Conference of Educational Associations, London University, January 6th, 1914.

At the commencement I was asked to organise an "agricultural side," but this I soon found to be a failure, and I am convinced that, unless a rural school happens to be blessed with sufficient funds to supply a duplicate staff, such a "side" is bound to be a failure or a fraud. I next determined to arrange my curriculum so as to fulfil the object of the agricultural side by making every pupil take the same course. This was a very difficult problem, and the difficulties were increased by the methods then in vogue for assessing the grants given by the Science and Art Department. However, I kept my eyes steadily fixed on my goal, and, in spite of many obstacles, I ultimately reached it, and proved that a rural secondary school can be of immense service to agriculture without in any way sacrificing its character as a place of general culture. It is perfectly true that its realisation necessitates a very extended curriculum, and involves the headmaster and some of his staff in more strenuous labours than perhaps many would be willing to undertake. But then hard work never harms anyone, and gives much more real pleasure than the life which is always seeking new pastimes to relieve the tedium of its unoccupied hours.

Much labour and many of the difficulties would be swept away if outside examinations, such as the university locals, matriculation, examinations for county and other scholarships, could be unified or ignored. The number and varied scope of these examinations, which under present conditions must be taken into account, form a great stumbling-block in the path of the reformer of rural secondary education. One is glad to note signs that time will probably smooth out this obstacle.

The curriculum at which we have arrived includes religious knowledge, English subjects, mathematics, French, drawing, manual instruction, book-keeping, drill and physical exercises, science, and music. The teaching hours amount to about twenty-seven a week, and home lessons to the extent of from half to one and a half hours a night are required—all subjects obtaining their fair share.

English subjects include reading, writing, spelling, grammar, literature, composition, geography, and English history. These (and other) subjects are made to reach Oxford preliminary standard in Form III., junior standard in Form IV., and senior standard in Form V., Form VI. taking matriculation or other special work.

Mathematics includes arithmetic, algebra, geometry, mensuration leading to practical land surveying, and some trigonometry. In arithmetic, decimals are taken at the begin-

ning, and short methods fully and intelligently explained are encouraged throughout. Algebraic methods are fully utilised in the solution of problems, and a rational use is made of sums bearing on rural life and occupations. Mensuration is regarded as of special importance, partly as an excellent training in the concrete application of arithmetic, geometry, and algebra, and in the intelligent setting out of sums, and partly as leading up to land surveying and the measurement of stacks, timber, and the like. In the higher forms land surveying is done practically in the field with chain, cross-staff, level, and theodolite, and sufficient trigonometry is done to enable the pupils to understand the simple working of the latter instruments. The aim is not to train surveyors, but to give practical point to the class-room work. As soon as the Form III. pupils know enough of algebra for them to understand the nature of logarithms, they are introduced; and tables of four-figure logarithms henceforth form part of the equipment of every boy. In geometry and algebra (and, indeed, in all subjects mathematical and otherwise) special care is taken to develop the logical reasoning faculties.

French is begun in Form III., and gives opportunities for the introduction of conversations in connection with rural life and pursuits. Latin is not taught during ordinary school hours, but any boys who specially desire to learn something of this language are instructed out of school hours. They are very few.

Drawing includes freehand, geometrical, and model, intended to give a boy facility in illustrating his thoughts with sketches. Drawing from actual objects and from memory are frequent exercises, but no painting nor sketching in colour is done in the class-rooms for lack of time. Some boys take up these as hobbies. Mechanical drawing-to-scale of plans, elevations, &c., is considerably developed in connection with the manual instruction in woodwork. Everything constructed in the workshop is made from carefully prepared scale drawings figured with dimensions.

Book-keeping is taught in a simplified form, and specially adapted to the keeping of farm accounts, no attempt being made to prepare this subject for examinations.

In connection with the drill, all the upper boys who wish it are taught to shoot. For this purpose we make use of B.S.A. air rifles, and the instruction is given usually on a 7-yard range in the workshop, though we have a longer range out of doors available for fine weather.

The science course is specially adapted to

give a good grounding in the principles underlying agricultural and horticultural practice. It includes chemistry, physics, and botany, all treated from an agricultural viewpoint, and lessons in rural economy in which agricultural and horticultural topics are specially treated from both the theoretical and the practical point of view. The chemistry course includes a good general outline of the theory of chemistry, but lays especial emphasis on those elements in it which are of importance in the chemistry of soils, manures, feeding-stuffs, and in the food of plants, and so assists in understanding the complicated problems connected with the proper treatment of the land to produce the maximum crop with the minimum of expense, and with the profitable feeding of cattle. The chemical changes due to bacteria and to enzymes are touched upon, and the chemistry of the dairy is in some measure elucidated. Fermentation and the action of yeasts give some assistance in fathoming the mysteries of brewing and cider-making, both being important industries in this neighbourhood.

Physics opens with a course of measuring and weighing, in which the proving of the various formulæ used in mensuration forms a prominent feature, and proceeds to a discussion of density and the various methods of determining it. In this connection the use of the hydrometer in testing milk and in following the process of fermentation in cider-making is noted. When discussing fluid pressures, their bearing on the action of pumps, the siphon, the Bramah press are investigated, and the connection of air pressure with meteorological conditions studied with the view of elucidating phenomena connected with rainfall on hills and valleys and the forecasting of the weather. The mechanics of simple machines and of friction is applied to the care and use of farm machinery. Soil physics, capillarity, surface tension, viscosity, osmosis, all receive special treatment in view of the part played by them in agriculture. Heat, light, and sound, studied as different forms of energy, are in their turn brought into relationship so far as possible with rural phenomena. Evaporation, radiation, absorption, convection, specific heat, and latent heat are specially treated in their connection with problems connected with the heating and cooling of water and the soil, and their effects on plant growth. Physical problems in connection with soil air, and its renewal, are investigated. In the highest forms, when time permits, magnetism and electricity are studied, and their connection with the motor-car, electric bells, electric lighting, heating, and motor power elucidated. In these, and many other

ways, physics become a fascinating study to the country boy.

Botany introduces him to a host of interesting experiments with plants, helping him to understand the mysteries of life, and these ultimately lead through the rural economy lessons to a considerable knowledge of animal physiology and the working of his own bodily functions. The plants studied are mainly those of agricultural and horticultural significance, either as crops or as weeds, and much more is made of the physiological than of the classificatory side of the science. The study of plant reproduction leads to much practical knowledge on such matters as grafting, layering, taking cuttings, and plant breeding, and this is expanded in the rural economy course into an elementary study of the principles of animal breeding.

The rural economy lessons are concerned with such points as the formation, renewal, transportation, and improvement of soils; the seasonal occupations of the farmer and gardener, studied in their scientific aspects to show the why and wherefore of each; the interplay of chemistry, physics, botany, and other sciences in rural occupations enlarging the mind and the outlook of the pupil, and teaching him that science is one and indivisible, and cannot be confined in watertight compartments as the ordinary schoolboy is apt to imagine, and at the same time gradually leading to a sound knowledge of the economic management of garden, farm, stock, and dairy. In these lessons a considerable number of the leaflets issued by the Board of Agriculture are read and discussed with the view of accustoming the pupil to understand and to utilise scientific knowledge when placed at his disposal.

The practical work done in connection with this course is very extensive, and is performed partly in and partly out of doors. Outdoor experiments are conducted on garden and demonstration plots extending to about half an acre. They include the testing of manures in a systematic manner on small plots and on various crops, to teach the method by which such problems should be approached—the growth of specimens of all the chief farm crops, and in some cases of the leading varieties of each—sowing of seeds under varying conditions as to time, depth, distance apart, &c.—pruning and grafting—spraying and other methods of checking or eradicating insect or fungoid pests—and so on. Some of these demonstrations are given in orchards and gardens in the neighbourhood. The boys are taught the use of the ordinary garden tools, but they have not time to do all the manual work on the plots, nor is it necessary

that they should spend much time in labourer's work. For many years we had garden plots, for each of which one boy was wholly responsible, but, for several reasons, we have now abandoned them, and find the land can be utilised to far greater advantage for demonstration purposes. As a rule, we do not attempt to teach technical skill in agricultural processes, but an exception is made in the case of thatching, which is rapidly becoming a lost art. One day a year is spent in teaching some of the bigger boys the correct way of thatching a rick, and letting each try his hand at the process.

Indoors we have chemical and physical laboratories, a science lecture-room, and a woodwork shop. The physical laboratory is also used for botany, and a great number of botanical experiments are set up in it and in the lecture-room, the window-sills of which are usually filled with experiments of various kinds. These experiments range over the whole field of botanical physiology, from seed-testing to cultures of bacteria, and are conducted all the year round.

The woodwork course is designed to give a boy skill and confidence in the use of ordinary wood-working tools, to teach him to translate an ordinary working drawing into a concrete object, finished off with as much accuracy as possible. Fancy articles are not attempted, but all the ordinary joints used in carpentry and joinery are introduced, and their use is illustrated so far as possible in the construction of articles used on the farm, such as gates, doors, kennels, coops, sheds, &c. Within the time covering my experience the boys have made five or six full-sized field gates and the posts necessary for the fencing which separates the garden and plots from the playfield, several garden frames, many hen-coops, a Nicholson's screen for our meteorological instruments, and built two large sheds, besides making a great deal of apparatus for use on the plots and in the laboratories.

We have a natural history club, which holds regular meetings for discussions, papers, display of specimens, &c., and organises many delightful scientific rambles, combining healthful pleasure with the acquirement of knowledge. These meetings and rambles all take place out of school hours.

This is a fairly complete outline sketch of the plan which has been in successful operation here for at least a dozen years, and has been copied extensively in various parts of this country as well as further afield.

The results of the experiment, as judged by the occupations followed by old boys after passing through the school during the last sixteen years, are as follows:—

Farmers (including a few horticulturists and estate agents)	140
Professional (including Civil Service, engineers, bank clerks, lawyers' clerks, auctioneers, surveyors, one doctor, two clergymen)	71
Trades (including clerks in trading offices)	47
Schoolmasters	15
To other schools (and subsequent history unknown)	13
Occupation unknown	12

The chief difficulties (apart from the ever-present financial one) which have had to be overcome have been connected with the staff and the provision of suitable text-books. The breadth of scientific knowledge required of the teacher is so great, and of such a character, that few masters capable of conducting the course satisfactorily were forthcoming, but this difficulty is growing less with time. Few suitable text-books exist, and publishers do not seem very willing to risk financial failure by bringing them out, as they say there is no demand. For the first year's course we use no class-book in science except for physics, and even that is not fully satisfactory. In the second year a book for plant biology is added, and in the third year a text-book of chemistry, which, however, is mainly used as a reference book for general chemistry, and a manual on the chemistry of the farm. The teaching is provided mainly by means of lectures, demonstrations, and practical work carried out from directions written on loose sheets or cards which we have compiled. The book-keeping course has likewise been specially prepared by me, and has not been published. We have a fairly extensive reference library, which is always available for the use of masters and pupils alike.

THE ATTITUDE OF THE TEACHER IN REGARD TO PROBLEMS OF FATIGUE.¹

By ROBERT R. RUSK, M.A., B.A. (Cantab.) Ph.D.,
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THE attitude of the teacher to problems of fatigue should be the same as his attitude to all the problems of experimental education. He should propose to the psychologist and the experimentalist definite problems for solution, and he should test their conclusions in the daily practice of the school-room.

Investigations on fatigue were amongst the first researches of experimental psychology having a direct bearing on school

¹ From an address delivered at the London County Council Conference of Teachers, January, 1914.

practice. The results of such investigations initiated a scientific school organisation and helped to engage the interest of teachers in the modern movement towards a scientific pedagogy. To secure the most efficient teaching it was recognised that the subjects of instruction should follow one another in the school-day in some definite order. That the most exacting subjects should come earliest was the *a priori* opinion of the teacher. But as to what were the most exacting subjects, he had no means of determining. For this information he had to invoke the aid of the psychologist with his æsthesiometer, dynamometer, and ergograph. Answers obtained by methods which are perhaps not quite free from objection have been returned to this question in Germany, Switzerland, Japan, America, and other countries, but British teachers are still without the information demanded. The general results indicate that the mathematical subjects are the most fatiguing; next come the language subjects; then the realistic subjects; lastly and least fatiguing, the technical subjects.

The determination of the fatigue-coefficients of the school subjects is only one aspect of the question of a scientific school organisation. Influences other than fatigue, it has been discovered, affect the working capacity of the pupil. It takes the pupil a certain time to settle down to school conditions, to get into the swing of the work. This influence is in general termed "adaptation." Thus, although the early periods of the school-day would be the most favourable for work if the effects of fatigue alone were considered, the later periods have the advantage when the factor of adaptation is taken into account. The best period of work will be the resultant of the two factors, fatigue and adaptation.

The teacher also desires to know not only what are the best periods of working and what are the most exacting subjects, but also what is the best arrangement of the subjects. Recent investigation² has indicated that the sentiment in favour of putting arithmetic and other supposedly difficult subjects near the opening of the morning and afternoon sessions, with an emphasis upon the morning session, has not been sufficiently substantiated. Indeed, the best period for arithmetic as determined by Mr. Winch's tests on adaptation is the later part of the morning session.³ On this fact alone the teacher cannot, however, build a scientific time-table; he must also know which subjects should precede and which should follow. The general impression

amongst teachers at present is that heavy and light subjects should alternate, but as general impressions in education when scientifically tested are frequently found to be unjustified, the various permutations of subjects should be enumerated and investigated and the best arrangement determined. This is a task which the teacher might well set the experimentalist.

It was formerly believed that change was rest. Teachers, when their charges appeared fatigued from intellectual work, have consequently been in the habit of introducing physical exercises. It is now maintained that physical work likewise results in general fatigue, and that the only gain resulting from the change from mental to physical is a temporary stimulation of the pupil's working capacity. What still remains to be determined is the value of the temporary stimulation. Is it bought at too great a price, and is a cessation of school work the only alternative to a condition of fatigue?

Most authorities agree that under normal conditions there is, with primary-school pupils, no marked fatigue at the close of the school-day.⁴ Mr. Winch has found⁵ that the degree of inefficiency attributable to fatigue as tested by immediate memory is not great; that with the older pupils in the primary school the effects of fatigue as measured by arithmetical reasoning is very small indeed. Prof. Heck⁶ has also recently found in America that fatigue is so slight as to be almost negligible in school management. "The slight fatigue noticeable during the school-day," he says,⁷ "is more probably caused by improper conditions of ventilation, lighting, &c., than by the school work itself." Offner, nevertheless, suggests that the afternoon session should be dispensed with entirely.⁸ This contradiction may probably be resolved by testing pupils of different ages. Winch, in one of the investigations to which allusion has been made, found that it was useless to require problematic arithmetic from young children in the late afternoon, so that there should probably be no afternoon session with the youngest pupils and a shorter afternoon session with the intermediate pupils than with the oldest pupils of the primary school.

Even if we admit that fatigue in primary schools at the end of the school-day is negligible, nevertheless, to secure the greatest efficiency, teachers ought to know how best the school-day can be apportioned, what arrange-

⁴ Cf. Meumann, *Vorlesungen*, 1st edit., vol. ii., p. 125.

⁵ *Jr. of Educ. Psych.*, iii., 18-28, 75-82; *Br. Jr. of Psych.*, iv., pp. 315-341.

⁶ "A Study of Mental Fatigue." (J. P. Bell and Co., Lynchburg, Virginia.)

⁷ "A Second Study of Mental Fatigue in Relation to the Daily School Program." *The Psychological Clinic.*, vol. vii., pp. 29-34.

⁸ "A Study of Mental Fatigue," p. 28.

⁸ "Mental Fatigue," Eng. trans., p. 88.

² Heck, "A Study of Mental Fatigue," p. 27.

³ Winch, *Jr. of Educ. Psychology*, iv., pp. 17-28, 71-84.

ment and length of intervals are the most economical. What should be the length of the morning session; and if for certain ages, the afternoon session be not abandoned, what should be the length of the midday recess?

Offner maintains⁹ that the afternoon session should begin, at the very least, two hours after the noon meal, *i.e.*, at 3 o'clock, and not at 2 o'clock, and Prof. Heck concludes from the result of his New York investigation¹⁰ that, for the noon intermission, two hours are preferable to one. The effect of "the pause" in learning is coming to be recognised; the effect of the intervals in teaching should be scientifically investigated. As there is doubtless a disposition for fatigue to be excited more readily as the day advances, it is probable that the intervals should be longer in the later part of the school-day than in the earlier part, but an investigation to determine the exact lengths of such intervals for the different ages might be undertaken.

In the light of the results which we already possess, teachers should face the question of the six-day week. Instead of Saturday being a whole holiday, Wednesday afternoon should perhaps be substituted for Saturday morning. The question is not one of personal convenience but of educational efficiency. The Board of Education might be asked to sanction experiments with this alternative arrangement.

"With sound bodies, a hygienic school, proper classification, frequent relaxation, a vital and varied curriculum, and live teachers, most children," it has been stated,¹¹ "will show no problem of fatigue in relation to the daily school program. However, the individual variations in fatigue in children of the same class are so great that the teacher is under constant obligation to watch the easily fatigued child and decrease his work whenever necessary below the requirement for the class as a whole."

To distinguish and thus avoid overworking the easily fatigued pupil, the teacher requires to have formulated some readily diagnosed symptom of fatigue. This difficulty has been complicated by the distinction recently drawn between fatigue and lassitude. Some of us feel fatigued and doubtless show the symptoms of fatigue when we are not really tired; others when actually tired do not feel fatigued. The latter is the more dangerous state, and to diagnose it the teacher must be able to discern when the child is suffering from boredom and when from actual fatigue.

Dr. Warner has suggested¹² as an index of

fatigue the posture of the hand. When pupils are asked to put out their hands with the palm downwards and spread the fingers, a strong and healthy child will hold out his hands straight extended, all parts in the same horizontal plane; when fatigue or slight weakness occurs, the thumb falls slightly. Or it may be that variation in the size of a pupil's handwriting may serve as a convenient index, for Mosso found that when he was obliged to write immediately after a lecture, the letters were larger and the lines less firm than usual.¹³ A knowledge of some such symptom the teacher ought to possess.

Tests have been applied to estimate the fatigue of the pupil; they ought also to be applied to determine the fatigue of the teacher.¹⁴ The changes in teaching methods have probably made the pupil's work more intelligible and lighter—although a school lesson is more exacting if the size of the class is reduced, as then the pupils are called upon oftener and have to know their work better.¹⁵ Recent changes in teaching methods doubtless demand a greater expenditure of mental energy on the part of the teacher than did the older methods. His mind must constantly be on the alert; he will consequently tire more quickly; and if the teaching is to be effective and economical, rest periods for teachers may have to be introduced into the school-day. The increase of nervous disorders amongst teachers would also seem to justify the demand for such an investigation.

Teachers cannot, however, rest satisfied with raising questions: they must insist on answers being given. We cannot accept the results obtained in countries where the school-day is otherwise proportioned and the teaching methods are different. We are grateful to the London County Council for enabling Mr. Winch to undertake investigations on fatigue and other subjects, but surely it is not too much to ask a nation whose estimated national expenditure on education for this year, according to the income-tax demand note, is more than eighteen million pounds, to institute pedagogical laboratories and organise educational research, and thus do for Britain what has been done for almost every other country in the world. Were we farmers wanting a weather forecast, a Government department would undertake to send us telegrams, but we have no bureau of education to supply us with the latest information as to when to teach a subject.

A further penalty of our neglect of research in education is that as a nation we are being

⁹ p. 88.

¹⁰ "A Study of Mental Fatigue," p. 28.

¹¹ Heck, p. 28.

¹² "The Study of Children," pp. 67, 83.

¹³ Eng. trans., p. 254.

¹⁴ Offner, pp. 113-5. Meumann, Vorlesungen, ii., p. 130.

¹⁵ Offner, p. 110.

ignored by the writers of other countries. Meumann, for example, in a preface to a recently published American translation of one of his works,¹⁶ states:—"Experimental psychology and the most important field where it finds practical application—that is, experimental pedagogy—are based upon the product of the combined efforts of students of psychology and pedagogy in the United States and in Germany; it may, indeed, be said that these sciences have been created by the two nations. So firmly am I convinced of this community of interest and of endeavour that in all my writing I constantly keep the American reader in mind."

No regard is here paid, it will be noticed, to the English reader, and thus again we are at a disadvantage by reason of our neglect of research in education.

When answers to any or all of the questions suggested have been returned, it will become the duty of the teacher to put such results to the test of everyday practice. At present the general attitude of teachers to experimental results is one of suspicion. Teachers accept unquestioned and act on generalisations derived from an unanalysed experience, yet hesitate to accept, and are even hostile to, the results obtained by the more refined methods of scientific investigation. If education is to make progress, teachers will have to be more ready than they have been to welcome experimental results, and conferences like the present, by familiarising teachers with the subject, will doubtless help to bring about the right attitude of the teacher to experimental work in education.

PERSONAL PARAGRAPHS.

MR. FREDERICK MORSHEAD died at the age of seventy-seven on January 28th. Mr. Morshead was educated at Winchester and New College, Oxford, of which he became a Fellow in 1864. After being headmaster of Beaumaris School, he became a house-master at Winchester, where he remained until 1905. Mr. Morshead was one of those schoolmasters who took an active interest in municipal administration. He was a member of the Winchester Corporation for practically the whole of the time he lived in that city, and twice he filled the office of mayor. He was presented with the freedom of the city in 1906.

* * *

MR. W. O. MOBERLY, until recently senior master at Clifton College, died on February

1st at the age of sixty-three. Mr. Moberly had been a master at Clifton since 1874. He had served under every headmaster, having been appointed by Dr. Percival, now Bishop of Hereford. Mr. Moberly was an Oxford man, and took his degree from Balliol in 1873. He was well known as a cricketer, and played regularly for Gloucestershire with the brothers Grace.

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THE death is announced of Miss Julia Cock, one of the examiners for the Board of Education and of the women proposers for Government insurance. Miss Cock was medical inspector of the North London Collegiate School for Girls and of Camden School for Girls. She made various contributions to medical literature, and wrote a memorandum on "Medical Inspection of Secondary Schools for Girls" in the fifth volume of the report of the Royal Commission on secondary education.

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MR. A. E. BROOKS, of Aske's School, Hatcham, has been appointed headmaster of the County School, Maidenhead, where he will succeed Mr. Manton, who is returning to Birmingham. Mr. Brooks was educated at Stourbridge Grammar School, and was a scholar of New College, Oxford. He was a master at King Edward's School, Stratford-on-Avon, and at Cairo, before being appointed a master at Aske's School, Hatcham, in 1906. Mr. Manton was a boy and a master of King Edward's High School, Birmingham. He has now been appointed headmaster of Aston Grammar School.

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MR. J. J. JACKSON, of Wyggeston School, Leicester, has been appointed headmaster of the Grammar School, Colyton. Mr. Jackson was educated at University College, Nottingham, graduated in Arts with English honours at London in 1904.

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MR. E. P. EVANS, of the County School, Barry, has been appointed headmaster of the County School, Carnarvon. Mr. Evans, who has been a master at Towyn County School, Hawarden County School, and at the Friars' School, Bangor, was appointed to the Intermediate School at Barry in 1906.

* * *

MR. G. O. WILLIAMS, of the County School, Bridgend, is to be the first headmaster of the County School, Ammanford, which is to be opened in September, 1914. Mr. Williams was educated at the Gwynfryn School, Ammanford, and University College, Cardiff.

¹⁶ "The Psychology of Learning." (Appletons, 1912.)

MR. H. H. WINFIELD, of the Municipal School, Salford, has been appointed headmaster of the same school. Mr. Winfield was educated at Denstone and the Royal College of Science. He held masterships at Burnley and at Tamworth Grammar School before being appointed to Salford.

* * *

ONE of the most useful books that have been written on the Montessori system is by Dr. Jessie White, who made a tour of inspection round the schools in Milan, Rome, and Verona last year. She has recorded her impressions of all she saw. The result is that we are taken away from theory and personal hero-worship to scientifically observed facts. Mrs. White is the secretary of the Education Society connected with the Teachers' Guild, and to her energy the Guild is much indebted.

* * *

DR. NUNN, vice-principal of the London Day Training College, has received the title of professor of education in the University of London. Dr. Nunn has been directly connected with education all his life, and everyone who knows him will heartily congratulate him on the recognition by the University.

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MR. CRAWFORD, formerly principal Clerk for Higher Education under the Glamorgan County Council, has been appointed secretary to the Appointments Board of the University of London in succession to Dr. Denning.

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THE first list of registered teachers is awaited with interest. Among those who are said to have applied for registration are a number of past presidents of the National Union of Teachers, of the Association of Assistant Masters in Secondary Schools, and of the Association of Headmasters; others connected with either university education or the administration of education are Canon Scott Holland, Regius professor of divinity at Oxford, Prof. Herbertson, professor of geography at Oxford, Sir James Yoxall, and Mr. P. A. Barnett, H.M. Inspector of Secondary Schools.

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THE school of which Mr. Jemmett has been appointed headmaster is the new High School for Boys at Oswestry, which is to be maintained by the local education authority. Mr. Cawood is headmaster of the Grammar School, Oswestry, at which he was a master from 1907 to 1912, and to which he returned as headmaster after two terms spent at the County High School, Altrincham.

ONLOOKER.

HISTORY AND CURRENT EVENTS.

POLITICAL philosophy in all ages has attempted to lay down rules for the ideal government of States, but the world in general has gone its own way without reference to the theories. Indeed, in the few instances in which States have been founded or reformed according to theory, disaster has been the consequence. The result is that theory has generally followed practice, as indeed it should do if a true science is to be built up. The Greeks had political theories based on the experience of city-States, the Middle Ages theirs based similarly on the theocracy, the seventeenth-century English philosophers argued on the claims of Stuarts and of the "people." What shall we say of our own times? In Latin Europe, whether on this side or that of the Atlantic, we recognise the permanence of military dictatorship. Revolutions in Portugal or South America are the work of soldiers. But in other ways monarchy, the rule of one man, is asserting itself as the only capable government in times of danger and difficulty; witness China and the South African Republic.

THE popular prejudices against monarchy, a prejudice which ignores the patent facts of current history, is based largely on the sub-conscious reading of the word as meaning merely hereditary monarchy. The landowning families that, as sovereign powers, survived the storm of the French Revolution, show signs now and then of failure as a caste. We need not refer to detailed stories, but our readers will realise on reflection that they are, we might almost say, in the habit of seeing in their papers accounts of domestic tragedies in high quarters arising out of marriage relations. The younger members of our Royal Families seem sometimes to be in a state of revolt against their surroundings. We know what happened to the Habsburgs of Spain in the seventeenth century as a result of constant intermarriages, and it would be easy to quote other instances of the evil. It would seem that the royal caste in Europe must before long drop the word "morganatic" and learn from our barbarian ancestors that exogamy is the only true road to vigour.

FOR more than thirty years we have thought the Bonaparte family to be practically extinct, so far at least as the existence of direct heirs to the first Napoleon was concerned, and we have been in the habit of saying that France was quit, at any rate, of one set of "pretenders" to her throne. But in January last the wife of Victor Napoleon son of Joseph Charles son of Jerome brother of Napoleon I., had a son, and the Bonaparte question instantly became a factor in French politics. We do not know if this will interest our Legitimist friends. They have a strange theory which recognises no "lawful" rulers but the representatives of ancient royal families, such as Robert of Bavaria, who, as we were saying recently, is their candidate for the throne of Great Britain-and-Ireland. It is they who annually decorate the statues of Charles I. of England and Scotland, regarding him as the martyr of divine right monarchy. We suppose their favourite for France is a Bourbon. But is it not

strange in the days of "democracy" that a newly born infant should cause such stir?

OUR best text-books on English history now contain good accounts of the constitutional changes brought about by our Kings from Normandy and Anjou, and there is no need for us to explain the origin and functions of "grand juries," or the part they played for centuries in the local government of our country, both civil and criminal. They lost much of their work when county councils were revived in the end of last century, and they have now little else to do than "present" criminals to itinerant justices. As their verdict is "traversed" by a second jury, the modern man, who has no reverence for the past and would abolish all that is not obviously "useful," asks why this old-world institution should any longer cumber the ground, and the defenders of the institution reply by pointing out that its functions in criminal matters are still of service. It would be strange if among all the changes we are making in our constitution in these years this relic of the past were to pass utterly away.

ITEMS OF INTEREST.

GENERAL.

THE Departmental Committee on the University of London, appointed to recommend, after consultation with the bodies and persons concerned, the specific arrangements and provisions which may be immediately adopted in order that effect may be given to the scheme of the report of the Royal Commission on University Education in London, has now resumed its sittings. The Committee has invited the observations of the Senate upon the proposals of the recent Royal Commission with regard to the admission of external students to the examinations of the University for degrees, regard being had to the principles upon which the report is based. The Committee would also be glad to receive not later than March 14th reasoned statements bearing upon these proposals from other bodies and persons concerned.

AT the meeting of the Association of Technical Institutions at the end of January, Mr. J. H. Reynolds, formerly head of the Manchester School of Technology, contributed a paper on compulsory continued education. He urged that having regard to the vast expenditure of public money, amounting now to upwards of twenty-four millions sterling per annum, and with a view of conserving the results of this expenditure, not only should "half-time" be abolished, but all regulations by means of which a child may be relieved of attendance at school before he reaches the age of fourteen, and that there should be enacted a law under which children leaving the elementary school at fourteen should be required to attend within the usual hours of labour a continuation school, which shall include in its curriculum not only vocational subjects, but such subjects of a general character as shall conduce to his effective preparation for the duties of life, and that the responsibility for the due observance of the law be laid upon the employers. He showed that only a mere fraction of the

children leaving school for employment continue their education, the figures being, for those between fourteen and seventeen years of age, only 300,000 out of a total of 2,335,000, or 13 per cent., with the result that there is a most serious economic and moral loss to the nation. The German Government, realising this great loss to the German nation, some years ago established compulsory day continuation schools for children in employment throughout the empire, with most satisfactory results. In the city of Berlin in 1910-11 there were 68,000 students of both sexes enrolled in continuation schools, of whom 32,000 were students in compulsory schools.

THE total number of candidates entered in the Cambridge Local Examinations last December was 9,590, exclusive of 5,210 candidates who were examined at Colonial centres. In the Senior Examination 886 boys and 992 girls satisfied the examiners. Of the Junior candidates 1,700 boys and 1,163 girls passed. In the Preliminary Examination 1,156 boys and 784 girls passed.

DURING the month of February an exhibition illustrative of needlework done in schools and colleges maintained or aided by the London County Council was held at the Whitechapel Art Gallery. From the elementary school to the training college or trade school, all appeared to have the same end in view, namely, to make the subject a living reality, and all seemed to be working along similar lines to attain that end. This is a particularly happy state of affairs, when any girl may pass through at least three of the institutions represented, for there will be the greatest amount of progress made in the smallest amount of time. The child from the elementary school frequently goes into the secondary school, and thence to the training college or trade school. Much of the work sent in by the secondary schools was distinctly pleasing. Scale-drawing and pattern-making have been reduced to fine arts. Almost without exception the proportions of the garments sent in were good, and the "useless school production" was nowhere to be seen. Decoration was used with effect, and was artistic, both in colour and form. Such an exhibition as this must bring comfort to those who have been labouring for many years past to make the most of a really valuable subject, and there is nothing at Whitechapel to prove that good needlework has been sacrificed in the doing of it.

MODERN movements in Japan, China, and India have thrown the question of the Christian education of women in the East into clearer light, and the importance of its contribution to civilisations in which the ancient codes of religion or morality are declining. The recent Scottish Conference, held at the Park School, Glasgow, gave an opportunity for full discussion of the situation in reference to Government action and to the educational policy of missionary societies. The Rev. Lord William Gascoyne Cecil said that educational work in China must necessarily be constructive and in close relation to Confucian thought; the missionary educator would thus more surely attain his ultimate aim. Miss McDougall, Westfield College, who has recently returned from a tour of investiga-

tion in India, emphasised the need for relieving the pressure of work in mission schools in order that more experimental work might be done in relating the education given to the home life of the girls. Two hundred and fifty delegates were present, representing seventy schools. The names of those persons in Scotland who wish to be kept in touch with this movement should be sent to the Treasurer, the Park School, Glasgow, marked Christian Education of Women in the East.

THE recent experiences of a number of principals of boarding-schools at Crouch End and other metropolitan districts may well serve as a warning, to those who are proposing to advertise, to select with the greatest care the periodical they intend to use. Last month a man described as a journalist and scholastic agent was at Bow Street Police Court sentenced to six weeks' imprisonment in the second division for obtaining money by false pretences. The defendant called upon the principals of several boarding-schools, and after representing that he was looking for a suitable school for two German pupils, obtained sums of money varying in amount for advertisements in a publication called the *International Boarding School Gazette*. The evidence showed that he made false representations as to the circulation of the paper, and that in no instance had the German pupils been forthcoming. Inquiries made among the newspaper distributing firms in London showed they had never heard of the periodical with which the defendant was concerned. There are many reputable advertising agencies in existence, and principals of schools would be well advised to make use of one of them and to ignore the invitations of casual callers.

THE annual business meeting of the Association of Science Teachers (London Branch) will be held on Tuesday, March 10th, at 5.30 p.m., at Bedford College for Women, Regent's Park, by the invitation of the principal, Miss Tuke. Miss Chadburn will give an address on the Teachers' League in connection with the South London Hospital for Women.

WE learn from the report of the New Zealand Minister of Education that there were thirty-two secondary schools in New Zealand in 1912 included in the list of the Education Department. In addition, nine schools provided suitable secondary education for Maori boys and girls, and there were a number of private schools inspected by the Department. The total number of pupils attending the thirty-two secondary schools in the last term of 1912 was 3,369 boys and 2,462 girls, and of these 701 boys and 152 girls were boarders. To obtain the total number of pupils receiving secondary education in New Zealand schools, it is necessary to include pupils attending secondary schools proper, secondary departments of district high schools, Maori secondary schools, and day technical schools. Also private secondary schools subject to inspection must be taken into consideration. Of other private secondary schools the Department has no information. We then arrive at the following total of all secondary-school pupils in New Zealand known to the Department :—

	Average weekly roll 1912
Secondary schools	5,542
District high schools	2,048
Day technical schools	1,526
Maori secondary schools	369
Private secondary schools	883
Total	10,368

Based on the estimated population of New Zealand at the end of 1912, the proportion of persons receiving some form of day secondary education was 94 per 10,000 of the population. The report shows further that 8,341 of the 10,368 secondary-school pupils receive their education free.

IN the January issue of *The Geographical Journal* Mr. B. C. Wallis writes a most instructive article on Nottinghamshire in the nineteenth century in order to show the geographical factors which have led to the growth of the population. After dealing with Nottinghamshire and the neighbouring counties as regards population in 1801, 1851, and 1901, the writer proceeds to explain the present distribution of Nottinghamshire by considering (a) climate, relief and geological formation; (b) mining and agriculture; (c) railways, canals, and factories. It is to be hoped that this method of investigation will be adopted in the case of other counties.

WE learn from *The Pioneer Mail* that a number of Indian gentlemen recently approached the Government of Bengal on the question of a school in Bengal on English public-school lines. In a requisition to the Government stress was laid on the value of the education and training imparted in the public schools in England. It was pointed out that at present there is no school in India conducted on English public-school lines to which sons of Indians of position can gain admittance. To remove this anomaly it is proposed to found a school in Bengal on the lines of English public schools and with a staff trained there so that all boys in India can reap the benefits of English training without having to go outside India. A small beginning is to be made as an experimental measure, and some houses in Calcutta or in the suburbs with large compounds are to be rented. The school is to be started on a small scale with some fifty residential pupils; the staff is to be brought out from England, and will consist of a headmaster and two assistant-masters to commence with. A sub-committee has been appointed to consider and report as early as possible on the experimental scheme.

THE articles in *Science Progress*, to judge from the January issue, are tending to become philosophical rather than practical, and to represent opinions instead of summarising facts. A line of research of great promise for the anthropologist is indicated in Dr. L. Robinson's article on the relations of speech to human progress. The mechanism of speech is exceedingly complex, nearly 500 tongue movements being involved when we speak at the rate of 150 words a minute. The development of the muscles required to exercise the free movements of the tongue has been accomplished by a tilting forward of the lower surface of the under jaw, and hence the characteristic chin which

so distinguishes the human countenance from that of the monkey. It is considered that the genial tubercles on the jaw will present an historic record of the extent of articular speech and its relation to human progress. Tubercles, for example, are generally absent from the Bushman, and very imperfectly developed in other primitive races. This issue also contains the concluding article of Dr. Mott's lectures on the influence of education on mental development.

SCOTTISH.

THE Educational Institute campaign in favour of enlarged areas for educational administration is being pursued with the utmost vigour, and already success seems assured. Meetings of teachers and others interested in education are being held all over the country, and in almost every case the local member of Parliament is present to give strong support to the movement. At a meeting in Paisley of the Renfrewshire teachers, Mr. D. T. Holmes, M.P., declared that he had no hesitation in saying that larger areas were necessary in order to rescue teachers from the frivolous malignity of parochial gossip. An increased area did not necessarily mean the county, but an area sufficiently large to give facilities for higher education. Colonel J. W. Greig, C.B., the member for West Renfrewshire, said that the small area had done good service in its day, but it was totally unsuited to meet the educational needs and burdens of the present. The new area should have regard to geographical conditions, should not be too large or too small, and should have a uniform rating throughout.

THE case for enlarged areas has been greatly strengthened by the recent action of school boards in various counties voluntarily combining for certain educational purposes. Berwickshire gave the lead in this direction, and though the movement failed to come to full fruition, other counties soon followed and bettered its example. The school boards of Kincardineshire, convinced that they were unable to meet the burdens and duties imposed upon them by recent legislation, have now combined to form a county association of school authorities. The school boards in the county of Kirkcudbright have, with two exceptions, followed suit, and other amalgamations are in prospect. These object-lessons on the inadequacy of small areas to meet existing educational conditions cannot fail to impress the Government with the urgency of giving heed to the teachers' demands for enlarged areas.

THE Secretary for Scotland, the Right Hon. T. M'Kinnon Wood, M.P., in formally opening the new Boroughmuir Higher Grade School, Edinburgh, said that the Edinburgh School Board had shown great enterprise and high administrative capacity in its educational work. He had been particularly struck with the remarkably successful efforts that had been made to enlist the interest of children, parents, and employers in the work of their continuation schools. As a result of these efforts 70 per cent. of the pupils who left school last year were now enrolled in these classes. The

motto chosen for the school was indeed inspiring. "The will does it." Everyone who had succeeded in business, or at the Bar, or in the Senate would testify that "the will did it." The will must be guided by the intellect and tempered by the heart, or it might become an engine of destruction instead of progress, but in the rightly directed will they would find a sure defence against all the blows of circumstance.

MR. FRANK GOLDSTONE, M.P. for Sunderland, delivered an address to the Scottish Class Teachers in Edinburgh on democracy and education. He said that Scotland owed much to her education, as the position taken by her sons in every quarter of the globe amply proved. Education was of first importance to all classes of the community, and to none more than to the working classes. He believed that a rising minimum of education was the surest way of approaching to a national minimum of wages, hours, and leisure. In such a national minimum of education lay their hope that when these other minima were secured they would be employed to the best purposes. Dealing with vocational training in schools, Mr. Goldstone said he was not prepared to approve of a system which trained children for an occupation they might not be fitted for, and one in the selection of which they had no choice. Vocational training looked at the pupil as a cog in the wheel of industry, and not as a child. Their duty was to develop the pupils to the highest point of which they were capable on the physical, mental, moral, and spiritual sides.

THE Secondary Education Association of Scotland is engaged at the present moment in prosecuting a vigorous campaign for better salaries for their members. The association has made the question of salaries the subject of a searching inquiry and of long deliberation, and in a letter addressed to members of Parliament and the heads of the Education Department, they state that unless the existing conditions are speedily and drastically amended, a failure in the supply of properly qualified teachers is imminent. Four pamphlets have been prepared and issued dealing with various aspects of the situation, and giving particulars of the conditions in German schools and elsewhere. A particularly valuable return is that which compares the salaries paid to Second Division and Intermediate clerks with those paid to masters in secondary schools. The probationary period in the case of the latter is considerably longer than in the former, yet the salaries paid to secondary-school masters fall far short of those for these civil servants. The question of remuneration eventually resolves itself into a question of educational efficiency, and unless Scotland is prepared to fall from its high estate as a leader in educational progress, it must wake up to the necessity of giving better terms to its teachers. The Scottish Association is to be congratulated on the admirable way in which it has stated its case. While there is no wild talk, neither is there any beating about the bush. If they have "nothing extenuated neither have they set down aught in malice." A plea so logical, so temperate, and so powerful can scarcely fail to have lasting effects.

A NUMBER of important educational questions were discussed at the general meeting in Glasgow of the Scottish School Boards Association. The president, the Rev. Dr. John Smith, Partick, in an introductory address, said that at present education suffered from a dual administration, which tended to draw an unnecessary line of demarcation and of delimitation between the primary and the secondary school. Education should be regarded and administered as an organic whole, and nothing but evil and injustice resulted from the present dual control. Mr. H. J. Mackinder, M.P., delivered an address on modern educational problems. He made a strong appeal for the enlargement of educational areas, holding that the larger area opened up opportunities not only of controlling the elementary and secondary schools, but also of organising better that very difficult department of school work, the giving of secondary education in sparsely populated districts. Motions were afterwards passed asking for increased grants for educational purposes, and for increased facilities for higher education in remote rural districts. A motion condemning the present junior student system was also passed unanimously.

DR. MACINTYRE, lecturer in psychology at Aberdeen University, has for some time past been investigating the question of capacity in school children in various parts of the country. Taking the country as a whole, the percentage of pupils of ordinary or normal ability was 76, of those below normal 17, and of gifted pupils 7 per cent. These percentages, he said, held good also for America, but in France and Germany the pupils of ordinary ability rise to 90 per cent. Boys and girls he found were practically equal in intelligence. A larger percentage of boys, however, rose above the normal, but this was balanced by a corresponding increase in the percentage of the feeble-minded in their sex. Full particulars of the nature of the tests, and of the conditions under which they were made, are not yet to hand, but, generally speaking, the results may be said to confirm the experience of teachers who have to deal with large masses of pupils. A difference of standard or of conditions in the test will, we hope, be found to account for the more favourable position of France and Germany; otherwise it is a sad decline from the days when an Englishman, to say nothing of a Scotsman, thought himself equal to three Frenchmen.

IRISH.

THE most important event in Irish education during the past month has been the publication of the final report with its recommendations of the Viceregal Committee of Inquiry into the system of inspection and other matters connected with the Board of National Education in Ireland, which was appointed at the commencement of last year, with Sir Samuel Dill as chairman. The report is unanimous. It is divided into four sections, dealing with (a) the whole system and work of the inspectorate; (b) the classification, salaries, and promotion of teachers; (c) the relation of the National Board and the teachers; and (d) the right of teachers to access to the Board. The committee expresses its general approval of the new

policy of the Board initiated by the present Resident Commissioner in 1900, by which the old system of payment by results of an examination of the individual pupils was abolished in favour of a general examination of schools and classes, and it pays a warm tribute to Dr. Starkie for the great constructive work which he has accomplished in this direction. On the other hand, the new system has been accompanied by a system of merit marks affecting the position and emoluments of the teachers, which has given rise to grave dissatisfaction and serious agitation, and this system the committee roundly condemns.

THE recommendations may be summarised briefly as follows: (a) The present system of grading and promoting teachers shall be abolished, and with it the present system of merit marks. The increments in teachers' salaries shall in ordinary circumstances be automatic and annual within their grade, and promotion shall be in the hands of the chief inspectors who are to have regard to seniority, professional merit, general attainments, and the circumstances in which teachers work. (b) Inspectors' districts shall be re-distributed so that the sole responsibility for reporting on the schools of a district shall rest on one inspector. Inspectors when first appointed are to be on trial for two years, and shall not be changed frequently from one district to another. Their reports shall be communicated to the managers and teachers without delay, and schools shall be subject from time to time after notice to a full and thorough inspection towards the end of the school year. (c) Teachers shall be allowed appeals to the Board. (d) Four divisional inspectors shall be appointed to assist the two chief inspectors. (e) Teachers and managers shall be given full notice of any new regulations.

ONE of the chief grievances of the teachers, viz., the insufficiency of salaries and pensions, was outside the scope of the inquiry. Just now the national teachers are seriously concerned about the inadequacy of a new pension scheme proposed by the Chief Secretary, and they are on the horns of a dilemma. The scheme is an improvement on the old position, it is true, and if the Home Rule Bill is to pass it would be better to accept it rather than continue the agitation and lose it, but at the same time the teachers are afraid that their acceptance may be regarded as final. Their agitation on this point has come late in the day, and *The Irish Times*, in a leading article on the report of the inquiry, suggests that the teachers have been badly advised, and, whether purposely or not, the Government by appointing the Committee has diverted the attention of the national teachers from the financial needs of primary education during a critical period of the Home Rule Bill, and now, when the teachers are awaking to the facts, it is too late to secure better terms while the attention of the public is wholly absorbed by Ulster. It would be really a scandal if the Government is taking an advantage of such a condition of affairs to jockey the teachers.

THE annual meetings of the Classical Association of Ireland were held on January 30th, in the lecture theatre of the Royal Dublin Society. The new presi-

dent, the Right Hon. Justice Ross, delivered a brilliant inaugural address on "The Greeks, the Romans, and Ourselves," and the speakers included Prof. H. Browne, last year's president, who took the chair, Sir F. G. Kenyon, president of the English Classical Association, and Dr. D. J. Coffey, president of University College, Dublin. The president-elect for 1915 is Prof. J. I. Beare, Regius professor of Greek in the University of Dublin.

THE annual report of the Association of Secondary School Teachers in Ireland gives an account of the story of the £40,000 grant and of the work of the association in connection with it. It recounts some facts which have not been before published officially. After Mr. Birrell's negotiations with the Catholic headmasters broke down last summer, on his suggestion eight representatives of the teachers met the same number of representative Catholic headmasters, but without effecting any result. Thereupon Mr. Birrell stated that he would adhere to the original conditions and put the sum on the estimates early in the new year. If Mr. Birrell intends to do this, there ought to be a public announcement immediately. The association also passed a resolution requesting the Intermediate Board to appoint as centre superintendents none but *bonâ-fide* secondary-school teachers, and in making appointments to take account of the number of years' teaching experience applicants have had.

THE Department has issued general regulations governing the conduct of their technical-school examinations to follow four-year courses in commerce, building trades, applied chemistry, electrical engineering, mechanical engineering, domestic economy, and art. There will as a rule be two examinations in each of these subjects during the four years. The examinations this year will be held in May, and the Department has issued a full time-table of all the papers in the different subjects.

THE January issue of the Journal of the Department contains a full report of the November meeting of the Council of Agriculture with the vice-president's address, and also deals with a number of matters relating to agriculture and technical instruction, such as the breeding of egg-laying poultry, the disposal of creamery refuse, Swedish forestry, tobacco growing, nitrogenous manures, and eelworms in narcissus bulbs.

WELSH.

MUCH anxiety has been caused by the reports of serious irregularities which have been discovered in connection with the Central Welsh Board. The sum of £2,000 is said to be involved, and drastic measures were taken to put matters right; but, serious as the affair is, it is understood that it concerns only the office administration, and that the educational work and authority of the Board are in nowise affected.

THE appointment of Mr. Morgan Watkin to the position of assistant professor of Celtic languages in the University of Paris has caused great satisfaction throughout the Principality. Mr. Watkin has had a remarkable career; he comes from the Tawe Valley, and was a few years ago a mason, employed on the

Birmingham University Buildings, and later on the Birmingham Waterworks in Cwm Elan. He worked at his trade in France and Germany, getting a practical knowledge of the languages of these countries, and then, returning to Wales, entered Cardiff University College, where he took his B.A. with first-class honours in French and second-class in Celtic languages. He was made a fellow of the University of Wales, and obtaining the Gilchrist Open Travelling Scholarship in Modern Languages, went to Paris to do research work on the relationship between French and the Celtic tongues. He read a paper, which led to his being made an *Officier de l'Instruction Publique*, at a recent congress of French and foreign universities at Rennes.

SPEAKING at the annual meeting of the Welsh Language Society, Prof. J. E. Lloyd gave interesting statistics showing the increase in the use of Welsh in ten years. The number of monoglot English people in Wales has markedly increased, and the number of monoglot Welsh markedly decreased; but the number of those who speak Welsh has increased between 1901 and 1911 from 930,000, in round numbers, to 977,000. The summer school of the society, which provides instruction in Welsh language, literature, and history, is to meet for the twelfth time this year in Brecon. The school, which has already had more than 1,000 students, is inspected by the Welsh Department of the Board of Education, and receives a grant under the Board's regulations.

THE increasing sense of the importance of teaching the Welsh language may be gauged by the fact that in the original curriculum of the Intermediate schools it was allowed to take the place of German—French and Welsh being the two modern languages studied; now Welsh is alternative to French in many schools, being in the case of those pupils whose parents choose it for them the only modern language studied other than English. The director of education for Merthyr complained in January of the difficulty of getting teachers of Welsh, and said that he was inducing young teachers to take Welsh instead of French in their training, and hoped that in a few years this course would have its effect.

THE Board of Education (Welsh Department) has issued to schools and education authorities in Wales a circular, entitled "Dydd Gwyl Dewi" (St. David's Day). It contains suggestions as to methods of carrying out celebrations of the festival. Such celebrations the Board will be prepared to accept in substitution for the ordinary time-table in schools of all grades. After providing in Welsh and English a summary of the life of the patron saint, in which what is known is carefully distinguished from unsupported tradition, the circular goes on to give suggestions for a programme; in this are included the singing of national songs, flag ceremonies, addresses on such subjects as the Saint, the *Eisteddfod*, and national heroes, and exhibitions of objects illustrating Welsh life and history, of students' work, of folk dancing, of Welsh cookery, and of products of Welsh art and industry. For the benefit of teachers who may wish to organise

an exhibition to illustrate bygone Wales, detailed suggestions are given as to suitable objects for display, and likely sources whence they may be procured; to approach public men and local residents known to be interested and to possess suitable objects will be a means of directing wider attention to the doings of the Historic Monuments Commission and the other bodies which are collecting and preserving relics and examples of the work and life of earlier days, and such an exhibition will alike educate the pupils in proper respect for the past, and provide material for lessons on the changes that are leading to the future.

If the suggestions of the circular are generally adopted, it will be possible by means of the educational organisation of the country to co-ordinate the efforts of many interested workers in such a way as to cover the whole field of national life, and to give definite and simultaneous expression to the national feelings and aspirations. All this is admirable—so good that one is disposed to ask why the excellent lead given by Wales should not be adopted in the other sections of the United Kingdom and its Colonies and Dependencies. St. George's Day, April 23rd, would no doubt often clash with the Easter holidays, but another day could be chosen; St. Patrick's Day, March 17th, and St. Andrew's Day, November 30th, would fall within term-time, as would most, if not all, of the Colonial celebration days. The only criticism of the St. David's Day circular that seems to have suggested itself is that no indication is given of the consciousness of any duties, privileges, or responsibilities pertaining to Welshmen outside their Welsh nationality—not even the suggestion that the British National Anthem should be sung.

THE DIRECT METHOD OF TEACHING LATIN.

Some Practical Suggestions on the Direct Method of Teaching Latin. By R. B. Appleton. 83 pp. (Heffer.) 2s. net.

Lingua Latina: Puer Rōmānus. By R. B. Appleton. 110 pp. (Clarendon Press.) 2s. 6d. net.

Lingua Latina: Praeceptor. By S. O. Andrew. 104 pp. (Clarendon Press.) 2s. 6d. net.

THESE three books all set forth and defend the direct method of teaching Latin and to a considerable extent, from different methods of approach, go over the same ground. "Some Practical Suggestions," after a brief introduction, summarises the work to be done in the second and third years, beginning with the uses of the subjunctive, of the accusative and infinitive, and of the gerund and gerundive, and suggesting various ways of employing the direct method in teaching these things. "Puer Rōmānus" is to some extent a companion book, as it is a reading book to be used in the second year of Latin, before an actual Latin author is taken in hand. It has sufficient work for three terms. It is specially written, although containing extracts from classical texts, and proceeds syntactically on a definite plan. It deals with subjects likely to be attractive to boys, e.g. *ego et vita mea, lūdus, cēna, iter Rōma*, &c., and is illustrated. The style and contents seem to us on a higher plane than some other similar books of this school. "Praeceptor" is a master's book, intended primarily as a companion to "Primus annus." It goes over, briefly, of course,

the work of the first three years, illustrating the methods of teaching, but its main object is generally to champion and defend the direct method.

May we suggest that the direct method should now go ahead and leave self-defence and attack on the older methods? It is now likely to have a fair trial, and its case is not improved by pointing out how bad the old way is. *Vixere fortes ante Agamemnona*. No doubt some, perhaps many, teachers who use the old method are not very inspiring to their pupils. The upholders of the new method are enthusiasts, and that is excellent; but they confess themselves unable to teach for so long as men of the older school are obliged to do, and they have themselves misgivings as to the oral method in the hands of non-enthusiasts. *Experimentum fit. Securus iudicat orbis*.

Mr. Andrew's main argument for the direct method is that the object of learning a language is to speak it. Will he apply this to Greek? If so, must a boy learning Greek learn to speak all the dialects? If not all, which? Or, in English must he learn to speak the language of the fourteenth century before reading Chaucer? The argument proves too much, and it may equally well be argued that the object of learning a foreign language is to get into touch with its culture as shown in its literature; this can be best attained by reading, and conversation is not an essential. Many an "interpreter" is fluent in several languages without being mentally or morally improved thereby, and in schools languages should be studied, whatever the method, mainly for the sake of culture. Mr. Andrew is well aware of this, but in defending his method he allows it to drop into the background.

In the "Praeceptor" there is a misprint on p. 58. *Roman for Rōmānum*. In the "Practical Suggestions," p. 19, is *non est omnia* good Latin? We suggest *non est satis*.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

A German Phonetic Reader. By Alfred Egan. xv+142 pp. (University of London Press.) 5s. net.—This is a very welcome addition to the small number of selections of German in phonetic transcription. Mr. Egan classifies the twenty-seven prose and verse passages in three sections, viz., *Lesesprache, Umgangssprache, and Vortragssprache*, that is, transcriptions of the language as read aloud carefully, as used in ordinary conversation, and as used in public speaking (drama, recitation, &c.). A study of the book leaves a very favourable impression; the transcription is accurate and misprints are rare. The occasional omission of commas is a little troublesome, especially as the breath groups have unfortunately not been indicated. It is also a pity that the lines have not been numbered, as it makes reference more difficult; this is particularly desirable in a school book, which this might well be if the price were not so high. The following misprints we have noticed:—P. 13, l. 8, "tambax" ("brambax"?); p. 23, l. 32, "gutā"; p. 28, l. 17, "inkluzivā" (correct in vocabulary); p. 30, l. 21, "fer'tektā" (should be "—ən"); p. 56, l. 19, "dōtr." The use of a long dash in cases like "bring' ich" is disturbing; a hyphen would have been better. The footnotes might with advantage have been more copious. However, in spite of minor defects, this is a thoroughly good piece of work.

A Grammar of the German Language. By Ernest Classen. vii+264 pp. (Longmans.) 3s. 6d.—Mr. Classen has brought into small compass the main facts of German grammar, and on the whole he

shows skill in presentation and sound knowledge. The sections on pronunciation are good; but it is perhaps not wise to try to teach the *ch* pronunciation of *g*; nor is it helpful to suggest that the pronunciation of German *w* may be obtained by a compromise between the English sounds *v* and *w*. The lists given in connection with the declension of nouns need not have been so long; who wants to know *Alk* and *Hupf* and *Maut*? We add a few criticisms of details: it is misleading to call *mein* a shortened form of *meiner* (§ 135); *geht heraus* should be *geht aus* (§ 139); it should be noted that *auch* does not follow *wer* or *was* immediately (§§ 155, 174); *Es* should be followed by a point (§ 168); "to miscarry" is a rendering of *fehl schlagen*, not of *festhalten* (§ 216); the prefix is stressed, not the meaning (§ 229); it is not clear why *zu missdeuten* is repeated (§ 230); *es dämert* may refer to dawn as well as to dusk (§ 238); *er liest aufs beste* is unnatural German (§ 241); *du solltest es ihm nicht sagen* is not "you ought not to have said it to him" (§ 244 [3]); that *ja* is used with and without stress should have been remarked (§ 247 [1]); "zu Mute sein, to feel" is misleading (§ 264 [9]); it is said that the accusative *with the article* is used after *jeder* (§ 356); *reizend* and *treffend* may very well be used as participles of *reizen* and *treffen* (§ 379). Misprints are too common; for instance, *junger* omitted (§ 122 [3]), *folgte* (§ 196), *surely* (§ 216), *konnt* (§ 247), *aus* (§ 278[2]), *vereist* (§ 287) *as* (§ 293 [e]), *Erschenning* (§ 302), *haffen* (§ 314), *Cs, Cw.* (§ 318), *is* (§ 355), *Cr* (§ 361, note 3). Mr. Classen has added a number of exercises, consisting of disconnected sentences and a few passages to be translated into German, and has supplied a vocabulary to the exercises, which is also not free from misprints.

Victor et Victorine. By Madame J. G. Frazer. ix+62 pp. (Macmillan.) 1s.—This illustrated diary of a boy is delightful—perhaps the best of all Mrs. Frazer has so generously given us. Some of her playlets and stories of, and for, children have been spoiled a little by the intrusion of the grown-up point of view, just as Charles Perrault occasionally inserted in the fairy tales touches that jar. In "Victor et Victorine" there is nothing of this; on the other hand, Mrs. Frazer shows the most understanding sympathy with the child mind, and she has found an excellent helper in Mr. H. M. Brock, whose artistic interpretation of Victor's precocious gifts in pen and ink work is a treat. Young readers will derive much pleasure from this book, and a good deal of instruction besides, although there are no notes, exercises, or vocabulary.

The Collection Gallia is a new venture, issued by Messrs. Dent. It is intended to form a kind of French "Everyman," and is edited by M. Charles Saroléa, of Edinburgh University. The handy and well-printed volumes are issued at 1s. The following have already appeared:—*Flaubert's Tentation de Saint-Antoine*; *L'Imitation de Jésus-Christ*; *Mme. de la Fayette's Princesse de Clèves*; *Pascal's Pensées*; *Musset's Poésies nouvelles*; *Balzac's Contes philosophiques*; *Barrès's L'Ennemi des lois*; and a *Petite Histoire de la Littérature Française*, by Emile Faguet. The selection of these early volumes shows how catholic is the editor's taste, and we look forward with pleasure to the continuation of this series, M. Faguet's contribution to it will be read with much interest; though we may be tempted to disagree with his judgment, to wonder at the inclusion of this author and the exclusion of that, we must perforce yield to the attraction of his style.

L'Histoire de France en Thèmes (1789-1912). By T. Pettigrew Young. 127 pp. (Oxford University

Press.) 2s. 6d.—Mr. Young has carried out what we believe to be a novel idea: a collection of English passages for translation into French, which at the same time deal with French history from the Revolution to the present day. It may be suggested that a chronological table and occasionally connecting links would have rendered the book still more helpful as an historical reader, and that some indications might have been given to aid the translator. The passages have been judiciously selected from many sources, and they vary in difficulty; to render some into idiomatic French would require powers of a high order. Perhaps Mr. Young will follow up this volume by one containing model renderings, with variants at the bottom of the page. Many an earnest student would be grateful to him.

English.

Tales from Ariosto. By J. S. Nicholson. 298 pp. (Macmillan.) 6s.—It is a delightful thing to find an introduction to Ariosto from the pen of a professor of political economy, and we are reminded of the days when studies—polite studies—were not so much divorced from those which are rather arrogantly labelled scientific. But Dr. Nicholson is an enthusiast, and wishes to reintroduce the inspirer of Spenser to our notice. He does not think highly of his predecessors in the art of Englishing Ariosto, but to say that Rose is utterly unreadable is surely too hard. Harrington, not reprinted, is out of reach; but a modern selection exists by Mr. Calthrop-Hollway. Perhaps the volume before us will make Angelica and Orlando's madness and the journey to the moon and the Perseus legend of the dread Orc better known. The English is forcible and good; but an occasional antique touch such as we find in Miss Steegmann's "Tales from Zanchetti" would be welcome. The translator, however, has, he tells us, not done with his subject, and we wish all success to his design in popularising a great and imaginative poet whose writings have had so important an influence on English literature. The few plates are most interesting; that of Flordelis by Bartolozzi being very fine.

Selections from Hazlitt. By W. H. Howe. 398 pp. (Ginn.) 5s.—Hazlitt the writer, apart from the less pleasant Hazlitt the man, is not too much read in England, though a short time ago his Elizabethan work was made a great deal of. In this volume we have an excellent selection from the Essays, although the editor is rather afraid of giving us the vivid opinions; this surely is a pity, for there must be many people who still sympathise with even the most heretical. An interesting introduction, a good working bibliography, and a life are given; probably the editor has already found out the bad error on p. xxxvi., which to the careless reader says distinctly that Lockhart shot his father-in-law. Lockhart was a vicious critic, but he never killed Sir Walter.

London in English Literature. By P. H. Boynton. 346 pp. (Cambridge University Press.) 8s. net.—London is Mr. Besant's property; but his big volumes are out of reach, and a handy book is welcome. The earlier chapters embrace Chaucer's and Langland's London, Shakespeare's and Milton's, and so on down to Dickens and contemporary London. The book is the work of a seeing and sympathetic American, and it contains not only the usual points, but also a very useful and rather unusual little bibliography. It would be easy to follow this book by a selection of extracts from authors describing London scenes at different dates. No city has a more romantic charm for writers. It is a stage on which they have placed thousands of puppets.

History.

England and the British Empire. By A. D. Innes. Vol. i., xxxiii + 539 pp. Vol. ii., xxxi + 555 pp. (Rivingtons.) 6s. net each.—We have nothing but praise for these, the first two of four volumes in which Mr. Innes is to tell the whole story. The first reaches 1485, the second 1688. The style is eminently readable, the facts are accurately given, and often in full detail, and there are only two or three little slips which may in all probability be attributed to the printer. Even on the crucial matter of ecclesiastical terminology in the seventeenth century, a frequent source of error, Mr. Innes all but entirely avoids the usual blunders. There are good maps (at the end of each volume), as well as a copious index. In the struggle for existence among text-books on our island story this newest venture deserves a great success.

King's College Lectures on Colonial Problems. Edited by Prof. F. J. C. Hearnshaw. xiii + 252 pp. (Bell.) 4s. 6d. net.—These are six lectures delivered last summer by men who have either taken part in the administration of some part of the British Empire or have studied the constitutional and other problems thereof. The consequence is that the reader has here a first-hand knowledge of some of the problems of present-day politics. There should be no need to say more to recommend the book to every citizen of the Empire, and when we add that some of the lectures are historical (e.g., those on Fiji and on the Colonial ideas of 1830), some are close discussions of present-day problems, it is evident that this is a book of first-class importance.

From George IV. to George V. By E. Ross. 344 pp. (Harrap.) 2s.—This is the best volume of the series to which it belongs. The period is difficult to present in a simple form to young readers, and those parts of the book which treat of ordinary events, political and industrial, are not different from many of its contemporaries. The feature which makes this book different from others is the excellent account which, in scattered chapters, it gives of the literature of the period. There are some pictorial illustrations of various merit and a short bibliography.

Germany to the Present Day. By A. W. Holland. vii + 164 pp. (Murby.) 2s. net.—We have every sympathy with the object of this little book, the nature of which may be inferred from the fact that it has a most interesting foreword by Mr. Norman Angell, but the reader would be disappointed if he expected to find "a short history" of our neighbour across the North Sea. Though Mr. Holland begins with "Charlemagne," or even earlier, he is not half-way through his pages before he has reached the nineteenth century, and the slight sketch which precedes this is not very accurate on certain points or very clear. Also, written as it is for a purpose—a good purpose, as we have said—there is a certain amount of *suppressio veri*, which strains our belief in the *bona fides* of the author. All that he says is true, but those who know the history are aware that it would not be difficult to state a case which would differ from the too rosy view which Mr. Holland presents. However, regarded as a plea for international good feeling and as a presentation of facts generally ignored by the man in the street, this production should do good in allaying unreasonable prejudices and dislike.

Geography.

A Text-book of Geography. By A. W. Andrews. 655 pp. Maps. (Edward Arnold.) 5s.—Roughly a hundred pages of this book, which is a mine of in-

formation, are devoted to general geography. The British Isles next receive treatment, and then each continent is described, first, in a general way, and later country by country. A noteworthy feature is the attempt to base the study of temperature upon theoretical sun-force dependent upon latitude; climatic data are tabulated for each continent, and the information is to be used for practical work; annual rainfall and notes about special rainfall conditions, January and July temperatures, the number of months when the temperatures are below 32°, from 32° to 50°, from 50° to 65°, and above 65°, are the facts recorded, and each table is related to a key map. This method insures a greater attention to temperature than is usual. Land forms and the relief of the several countries receive special attention to the comparative exclusion of the direct human note. There are many maps based upon the familiar diagram hand maps and the lantern slides of the Diagram Company; some of the maps are indistinct when reproduced in this form, others are remarkably good. Teachers should see this book.

The New Preliminary Geography. By H. B. Wetherill. 173 pp. Maps and photographs. (Mills and Boon.) 1s. 6d.—We have here sixty-one lessons, each of about 600 words, with questions and exercises. Twenty lessons are devoted to the British Isles. The lesson on the central Lowlands of Scotland names some of the hills and the three rivers, explains that the lowland is not a flat plain, states that two-thirds of the people of Scotland live in the district, relates this fact to the specially good farming districts and to the coal deposits, states some facts about Glasgow, Edinburgh, and Dundee, names Leith, and mentions the bridges over the Forth and Tay. The lesson on South Africa states that the land is a great plateau, refers the Kalahari to the trade winds, mentions the Zambezi, and connects the Victoria Falls with Livingstone; devotes a short paragraph to the veld; nearly half the lesson is occupied with facts about the people and their occupations, and there are short descriptions of Cape Town and Madagascar. The maps are very clear, because they show relatively few facts, and the photographs are reproduced excellently.

The Atlas Geographies. By T. Franklin and E. D. Griffiths. Part ii., *The Junior Geography.* 184 pp. 2s. 8d. net. Part iii., *Senior Geography.* No. 4. *Africa.* 116 pp. 1s. 6d. net. Maps. (Johnston.)—These additions to a series which we have noticed already maintain the style and standard of the earlier books. In both books the persistence of human and animal life in the Kalahari is stated incorrectly to be due to underground supplies of water; the importance of the tsamma melon and the slight summer rainfall is missed.

Pictures of Famous Travel. By H. Clive Barnard. 64 pp. Many coloured and black-and-white illustrations. (Black.) 1s. 6d.—The child who has the opportunity to read this book is fortunate; the pictures are well done and well chosen. The teacher who begins his course in geography with stories about famous travellers and refers his stories to a globe will find this book of great assistance. He might, perhaps, wish that Mr. Barnard had written for younger children than those to whom he has apparently appealed; but the pictures, half of them in colours, are extremely useful.

The New Era School Atlas. 40 maps. (Johnston.) 6d.—With the exception of a rainfall map of the British Isles, the maps in this atlas are either physical or political. There is no index, and there are too many names which are unimportant in school geography.

The Scholar's Geographical Exercise Book: The British Empire. (Johnston.) 2d.—Many teachers will welcome this little book, which contains sixteen pages of outline maps and sixteen blank pages for notes. In this cheap form such a collection of maps is useful.

Coloured Contour Hand Maps: British Counties. (Bacon.) 2d. net each.—Messrs. Bacon have now produced coloured editions on the layer system of their contour hand maps of the counties. Teachers should apply for a specimen copy. The land relief is shown in six colours, the sea depths in three.

Mathematics.

A School Course in Geometry. By W. J. Dobbs. xxii+427 pp. (Longmans.) 3s. 6d.—This geometry is characterised by a radical departure from Euclidean or semi-Euclidean methods of treating the subject. The root ideas upon which all subsequent deduction depends are the motion of rotation of one plane upon another; the motion of translation of one plane upon another, and folding. Numerical measurement of geometrical magnitudes is employed from the outset, and analytical geometry is not kept apart from pure geometry. Trigonometry appears in chapter iv., which is entitled, "The Cosines of an Acute Angle." A proof of Pythagoras's theorem, based upon the definition of a cosine, is then given, but several proofs based on other considerations appear later. The ninth chapter is devoted to a discussion of the concept of a gradient, the matter being resumed in the two last chapters, which form an introduction to the differential and integral calculus. Mensuration and the tracing of curves from their polar equations also find a place. The book contains numerous examples, most of which are original. Their purpose is to afford practice in geometrical discovery and in the application of principles to the solution of practical problems. There is no doubt that the course is very attractive, and that it is well worth the careful consideration of teachers.

Exercises in Mathematics. By D. B. Mair. xi+469 pp. (Macmillan.) 4s. 6d.—This collection of exercises in arithmetic, geometry, algebra, and trigonometry so far as the solution of right-angled triangles, is designed to cover the mathematical studies of the non-specialist up to the end of his school career. The majority of the examples have been taken from papers set in public examinations, and intending candidates will find the book a very profitable possession. Mr. Mair has a strong bias towards the utility problem, and had he felt himself free to hold strictly to his principles he would have excluded all questions the investigation of which occupy time out of proportion to the resulting gain. He is, however, too well acquainted with the weaknesses of examiners to exclude all questions of a non-utilitarian character, and therefore he has admitted some sections which "contain little that is educative, and are included only in deference to custom and the requirements of examinations." Not the least useful parts of the book are the answers and hints. They contain much wise advice and occasional genial criticism of the questions.

A Text-book of Elementary Statics. By R. S. Heath. xii+284 pp. (Clarendon Press.) 4s. 6d.—This a very clearly written introduction to statics, and contains all the theory and applications which can be adequately treated without the aid of the calculus. The intuitive idea of force supplemented by a few simple experiments is taken as the starting point, but the further development is purely mathematical. Graphical methods are treated with a considerable amount of detail; the chapter on jointed frames in-

cluding the method of sections, the method of two trials, and the treatment of stiff beams. Other problems which occur in modern engineering will be found side by side with the more ancient classical problems. The book will probably be considered unsatisfactory as an introduction to the subject by teachers who make a point of doing a considerable amount of experimental work; but those who favour a more conservative treatment will find it all they can desire.

Science and Technology.

A First Book of Experimental Science for Girls. By Jessie White. vii+134 pp. (Black.) 1s. 6d.—Every attempt by experienced teachers of science to arrange a course of work in experimental science to meet the needs of girls is to be welcomed. The laboratory practice in girls' schools must, if it is to be successful, not only provide a training in the scientific method, but draw its inspiration from the problems which present themselves in the kitchen, laundry, and other parts of the house, for the management of which most girls will later be directly or indirectly responsible. Mrs. White's book may be commended to the attention of science mistresses, who will find it suggestive and helpful in many ways. It is a little difficult to see how the girls themselves will make use of the volume; it is neither a laboratory manual nor a descriptive text-book, and the division of the chapters into "aims" makes it difficult to distinguish an experiment from a mere description. Hydrostatics and heat only are dealt with, and the lessons consistently centre round the house. A second volume is promised, in which simple chemistry and "a treatment of electric bells, meters, and lighting" are to be included. We know of no girls' school in which quite such a course of work is followed; and experience alone will show whether it is possible, with the amount of time generally available, to follow successfully the lines laid down by Mrs. White.

Applied Mechanics for Engineers. By J. Duncan. xiv+718 pp. (Macmillan.) 8s. 6d. net.—Mr. Duncan's new volume consists of two parts, the first of which deals with materials and structures, and the second with machines and hydraulics. A brief summary of elementary mathematics required by students of applied mechanics is followed by the subject of statics, including simple structures; in this, as in other sections, the author's style is commendable for its clearness. In the following chapters stress and strain, riveted joints, stresses in thick and thin cylinders, stresses produced by changes of temperature, bending moment, and shearing forces, deflection, working and travelling loads, columns and arches, shafts, springs, and the testing of materials, all receive able treatment. In part ii, the chapters concerned with machines and mechanism cover a wide range and give a comprehensive and clearly written account of the subject, including work, energy, power, and momentum. We are not acquainted with any single text-book of applied mechanics on the subject which goes so far as these chapters in developing in useful and practical directions the subject of mechanism, governors, balancing and whirling of shafts. In hydraulics the author gives a concise account, in an easily comprehensible form, of hydraulics, hydraulic pressure machines, hydraulic transmission and utilisation of power, pumps, &c., and the machines illustrated and described are typical. The final chapter on hydraulic experiments will be very useful, particularly to students who have access to a mechanical laboratory. There are, in addition to the examples fully worked out, numerous exercises at the end of each chapter, the answers to these being given at the end

of the book. It will be seen from the foregoing that the range of the volume is wide. The treatment throughout is clear and trustworthy, and the book is suitable not only for students preparing for the examinations of the Board of Education, the Institutions of Civil and Mechanical Engineers, and the City and Guilds of London Institute, but also to engineers desirous of renewing acquaintance with the principles of their subject.

Miscellaneous.

Dusk in Winter. Size $39\frac{1}{2} \times 27\frac{1}{2}$. (Artists' Auto-lithographs in Colour.) (Asher.) 6s.—This picture of a Swiss snow scene in the B. G. Teubner series of auto-lithographs bears striking testimony to the success of the publishers' aim to provide "pictures that shall educate the young pupil to the feeling for beauty and with their silent companionship arouse in him a permanent atmosphere of art." The very moderate price of the pictures in this series should place them within the reach of every type of school; and there is no reason why all class-rooms should not have wall-decorations that are both educational and artistic. Messrs. Asher and Co. will send to all teachers by request a copy of their excellently coloured catalogue from which it will prove easy to select pictures suitable for any class-room, whether used by the kindergarten or the sixth form.

EDUCATIONAL BOOKS PUBLISHED DURING JANUARY, 1914.

(Compiled from information provided by the Publishers.)

Modern Languages.

"Bamboula: An Original Story in Simplified French." By A. S. Treves. 82 pp. (Blackie.) 1s.

Augustin Thierry: "Récits des temps Mérovingiens." Edited by Taylor Dyson. (Blackie's Little French Classics.) 48 pp. (Blackie.) 4d.

"Contes de l'Heure Presente." By Maurice Levee and Charles Robert-Dumas. Annotés par J. S. Norman and Charles Robert-Dumas. (Blackie's Copyright French Texts.) 128 pp. (Blackie.) 10d.

"Fabliaux et Contes du Moyen Age. Selected and edited by J. E. Mansion. 176 pp. Illustrated. (Harrap.) 1s. 6d.

"Intermediate Exercises in French Grammar and Composition." By C. W. Bell. 100 pp. (Harrap.) Limp cloth, 9d.; full cloth, 1s.

"A Grammar of the German Language." By Ernest Classen. (Longmans.) 3s. 6d.

"German Technical Words and Phrases: An English-German and German-English Dictionary." By C. A. Thimm and W. von Knoblauch. Second edition. 241 pp. (Marlborough.) 2s. 6d.; leather, 3s. 6d.

"Italian and English Commercial Correspondence." By E. S. Romero-Todesco and W. Chevol-Maurice. 128 pp. (Marlborough.) 1s., and 1s. 6d. cloth.

"Petit Recueil de Chants Français." Large edition, containing words and music in staff notation, with accompaniments. 56 pp. 4s. 6d. net. Small edition, containing words and tunes in both staff notation and tonic sol-fa. 87 pp. 2s. By H. Carter and G. Dyson. (Oxford University Press.)

Classics.

Euripides: "Iphigenia in Tauris." (Bell's Illustrated Classics.) (Bell.) 1s. 6d.

Bell's Simplified Latin Classics (new volumes):—Tacitus's "Agricola," Sallust's "Cataline." Edited by S. E. Winbolt. (Bell.) 1s. 6d. each.

"The Elements of New Testament Greek: A Method of Studying the Greek New Testament with

Exercises." By Rev. H. P. V. Nunn. x+204 pp. (Cambridge University Press.) 3s. net.

"Livy." Book XXVII. With Introduction and Notes. By S. G. Campbell. xxviii+218 pp. One map. (Cambridge University Press.) 3s.

Ovid: "Easy Stories from the Metamorphoses." Edited by B. H. Johnson and R. B. Firth. "Stories from the Metamorphoses." Edited by B. H. Johnson. (Stories from the Classics Series.) (Longmans.) 1s. each.

"Graded First Latin Books." A new and modern set of six cheap books for beginners in Latin. Containing Latin into English and English into Latin Lessons, with Grammar, and Accidence, and a Latin-English and an English-Latin Vocabulary. Book II. 132 pp. (Rivington.) 1s.

"Matriculation Latin Course." By B. J. Hayes and A. J. F. Collins. 395 pp. (University Tutorial Press.) 4s. 6d.

English: Grammar, Composition, Literature.

"Junior Story Readers. Nos. 13-24. (Edward Arnold.) 2d. each paper; 3d. each cloth.

"Shakespeare's Stories." School edition. By Miss Constance and Miss Mary Maud. 271 pp. (Edward Arnold.) 1s. 6d.

"A Library of English Prose." Edited by Dr. W. H. D. Rouse. Boswell: "The Journal of a Tour to the Hebrides with Samuel Johnson, LL.D." Walpole: "Letters on France and the French Revolution." Holinshed: "England in the Sixteenth Century." Gibbon: "The Age of the Antonines, from the Decline and Fall of the Roman Empire." Walton: "The Complete Angler." Raleigh: "The Discovery of Guiana." Defoe: "Journal of the Plague." De Quincey: "The English Mail Coach." Irving: "Companions of Columbus." More: "Utopia." Nelson: "Dispatches and Letters: The Battle of the Nile, and the Years 1798 to 1800." (Blackie.) 10d. each.

"Second Phonic Infant Reader." By Eleanor I. Chambers. (Blackie's New Systematic English Readers.) 96 pp. (Blackie.) 8d.

"Macaulay's Lays of Ancient Rome." Annotated. 148 pp. (Blackie.) 10d.

"A First English Grammar." By Rev. J. E. W. Wallis. (Bell.) 1s.

"A Practical Course in English." By E. J. Balley. (Bell.) 1s. 6d.

"Representative Extracts from English Literature." By Prof. W. H. Hudson. (Bell.) 2s. 6d. net.

"Bell's Sixpenny English Texts." (First eight vols.) Edited by S. E. Winbolt. (Bell.) 6d. each.

"A Book of English Prose." Part i., Arranged for Preparatory and Elementary Schools. viii+140 pp. 1s. 6d. Part ii., Arranged for Secondary and High Schools. viii+182 pp. 2s. By Percy Lubbock. (Cambridge University Press.)

"A Primer of English Literature." By W. T. Young. viii+240 pp. (Cambridge University Press.) 2s. net. A cheaper edition for use in schools, cloth limp, flush, with inked lettering, 1s.

Macaulay: "Two Essays on William Pitt." First Essay (1834). 56 pp. 4d. paper; 6d. cloth. Second Essay (1844). 102 pp. 6d. paper; 8d. cloth. (Oxford Plain Texts.) (Clarendon Press.)

Thomas Carlyle: "On Heroes and Hero-Worship and the Heroic in History." Edited by M. S. Murch. 313 pp. (Heath.) 2s. 6d.

"Wordsworth and his Poetry." By Wm. H. Hudson. 107 pp. (Harrap.) 1s.

"Browning and his Poetry." By Ernest Rhys. 128 pp. (Harrap.) 10d.

"Schiller and his Poetry." By Wm. H. Hudson. 191 pp. (Harrap.) 1s.

Class-Books of English Literature:—"Selections from Dickens." With Notes by L. B. Tillard. 1s. "Marryat's Settlers in Canada." (Abridged.) With Introduction and Notes by G. M. Handley. 1s. "Hughes' Tom Brown's School Days." (Abridged.) With Introduction and Notes by A. J. Arnold. 1s. "Kingsley's The Heroes, or Greek Fairy Tales for my Children." With Introduction and Notes by Walter R. Prideaux. 1s. "A Selection of Poetry for Schools." Edited by John Thornton. 1s. "Ruskin's The King of the Golden River." 6d. (Longmans.)

English Literature for Secondary Schools:—Scott, "Tales of a Grandfather." Second series. Abridged and edited by J. Hutchison. 118 pp. Sertum, "A Garland of Prose Narratives. Book I., Sixteenth to Eighteenth Centuries. Edited by J. H. Fowler and H. W. M. Parr. 106 pp. Borrow, "Wanderings in Spain." Selections from "The Bible in Spain." Edited by F. A. Cavenagh. 152 pp. (Macmillan.) 1s. each.

"Shorter Modern Dictionary of the English Language." 384 pp. (Macmillan.) Limp cloth, 1s.; cloth board, 1s. net.

The Children's Classics:—Senior II., No. 62. By Charlotte M. Yonge. "The Lances of Lynwood." (Abridged.) 128 pp. (Macmillan.) Sewed, 5d.; limp cloth, 6d.

Pocket Series of English Classics:—Austen, "Sense and Sensibility." Edited by E. L. Miller. 354 pp. Boswell, "Life of Johnson." Abridged and edited by Mary H. Watson. 404 pp. George Eliot, "The Mill on the Floss." Edited by J. Ausherman. 570 pp. (Macmillan.) 1s. net each.

"The Romance of Names." Ernest Weekley. (Murray.) 3s. 6d. net.

"Selected English Speeches from Burke to Gladstone." Edited by Edgar R. Jones. (World's Classics.) 392 pp. (Oxford University Press.) From 1s. net.

Macaulay: "Historical Essays." 826 pp. 1s. 6d. net. "Literary Essays." 706 pp. 1s. 6d. net. (Oxford Editions of Standard Authors.) Two volumes bound together on Oxford India paper, 5s. net. (Oxford University Press.)

History.

"A Source Book of London History." Compiled by P. Meadows. (Bell.) 1s. 6d. net.

"A Historical Course for Middle Forms." Vol. i., "Western Europe." Vol. ii., "Industrial and Social English History." By B. L. K. Henderson and P. Meadows. (Bell.) 2s. each.

"Early English Social History." By A. E. Dodd. (Bell.) 2s.

"The New Liberty." 1485-1688. Fully illustrated in colour and in black-and-white. Book V., "Britain and her Neighbours." 216 pp. (Blackie.) 1s. 8d.

"The Modern World." 1688 to the present. Fully illustrated in colour and in black-and-white. Book VI., "Britain and her Neighbours." 232 pp. (Blackie.) 1s. 8d.

"A Source Book of English History." For the Use of Schools. Vol. ii., 1603-1815 A.D. By Arthur D. Innes. vi+282 pp. 21 illustrations. (Cambridge University Press.) 3s. 6d.

"Illustrations to British History, 55 B.C.-A.D. 1854." By J. Turrill. 314 pp. (Clarendon Press.) 2s. 6d.

"The Threshold of History." By H. R. Hall. 159 pp. (Harrap.) 1s.

"The Story of Jeanne D'Arc." By C. M. Wilmot-Buxton. 192 pp. (Harrap.) 1s.

"Boys Who Became Famous." By F. G. Snell. 191 pp. (Harrap.) 1s.

"The Reign of Henry VII. from Contemporary

Sources." With an Introduction by A. F. Pollard. Three vols. Vol. ii., "Constitutional, Social, and Economic History." (Longmans.) 10s. 6d. net.

Geography.

"Elementary Commercial Geography." By Hugh Robert Mill. Revised by Fawcett Allen. xii+216 pp. (Cambridge University Press.) 1s. 6d. net.

Geographical Reader:—Book III., "England and Wales." 1s. 3d. Book IV., "Scotland, Ireland, and Canada." 224 pp. 1s. 4d. (Cassell.)

"A Junior Geography of the World." By B. C. Wallis. 322 pp. (Macmillan.) 2s. 6d.

Mathematics.

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Inaccuracy in Arithmetic.

THE simplest and most effective "drill" is to start with one number and continually add another: thus, starting with 4 and adding 7, make the boy say 11, 18, 25, &c. For class purposes this is slow work; taking it "round the class" is ineffectual for several reasons. But a slight modification induces all the boys to think through the series, viz.: "Write down the first number you reach after passing 100, when you start with 4 and add sevens." If the boy discovers the trick by which the master can give the answer without working through the whole series, then one need not worry about that boy's arithmetic. Otherwise he gets the required drill.

It should be noted that this drill includes the multiplication table whenever we start with the number to be added. It also enables the boy to answer the question: "Assuming that 5×7 is 35, how would you find the value of 6×7 ?" This logical part of the drill is at least as important as the mechanical part.

It is strange that, whilst most arithmetic books give the multiplication table up to 12×12 , or even 24×24 , yet none that I know of give the simpler (but much more important) addition table, which need only go up to $9+9$, and is vastly easier to learn.

Another frequent source of error is that many boys, who know the multiplication table up to six times, have a bad habit of "reversing" the process for larger numbers. I remember a boy who could do written arithmetic beautifully as a rule, but he had extraordinary lapses, and his oral work was hopeless. I discovered that he could evaluate 7 threes only by thinking of 3 sevens; and, whilst aware that 4 times 7 is 28, he was almost convinced that 7 times 4 made 24—when he was in a hurry! The only cure for this is tedious oral work with the faulty individuals concerned, in the upper portion of the multiplication table.

But Mr. Wells must not expect too much even from the best of drills. Original minds are generally inaccurate, whilst accurate minds are generally conventional. Again, inaccuracy often has no connection with want of knowledge or inadequate practice. Some persons almost habitually write "the" for "they," "have" for "had," "it will be" for "it will not be," &c.

This leads to a deeper question: Can education alter character? If character means "power," "knowledge," "habit," "outlook," "tastes," "honesty," or any other acquired characteristic, the answer is, Yes! But if it denotes such fundamental qualities as "originality" or "conventionality," "accuracy," or "inaccuracy," I believe that the answer is, No!

When we cure a boy of inaccuracy in arithmetic we are not altering his character; we are merely inducing a habit, or giving him the power to correct his mistakes; we do not thus change his nature; he will remain inaccurate in any subject in which he has not been well "drilled," whereas the "accurate" mind needs little drilling; and no amount of drilling will give the "conventional" type any genuine "originality." In this sense I believe that the master can no more change the character of his pupil than the sculptor can change the character of his marble.

R. WYKE BAYLISS.

Whitgift Grammar School, Croydon.

"Wireless Telegraphy" for Schools.

WE have had a good many inquiries regarding the wireless installation equipment at Repton School, and a few notes may be of interest to your readers. The "Derby Wireless Club" installed some receiving apparatus for us in the Easter holidays last year, and much interest has been aroused among the boys. Indeed, it has been found necessary to limit the numbers of those who desire to take part in the experiments. The apparatus is of the simplest possible type, and consists of a two-wire "antenna" suspended from a flagpole across the Close to the classrooms. Its span is approximately 200 ft. by 50 ft. in height. To this is attached a tuning coil, enabling different stations to be tuned in or out at will. The detector employed is the "Bassano" crystal detector, made by Messrs. Markes, of Para House, Derby, and it is used in conjunction with a small fixed condenser (0.001 mfd.), and a pair of particularly good telephones, wound to a resistance of 8,000 ohms. The detector is as simple, as possible, consisting of two special minerals, zincite and bornite or copper pyrites, and it requires no auxiliary batteries. It is easy to adjust, and, when necessary, new pieces of mineral are easily inserted.

Some excellent long-distance receiving work has been accomplished, and distant stations are read every day. A range of 1,000 miles is well within our power for receiving, but our aerial is, owing to local circumstances, what is known as a "directional" one; that is to say, it will receive and transmit in one particular direction more strongly than in another.

The cost of a receiving equipment is not unduly high, if hired labour can be dispensed with to a considerable extent. The materials are cheap, but the making-up necessitates some skill and knowledge, and is bound to take up time. Transmitting is another matter. An induction coil, or transformer, is required, with auxiliary batteries or electric supply. The other items are a Morse key, high-tension condenser, and helix or oscillation transformer. A Government licence is also requisite, and a fee is charged for this. If the school supply is utilised for current, it is, of course, necessary to employ a fuse, or the contacts on the coil and key are apt to be "burnt out" by inexperienced users.

The boys are very quick at learning the code, and readily identify stations heard by reference to an index of "calls," but for the staff the Morse code is rather a severe task, as it requires a great deal of perseverance and patience to acquire facility in reading. In fact, the ordinary commercial and ship stations send too fast for any but a skilled operator to read them.

The indirect effects of "wireless" are numerous. It involves investigation into electrostatics and electromagnetics, particularly as to inductances and condensers.

Perhaps the most important feature about our installation is the amount of practical constructive work which boys have been induced to take in hand. Several boys have fitted up private installations at home, and made practically the whole of their own instruments, including induction coil, tuning coil, condensers, and resistances. It must be understood, however, that we make no speciality of teaching wireless. It is a pure hobby, and work on it is done out of regular school hours. Ingenuity in contriving various electrical fittings, care in their construction, and, above all, a new interest in studying the practical application of what would otherwise be pure theory, has been the result of our little wireless station.

F. BRUNSKILL.

Repton School.

Superfluous Scholarships in Secondary Schools.

FROM a case—to which I refer below—that came under my observation recently, I have been led to jot down my views on a subject in which I am directly and deeply interested.

It seems a topsy-turvy dispensation that compels an educated man in a good position, but entirely dependent upon his own work, and with several daughters to provide for, to withdraw his child from the secondary school at the age of fifteen to have her crammed for Post Office employment, while, in the same form as his daughter are a dozen scholarship holders kept on at school for two more years by the community to compete then under more favourable conditions for the same kind of employment as the first-mentioned girl. Were these rate-aided children always talented, or even specially diligent, no fault could be found; but of the 25 per cent. which the poorer secondary schools have to take in at least 10 per cent. prove quite unintellectual, and uniformly lazy and indifferent.

In many cases the cause of this is quite obvious to the observant teacher. The girls of the particular social stratum from which many of those least able to profit by their scholarships come, are precocious, and on any holiday, or even often on week nights, girls of fourteen or fifteen who will present next morning work far below the form average may be seen flaunting their Sunday finery, hanging on the arms of their very slightly older "beaux"—I will not profane the fine old English work "sweetheart" in this connection.

It may be said that secondary schools have the remedy in their own hands; bad reports sent to the county council will certainly end in the termination of their scholarships. Nothing of the kind. I have known actual cases of girls whose reports were consistently unsatisfactory whose scholarships were retained to the end of their five years, the technical requirement being that only if the withdrawal of a fee-paying pupil were insisted upon by the school authorities in similar circumstances can the withdrawal of a student be demanded. In similar circumstances the fee-paying parent waits for no such compulsion. Convinced that he is wasting his money in his well-meant attempt to give his idle girl a longer education, he withdraws her, unsolicited, and tries what effect on her industry the discipline of real life will have. This is precisely the discipline that 10 per cent. of the 25 per cent. of the students in secondary schools require. To be compelled to satisfy an employer; to be paid according to the

amount and quality of the work done; to adjust their own earnings to their outlay, is a better preparation for the early marriage which this type of girl contemplates than the parental methods of the secondary school, dealing mainly with girls whose thoughts of marriage are as of a possibility only in the distant future, and whose immediate care is, with the less gifted, to satisfy the daily demands of parents and teachers; with the clever, to gratify their own desire for knowledge and skill, and to fit themselves for the realisation in the future of legitimate ambitions.

One reason for the reluctance of the county council to withdraw its scholarships is said to be its anxiety that more girls should be induced to enter the career of elementary teaching. Now, the girls to whom I am alluding, because of their very lack of industry and conscientiousness, should be prevented from adopting a profession in which, beyond all others, conscientiousness in the discharge of duty is essential; for no matter how clever or how practised the head-teacher or inspector may be, it is difficult, if not impossible, to find out what a teacher who has learnt to manage a class is really doing or neglecting.

It may be urged that the education given is too "bookish" in character to suit such pupils, but, as a rule, these indolent and indifferent girls show no more industry or interest in the cookery or sewing usually taught than in the other branches; and it is not the function of a secondary school to teach a trade.

Not only do girls of this type not profit by the money and effort expended on their behalf, but they are positively harmed, for they are acquiring habits of indolence which will scarcely be cured. Industry, leading gradually to pride in work accomplished, often against the grain, is a habit which must be started young, and then persistently encouraged and demanded by parents and teachers. Moreover, these young people escape a good deal of home training, for their mothers, persuaded that terrible effort must be necessary to master science, or mathematics, or Latin, excuse them from the daily household help exacted from their sisters in the elementary school. I have myself actually known a case of a working carpenter's daughter—in this instance a clever though a very indolent young person—who spent the greater part of her morning in bed during holidays to recover from her supposed inhuman mental exertions during the term.

The secondary school suffers indirectly as well as directly by the presence of such girls, for, as may easily be imagined, they are usually slovenly, though dressy, and unrefined in speech and manners, consequently they serve as real "ob"-vertisements for the unfortunate school compelled to retain them.

There is no question, to my mind, that there are far too many scholarships awarded, that these offer far too great a security of tenure, and that they are, in such cases as I have mentioned, a doubtful blessing to the girls themselves, and of more than doubtful ulterior benefit to the community which bestows them, for they tend to encourage the improvident early marriage of people who have acquired a distaste for manual work, though they have refused to accustom themselves to serious and continuous mental effort.

AN ASSISTANT-MISTRESS.

The Pronunciation of Latin.

It may be worth while to correct the impression conveyed by your leading article in the February number of THE SCHOOL WORLD, on the subject of Latin pronunciation. It is very easy to say that school-masters are lazy, and to try to persuade your readers

that the question is settled; but would it not be well to bear in mind that whatever may be the gain of pronouncing Latin correctly, there is a cost which is too great for any sensible people to pay? I hold that if the evidence that the change means placing serious difficulties in the way of many young boys learning the language, is definite and unmistakable, the gain is not worth the cost. Such evidence is unmistakable, and has been forthcoming from preparatory as well as public school-masters, and it shows that, while quick boys can pronounce as we please without difficulty, slow boys are retarded in their progress.

Now, though this is the case at present, under new conditions it might be otherwise. If there were a compelling power to force all schools at once and at the same time to make the change, I dare say the difficulty would disappear, but until that comes about, the best plan is to leave the matter alone.

The reformed pronunciation at Eton is confined to the select divisions.

E. LYTTELTON.

The Cloisters, Eton College, February 9.

THE second paragraph admits that the difficulty lies with the masters. No "compelling power" could affect the boys, if the difficulty lay in their abilities. The 600 or so schools which earn grants from the Board changed their pronunciation, so far as it was necessary, in a year or less; and we do not hear of "retarded progress" from them. We only hear of it from a very small number of those schools which are able to attract to themselves the pick of English boys.—EDS.

German Magazines.

CAN anyone inform me of a German magazine devoted largely or wholly to short stories, something like our *Royal* or *Pearson's*, or the *Pall Mall*?

I have tried the *Die Woche*, *Velhagen und Klasing*, &c., but they have only one short story to each issue, though they have long instalments of serials.

ARTHUR C. PATRICK.

16, Clifford Road, North Shore, Blackpool.

The School World.

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SIXPENCE.

IMPERIAL AND MUNICIPAL GRANTS IN AID OF EDUCATION AND THEIR EQUITABLE APPORTIONMENT WITH A VIEW TO EFFICIENCY.

By J. H. REYNOLDS, M.Sc.

Formerly Principal of the Manchester School of
Technology.

THE development of our system of national education goes on apace, despite the drawback named by Mr. Pease, on introducing his Bill in July last to amend the law with respect to grants in aid of the building and equipment of elementary schools, that "it is not national and it is not a system."

We are accustomed to make the best of circumstances and "to muddle through" somehow, and so many enterprising and enlightened authorities like that of London, to name one amongst many closely engaged with the problems of education and anxious to secure their satisfactory solution, are keenly concerned with questions of, the reduced size of classes, improvements in buildings, provision of ample playgrounds, better-trained teachers and their adequate payment, extension of the range and quality of instruction, the raising of the school-leaving age, provision for continued education on leaving school, medical inspection and treatment, vacation schools, care of defectives, provision of meals, together with many other questions affecting the welfare of elementary-school children.

To provide effectively for these various services means the expenditure annually of large sums of money beyond, in most cases, having regard to the growing demands in many other departments of social life, the competence, or at least the willingness, of the ratepayers to supply. Yet these services are the inevitable developments consequent upon the national provision of education inaugurated by the Act of 1870, and by the consolidating Act of 1902 under which the local authority was made responsible for the due

provision and maintenance of all forms of education.

The total annual cost of elementary education and of the services directly connected therewith has now reached (1911-12) the vast sum of £23,000,000, towards which the Government contribution was £10,883,000, and that from the rate and borough funds £11,930,000, whilst £300,000 came from miscellaneous local sources. From 1871 onwards the Government grants, which were at that date considerably less than one million pounds, have risen by a gradual curve until they have reached their present high level, whilst the subventions from the rates have risen, especially in later years, by steep increments until the contribution from them exceeds the imperial aid.

There has, in short, been a gradually diminishing percentage of Government aid. In 1900-1 the Government contribution was slightly less than 60 per cent. of the total expenditure on elementary education, as compared with a little more than 40 per cent. from the rates. In 1911-12 the respective grants in aid were, on the average of the whole country, nearly equal, but the tendency is to a further decrease in the percentage of Government aid, which already in certain areas, mainly municipal and urban, is much below the normal, as is the case in London, where the expenditure borne by the rates in aid of elementary education is now 73 per cent., and that by Government grant is only 26 per cent., whilst at the same time the expenditure for each child is £3 3s. 7d. greater than the rest of the country, and the Government less by 2s. 6d. per child.

The pressure on the areas of low assessment, but with a large child population, of which West Ham is a typical example, has become well-nigh unbearable, and has been met only to a partial extent by special grants in aid, whilst in the areas chiefly rural the fear of a large local expenditure has resulted in a meagre and unsatisfactory provision of

school accommodation and equipment, a restricted range of instruction, a limited school-leaving age, a low grade of staffing, and a miserable scale of salary for the teachers. This, together with the increased cost of living, has made the teaching profession less attractive, and there is now a serious shortage in the supply of persons of both sexes wishing to enter it.

As the industrial and commercial competition with other nations is increasing in intensity, especially with those nations which, like Germany and the United States, have given sedulous care and encouragement at an almost lavish cost to the education of their peoples, the best and most patriotic minds of our own nation have not failed to warn us of the peril in which we stand, and to make clear that unless we better the example of these enterprising nations, it will be impossible for us to maintain our prestige amongst the foremost civilised nations of the world.

Moreover, the experience gained since the Act of 1870, the more intimate knowledge we now possess of the actual conditions of child-life and of the needs of the child as a future citizen, the larger outlook consequent upon the wider opportunities of extended education, have demonstrated the essential importance and necessity of a still further advance if the valuable results already achieved are to be conserved and their fruits fully reaped. We cannot, if we would, hark back to pre-School Board days. Not the most reactionary and dissatisfied of the critics of modern education would desire the return of the days when there were little more than a million of the children of the nation in average attendance at the public elementary schools, and when thousands of children in the great towns, as witness the statement of Mr. Forster in the House of Commons on the introduction of his great measure in 1870, were running about the streets going to no school at all, and other thousands going to schools not worthy of the name, or, what was in a measure worse still, labouring for long hours under unhealthy conditions.

We have come at last to care for the children of the nation, and we must face the cost. We realise that the half-fed child and the child suffering from incipient disease and physical and mental defects, or from a low vitality, cannot be taught effectively. His sound physical condition, especially in respect of sight, hearing, and speech, is an essential preliminary to any attempt to educate and train him. But this is in the first instance a parental responsibility, and where this, by reason of the poverty or the neglect of the parent, is impossible, it becomes a national

charge. It is, to quote Mr. Hayes Fisher's words on the occasion of the first important Conference of Local Education Authorities held in London in December, 1908, to consider the financial relations subsisting between the imperial and these authorities, "a national, not a local, service; they are matters of public health, not of education; are matters, in fact, for the nation, and not for the neighbourhood, and for the larger number of taxpayers rather than for the smaller number of ratepayers."

And, as with matters bearing directly upon the health of the child, so with the provision of meals. They, too, are not properly an educational charge, and if they are to be regarded as a local obligation at all, is it not clear that there should be a largely preponderating ameliorative grant from the State, and that the remaining charge, so far as it is local, should be entirely separated from the budget of local education, though administered, as would be most convenient and effectual, by the local education authority?

An important measure is now under the consideration of the House of Commons providing for the compulsory increase of the school age over all areas until thirteen (it is a pity that support cannot be secured for a later age), the abolition of half-time, and the continued education up to seventeen years of age in evening or part-time day classes of all children who have left the elementary day schools. This measure should be accompanied by conditions which not only secure shortened hours of labour for youths under seventeen, but ensure that the hours of compulsory instruction shall be included within the hours of labour.

Yet, however essential this step may be—and there cannot be the least doubt as to its necessity—it is scarcely realised how great will be the expense it will entail. The present school buildings, except to a limited extent, are quite unsuitable alike in accommodation and in equipment for the adequate treatment of adolescent education, and there would need also the appointment of a large additional and specially qualified expert teaching staff. If this obligation is to be required of the local authority, it is clear that there must be a large financial subvention from imperial sources. The nation as a whole would be the gainer, for it would result in a generation of far more capable and effective citizens.

It should clearly be borne in mind that not until a sound system of elementary education is firmly established, including for every child effective manual and physical training, and extended compulsorily to a much later age for all children, rural and urban, will it be possible to place secondary and yet higher educa-

tion upon a proper footing, and to secure for them a constant supply of capable students. That there is a large body of children attending the public elementary schools well fitted for the advantages of secondary-school education is clearly evident from the success which has attended the great development of public secondary schools since, and in consequence of, the Act of 1902. There are now nearly nine hundred public secondary schools inspected and aided by the Board of Education, and of these some three hundred have been built or are maintained by the local authorities. They are attended by upwards of 145,000 pupils, of whom 60 per cent. or more than 87,000 have been pupils of the public elementary schools, and of these upwards of 50,000 are admitted with scholarships, carrying exemption from fees, and in most cases accompanied by maintenance allowances. Sums amounting to more than £400,000 are granted by local authorities for this purpose, of which more than half is contributed by the metropolis, and the rest by a few large urban authorities and by some counties.

But the advantage offered to children living in these favoured areas should be extended so as to reach all the capable children wherever they may reside. In addition, some of the more enterprising authorities grant numerous scholarships tenable at the Universities situate in large populous areas, with the result that the higher learning is being daily brought within reach of a class hitherto denied its advantages. That opportunities such as these are not, as they should be, more widely available, is due to the indisposition on the part of many local authorities to increase the local charges upon education. The development of secondary education and of its corollary University education and research, in aid of which the Government is at last giving much more liberal grants, is vital to the well-being of the nation.

It is admitted that those who, because of their inherent qualities of intellect and character, may be called upon to assume leadership in science or literature, in commerce or industry, in the various professions, in the great Government services, or in other important departments of public life, are to be found in all ranks of the nation. It is the business of the education committees to discover this latent talent or gift, to preserve it for the nation, and to give it the needed opportunity of education and training, to act, in short, to use Huxley's happy phrase, as "capacity catchers." To ensure that the children of the nation, irrespective of area and local conditions, shall receive adequate training in the elementary schools, in satisfactory and suit-

ably equipped buildings, with due regard to health, at the hands of competently trained and properly paid teachers, and extended to at least the completion of the fourteenth year of age, together with provisions for continued education in the secondary schools for those able to receive it, and further training in suitably equipped and staffed evening and part-time day schools until the completion of their seventeenth year of age for those who have entered into employment, will demand a very much increased expenditure.

What is now spent is a necessity, an irreducible minimum, but it cannot be made really effective without its necessary logical developments. To refrain from this would be as though a manufacturer should produce his goods in a high state of perfection of design, material and workmanship, and then be indifferent as to their sale, and take no steps to put them at the service, or to bring them to the knowledge of the consumer for whose use he had designed them. We cannot have a cast-iron system either of method or of administration. We want "freedom, variety, and elasticity." There must be room for experiment. Education is a growing science and an ever-changing art. The aim is one, but the method may be different. The product is not necessarily to be utilised in the area in which it is trained and developed. It is for the benefit of the nation at large.

The keen interest of local administration is essential, and the locality must bear a considerable share of the cost, but what that proportion should be is not easy to determine. As it is, the anomalies of rating for educational purposes are in glaring contrast, ranging for both elementary and higher education from slightly more than sevenpence in the pound in the county area of Hereford, to upwards of two shillings and sixpence in West Ham; whilst in some areas no expenditure at all is made from the rates in aid of higher education. If the various localities are to be required by Parliament still further to develop their facilities for education, it is certain that it cannot be done without further imperial assistance, unless, indeed, in view of local burdens of all kinds, Parliament can be induced to find time to consider the whole question of the incidence of rating which is now based solely upon rental, with the result that it presses with undue hardship upon the humbler citizens, especially those of the shop-keeping class, and amongst other serious consequences creates the strongest possible prejudice against any further expenditure upon education.

It is in the opinion of many thoughtful observers, irrespective of Party, that the

imperial grant in aid of local effort should be at least in the proportion of three-fifths to the total cost, that the grants, so far as may be, should be consolidated and paid at definite fixed dates, with a margin elastic enough to permit of the encouragement of those localities which are anxious to secure for their citizens the highest educational opportunities, and that there should be the utmost possible freedom of action, alike in policy and methods, consistent with efficiency, left in the hands of the local authority. Measures such as these are necessary if the capable English people is to take and maintain its due place with the foremost civilised nations of the world.

THE TEACHING OF SHAKESPEARE IN PUBLIC SCHOOLS.

By S. P. B. MAIS, M.A.
Sherborne School.

"Now we are here what shall we try to act, Dr. Johnson?"

"We will try to act Harry the Fifth!"

—*Boswell's "Life of Dr. Johnson."*

AT last, owing to the efforts of the English Association, to which every English master ought to belong, the Board of Education's pamphlets, the growth of the Final Honour School of English Language and Literature at Oxford, the energetic work of Sir Walter Raleigh and Sir Arthur Quiller-Couch and other professors of English in universities, and the progress made by publishers, particularly Messrs. Harrap and Company, in issuing text-books of every writer, medieval and modern, in this country, the study of English is becoming widely and seriously discussed. Means are being taken to secure a permanent hold upon the public mind by enthusiastic pioneers who write in any and every paper with a view of disseminating all the myriad theories and results that accompany the adequate study of a new subject; for the teaching of English on methodical lines is most certainly the most important educational movement of the last decade.

The difficulty is that in spite of the obvious necessity of a thorough reorganisation of the methods of inculcating a love for the literature of this country, nearly all public schools still cling to the old limit of two periods a week for the study of précis, repetition, dictation, essay-writing, reproduction, reading, grammar, the acting of plays, and all the thousand-and-one sections of this gigantic subject, a most preposterous allowance that must be altered in the very near future if we are to attain to any worthy result.

In this article I am proposing to confine myself entirely to the one section of plays. It

is obvious that in a reasonable curriculum scope should be given for a thorough search into the merits of poetry, ancient and modern; prose-writers, too, essayists and novelists, pamphleteers and diarists should be widely read, but they should be taken along with, not in the place of, the great dramatists. And here again it is a matter of supreme importance that not Shakespeare alone, but The Mystery Plays, Kyd, Lyly, Greene, Marlowe, Jonson, Sheridan, Goldsmith, right up to the moderns (such as Synge) should be read, acted and seen as often as possible if a boy is to have any idea of the huge influence and merits of stage-craft in England. But I am concerned myself at this moment only with the methods of dealing with Shakespeare.

The system in vogue until quite recently—in some cases it still exists—was to learn copious notes from a ponderously weighted edition of some play which possessed say, sixty pages of introduction, thirty pages of notes, and about a third of that aggregate, text. In Mr. Craig's complete edition there are only 27 pages of glossary to 1,314 pages of text, an ideal proportion. A term, sometimes a year, was spent over one play, and at the end of it the pupil had filled his mind (if he remembered anything) with abstruse allusions and a quaintly useless vocabulary of words never used. Much worse, he had learnt quite thoroughly to detest Shakespeare, never having read a play quickly enough to realise anything of the action, cohesion, or unravelling of the plot. Perhaps he passed the lower, school, or higher certificate examination of the Oxford and Cambridge Joint Board by reading up and reproducing the introductory matter, an insane process for the really intelligent study of Shakespeare. Not in this way is it likely that a love for Shakespeare will be fostered.

Before ever a boy opens a play in form he should have one or two introductory periods devoted to all the more important and interesting facts about Shakespeare, his life, aim, achievements and failures. The rise of the drama in England should be lightly touched on, and the more humorous extracts from mystery plays (*e.g.*, Mac and the Shepherds in the Nativity play, Noah's wife refusing to enter the Ark, and so on) should be read aloud to the class. It is essential before beginning a play to get the audience into the right mood to appreciate it and to stimulate them to be on the look-out for points which will make the Elizabethan stage appear more real even than it now is.

With this in view, in addition to the above, other points that ought to be elucidated are the sorts of buildings they acted in (a rough sketch on the blackboard of "The Globe" and

other Southwark theatres will rouse any boy's enthusiasm), the conditions under which they acted, the sort of audience one would expect to find in Southwark of an afternoon, the theatre itself, the stage, the auditorium, the seats and standing room, fees, the makeshift for scenery, the actors themselves, the absence of girls on the stage, Shakespeare himself, his predecessors, his methods of botching up old plays, his progress, how to tell an early play from a late one, how out of the old traditional clown or Vice he fashioned such consummate characters as Feste, and the Fool in "Lear"; in short, all the essential factors that go to the understanding of the sixteenth-century play.

No longer then shall we hear the oft-repeated tale: "I had no idea, Sir, that Shakespeare could ever really be interesting." "Usually this hour is worse than any in the week."

Shakespeare hours should take place in rooms where there is a stage, if practicable: then the spectators, like Court gallants, would sit on stools on the stage; others, to make it more realistic, would stand in the twopenny pit, another part of the room. Each part should be cast, and the best elocutionists and actors (the standard to be determined by general voting) should have the choice of parts in order of merit. What difficulties there were could be explained in the five minutes preliminary to starting (each boy to read over his part before coming into form for this and other obvious reasons): once started there would be no reason to stop for anything; consequently, like the actors of three centuries ago, the play will be finished in two hours and really acted; scene boards, hastily improvised pieces of foolscap mounted on a blackboard, and other scenic necessities will add greatly to the general pleasure and understanding. The result will be that the play will be a play and have coherence and unity, producing an interest sustained throughout. Another result will be that it will be possible to get through several plays in the term, and certainly know them better than the one play over which in ancient years a whole year was spent.

Preparation should consist in learning obvious passages by heart, prose as well as verse (a most important detail this), and in reconstructing scenes. This last is perhaps the most effective part of the whole study. For instance, a boy will suggest that the character of Ophelia displeases him, and then re-write the play on the hypothesis that in reality Hamlet's lover was moulded in the fashion of Imogen. Another will add a scene or act to "Twelfth Night," taking for his text, "I'll be revenged on the whole pack of you," showing Malvolio triumphant over Feste, Maria, Sir Toby, and Sir Andrew. It will astonish some teachers on

the older lines to see some of these interpolated scenes. Bernard Shaw once explained at some length that nothing was easier to write than Shakespearean blank verse, and proceeded to prove it in "Cashel Byron's Profession." To judge from some of these juvenile efforts that I have seen, he was quite right.

Boys can be most startlingly original; they have also at times an unerring sense of poetry and splendid powers of description when left to their own wiles. The characters of the leading heroes and heroines should be worked out by each boy entirely from the text and from seeing and hearing the play acted. Some great divergences of opinion will be thus created, so much so that occasionally between plays, debates on the interpretation of the parts will be held, and after the whole matter has been thoroughly sifted, if there was need, some extracts from the great critics like Johnson, Hazlitt, Coleridge, and Bradley should be read. As well as reconstructing scenes, the methods of Walter Savage Landor, Andrew Lang, G. W. Steevens, and Maurice Baring might be imitated by asking for imaginary letters from Goneril to Regan, Banquo to Lady Macduff, Falstaff to Shallow, Polonius to Laertes, and other people whose names will instantly occur as particularly suitable for this treatment.

All this adds hugely to the enjoyment to be derived from reading and acting and also to a proper understanding of the character of the person concerned. The best productions will always be read aloud and criticised by the rest of the form. But not only should we use the plays for acting. Extracts can well be taken from them for repetition, dictation, reproduction, précis, essays, and all the other by-products of English work, so that in the end the boys get really saturated with Shakespeare. They love him none the less on this account, as can easily be seen by the way they avidly read all the other plays for themselves. So much for the general idea.

To come to particular details, which are of the first importance. At the bottom of the school most men will use books like Mr. Simpson's "Scenes from Old Playbooks"; that is, ruthlessly to cut a play down to its most interesting scenes, casting out all the sub-plots and peculiar intricacies. Thus they will start on the "Hubert and Arthur" scene in *King John*, or *The Merchant of Venice* just so far as it concerns Shylock, entirely omitting the casket by-play or the love-episodes; even in *Julius Caesar*, most simple and straightforward of all plays, several of the short scenes can well be omitted and concentration made on the Forum act, the most popular of all things to act for small boys, for it gives them the chance to

become a mob. It will startle some readers I know, but even parts of *Coriolanus* may be taken at this stage for the same reason; they look forward so enthusiastically to the "riot" scenes. Incidentally, both these plays form a wonderful example of Shakespeare's method of using North's Plutarch, a lesson which cannot be learnt too early. The "Bottom" scenes from *A Midsummer Night's Dream* make an excellent end-of-term piece, for in the holidays most boys have at one time or another prevailed upon their people to let them act it, and it has done them a world of good.

In the middle school, in every form each boy ought to have a complete edition of Shakespeare—"The Falstaff" usually, because the print is good, but in addition to this he might well use that very valuable text edition of the play then being read, edited by Mr. G. S. Gordon, published by the Clarendon Press at 6d. Perhaps someone will wonder why no mention has been yet made, except at the heading of this article, of *Henry V.* It has been with me a test case. When I come across a man who wishes to discuss my methods, usually to denounce them, I always ask him for his ideas, and invariably he replies: "I always start with that most splendidly patriotic panegyric, *Henry V.* Boys always take to it as ducks to water." Do they? I think not. I can only ask any unbiassed reader quietly to re-read the play and try to imagine himself a boy pining to act a really tragic or comic play. *Henry V.* is one long sequence of rhetorical speeches, very fine poetry, but not dramatic.

Only men of theory modelled on older theories can continue to hold up this play as ideal for small boys to start on. We will not even try to act Harry the Fifth.

There is far too much good stuff to waste time over mere rhetoric. Comedy ought to be mingled with tragedy, and in one term to combine say *Hamlet* with *Henry IV.* (both parts always taken together for Falstaff's sake) and *A Winter's Tale* is most effective. Another splendid combination is *Richard III.*, *Lear*, showing the extraordinary progress of Shakespeare, and *Twelfth Night*.

Boys in the upper school should read Bradley after tackling *Macbeth*, *Othello*, *Lear*, and *Hamlet*. *Measure for Measure*, *Troilus and Cressida*, and *Henry VIII.* contain some of the finest passages in all Shakespeare, but it is impossible to read them in form, so extracts from the three (e.g., the speeches on "Degree" and "Time hath, my Lord, a Wallet") taken together make a good interlude between one whole play and another.

Of the historical plays *Richard II.* and *King John* are by far the most effective for boys. With the exception of *Much Ado About*

Nothing, As You Like It, and perhaps *The Taming of the Shrew*, it is not advisable to read many more Shakespearean dramas with any form below the highest, except, of course, *The Tempest*. But every boy should be encouraged to read the whole range of Shakespeare for himself, all the more if, in form, he is acting *The Critic*, *She Stoops to Conquer*, *The School for Scandal*, *The Knight of the Burning Pestle*, *The Playboy of the Western World*, *The Rivals*, or any other play far removed from the Shakespearean type.

It cannot be too strongly emphasised that the points at issue are to make the boy a lover of literature, to give him some intelligence, to form his character by letting him see the evolution of others stronger and weaker than his own, but just as human, to educe his own latent talents of composition, elocution, and acting, to whet his appetite by letting him browse on all sorts of diverse pastures in the huge field of English dramatic literature, that he may not grow up as his parents and masters have, for the most part entirely ignorant of the glorious heritage into which he has entered, or so narrow-minded as to see nothing in the stage but a brain-resting amusement. It will train him rather to choose the right sort of drama, so that his influence may be felt in the years to come, that our long-dreamt-of National Theatre may then be realised and the stage take her true place as one of the highest educative influences in the land.

I have been told that this rapid reading of plays makes a boy a sort of Jack-of-all-plays and master of none, that I fall, in other words, into the trap that so many classical men are falling into of letting their forms be content with Gilbert Murray's "Euripides," and not spending their time more valuably, if more arduously, in worrying out the Greek for themselves. My answer is that in worrying over abstruse readings, nice phrases, quaint conceits, and the rest of it in Shakespeare you do not glean half the character-forming harvest you do by taking the play as a whole and concentrating on the larger issues; for what does Doctor Johnson say? It cannot be too often repeated:—

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 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.

These words ought to be burnt into the brain of every Shakespearean teacher.

I have just space to treat of two objections I have heard to my system.

It has been contended that if you invite boys to act in class, to take the part of a mob, for instance, you run the risk of an orgie and a "rag," you are undermining the effect of necessary discipline, and so on. Of course, if a man is so weak that he cannot afford to let his boys riot for fear that he will be unable to stop them at will, he has mistaken his profession. Most men know that the difficulty is all the other way. Boys have a most real fear of letting themselves go; it is with the greatest difficulty in the world that you can get them to be genuinely riotous in class. Tradition and precedent are all against it.

Lastly, it is proclaimed sometimes that we are making boys read too much. This is a most wonderful objection. They say that the growing boy must have all the air he can get and that it is most unhealthy for him to be always reading. I can only say that brain fever, over-work, and voluntary over-reading are not diseases that most school doctors have to specialise in. There are only too few boys at present who ever open a book, and those who have been bitten worst by our pernicious germ of literary activity are in nearly all cases the most athletic boys. We have one weakness. We are all too few. Though the English Association has been flourishing for eight years, though men are working hard to improve the state and condition of English teaching throughout the country, though even the Board of Education issues pamphlets about it, we still go blindly on and our own language is given just two hours a week; mathematics and classics how many?

N.B.—Since I wrote the above Dr. David has issued an invaluable pamphlet on the teaching of English in the lower middles at Rugby (G. Over, Rugby; 6d) which is full of matter and shows how much may be done at the very bottom of a school if only a generous time allowance is granted. At Rugby some six hours a week are given up to the study of the mother tongue. Is it to be wondered at that their progress is out of all proportion to the rest of us, starved and crying at the gates for "Time, more Time"?

AN EDUCATIONAL CLEARING-HOUSE.

ALTHOUGH the conference of representatives of educational societies arranged by the Teachers' Guild to consider the feasibility of establishing a unifying organisation came to no decision, and had to be adjourned, it is possible to surmise from the opinions expressed what prospect there is of realising such a scheme. The feeling was general that the increase in recent years in the number of societies concerned in one way or another with education imposed a heavy strain on the time and energy and resources of the class from which their membership must be drawn, and the fear was expressed that the foundation of any new society would only add to this burden. While it was not denied that more cooperation among the existing societies is very desirable, there was considerable doubt whether the organisation of a central body would arrest the increase of sectional groups. There seemed, besides, to be little faith in the possibility of focussing educational thought so as to bring effective pressure to bear on public opinion and administration. There was indeed little agreement as to the lines which a new "Society of Education" could profitably follow. Should it be a learned or a popular body? Should its membership be select or comprehensive? Should its investigations and discussions be purely academic, or should they be intended to influence directly the course of educational legislation and practice?

The divergence of views on these and other points suggests that the time is scarcely ripe for the full realisation of the idea of an educational clearing-house. Education is too wide a subject to admit readily of any definite focussing of opinion. It is at once a profession, a scientific study, and a department of national and local administration. Even on the professional side there can scarcely be any concentration of interests such as is brought about in another sphere by the British Medical Association. These interests are not only different; they are to some extent antagonistic, and therefore need separate expression. Even apart from associations that are of the nature of trade unions there is a great diversity of aim and scope. A purely scientific body like the Royal Society of Medicine may attract the interest of many groups of specialists, for it makes a certain general appeal to them all. Seventeen societies, which formerly existed as entirely separate and independent bodies dealing with different aspects of medical science, came together a few years ago, and now form sections of a single society, though each section possesses its individuality. Probably a society of education could never wholly fill

a parallel position. There are no doubt certain wide principles which underlie all forms of education, but the points of view and the spheres of application are so distinct that it would be hard to find much common ground among all who in one way or another are interested in the subject. A society of teachers of gymnastics, for example, could have little in common with a classical association.

It would seem that the end in view might be best obtained by attacking the problem less from the technical than from the business and social side. There was a general feeling at the conference that the task of unification, so far as it might be found possible at the present time, should be entrusted rather to the Teachers' Guild than to any new society of education. It was natural and fitting that the Guild should shrink from putting forward a proposal which might seem in any degree to suggest its absorption of other societies, but if it were promised the support of other representative bodies it would be more than justified in taking the initiative. The commodious and central building in Russell Square, which it is understood the Guild is now acquiring, would form an excellent focus of unifying activity. If the Guild can offer a place of meeting in its new premises for educational societies which have no permanent home of their own, and if, as is proposed, it founds a club to serve as a rendezvous for all who are interested in education and are willing to pay a moderate subscription, the way would be largely paved for a more ambitious venture.

The annual conferences, which have met with so much success, might in these conditions be readily developed into a permanent organisation. This would probably come about in a natural way if the members of all the societies using the premises of the Teachers' Guild were made free of each other's meetings, and if a general calendar of fixtures were issued. Joint meetings would soon be arranged for the discussion of special problems interesting two or more societies, and general conferences on a wider scale would follow. Any consolidation into a single society of education that might be found practicable and desirable would have full opportunity to ripen. Although such a "Home of Education" would on every ground need to be founded and administered on a democratic basis, it would readily permit the formation of special groups with a definite scientific aim, which would impose whatever qualifications for membership they thought fit. There can be little doubt that in the end there would emerge from all this material a body of opinion on educational matters which could be expressed with an authority that would be widely recognised.

HOMEWORK IN SECONDARY SCHOOLS.¹

By P. SHAW JEFFREY, M.A.
Headmaster of Colchester School.

No man can do as well as he teaches. For we are all like Saint Paul in this, that we see better things than we are able to attain to; we cannot therefore hope to be seen doing what we teach, but we must be seen trying to do it; we shall even only teach it well, in so far as we are trying hard.—R. L. S. Address to Samoan students.

IN treating the subject of homework in secondary schools it must of course be obvious that circumstances alter cases.

We have to consider three categories of schools:—

1. The greater public schools and other similar institutions where all, or practically all, boys are boarders.
2. The large body of endowed grammar schools where boarders are in a minority and where probably 75 per cent. of the boys are day boys.
3. The County Schools which legislate entirely for day boys.

In the matter of homework or preparation the great public schools are a law unto themselves, and as their boys are virtually all boarders and are always under professional supervision—tutorial and medical—they provide us with a very useful test of the amount of homework boys are capable of producing without injury to their health and with great benefit to their intelligence.

In the boarding schools we have preparation carried out under ideal conditions, in a quiet, studious atmosphere, with just sufficient supervision to prevent a boy from wasting time over work which for the moment is beyond his powers.

In the highest forms of the larger public schools probably 50 per cent. of the week's work will be devoted to preparation.

In the middle school about 40 per cent., and in the junior forms about 25 per cent. of the total working hours a week. These figures are, of course, only roughly approximate.

In day schools with a 26-hours week of teaching hours we do not get much more than 12 hours homework, even from top forms, and not more than 9 from lower forms. This gives us rather more than 30 per cent. of the weekly working hours for the homework of the top forms, and 25 per cent. for the lower boys.

Using the above figures as a rough basis of comparison, one may say in general terms that

¹ From a paper read before the annual meeting of the Association of Headmasters, in the Guildhall, London, January 6th, 1914.

boys under 14, both in boarding schools and day schools, devote approximately the same amount of time to homework, but boys over 14 in boarding schools do considerably more preparation than boys of corresponding ages in day schools, and they do their homework under more favourable conditions and without, so far as one can see, any great damage to their health.

In fear and trembling, I suggest that health conditions in schools might be further improved if early school were abolished (except during summer term) for all boys under 14 or 15. I strongly object to work before breakfast both for myself and my pupils, because early school seems to me to provide a specially prepared seed-bed for the germs of any epidemic which may be arranging a demonstration.

It would be interesting to compare the health records of the great day schools and the great boarding schools, with respect to epidemics. Day boys must be exposed to many possible sources of infection, in tubes and trams and buses, to which boarders are not liable. On the other hand, most boarders have to endure early school, while it is notorious that day boys get up with the latest possible lark.

I think it would be found on investigation that in day schools a boy's career is less liable to interruption from epidemics than in boarding schools, in spite of the fact that he is presumably more often exposed to possible sources of infection; indeed, the late headmaster of one of the largest of our public day schools, a school of about 1,000 boys, has told me that during the whole period of his headmastership, extending over 15 years, he never had a school epidemic.

Whether the relatively greater frequency of epidemics in boarding schools is due to

(a) Some loss of vitality due to abundant or excessive exercise; and

(b) The opportunities which early morning school provides for the cultivation of germs; is perhaps a question rather for the school doctor than for the schoolmaster, but it comes within the scope of this paper in so far as, in some schools at least, early school before breakfast is assigned to preparation. It may in this connection be noted that in not a few boarding schools early school is discontinued at the first sign of an epidemic. In my own school the abolition of early school certainly improved the health of my boarders.

We now come to consider schools of the second type, namely the large day school with an ornamental fringe of boarders, and for the purpose of this discussion it will be convenient to bracket this class of school with the day

school proper, for the simple reason that in both classes of school the parent becomes an important factor.

The school which has a few boarders is in a more favourable position as regards defence than the school which is purely a day school, because the authorities can always refer to the circumstances which govern the boarders in case complaints are made regarding homework, and also because one very easy means of meeting complaints is to invite the day boy in difficulties to come up to preparation for a week, so that the headmaster may discover where the shoe pinches.

There is another critic who objects to homework, and this is the medical expert. Speaking generally, the medical expert only sees the hard cases, children who are physically unsound and who undoubtedly ought to have things made easy for them in the matter of home lessons. Are these gentlemen not inclined to erect their theories of the dangers of homework on the foundation of the special cases which come under their immediate supervision? One would at least gather so much from their letters on the subject; and I would suggest, with becoming deference, that doctors who have to do with day boys might very well follow the example of their colleagues in the big boarding schools and consult the schoolmaster before giving their verdict.

Some curious instances of professional mistakes due to this method of hearing only one side of the question have come under my notice during the last twenty years.

I have known cases where boys have been reported to their headmasters as being incorrigibly idle, and as soon as they have caught a bad cold, or have succumbed to the prevailing influenza, their medical man has ascribed their disorder to "a pernicious system of overwork"; in fact, there are, I believe, certain amiable practitioners who are constitutionally prone to ascribe a child's ailments to his school work rather than to the much more probable cause—the inclemencies of the weather, which he has to support on his way to and from school.

The Morning Post begins a very sensible article on homework with the words: "*There is no doubt that homework is exceedingly unpopular with parents.*" That is, I think, a statement which is much too sweeping and should be qualified. The qualification I should propose would be that homework is unpopular among parents *who write to the papers*. I have laboriously tabulated the various objections advanced by such parents, with the object of finding out what the chief difficulties really are. Many object to having

to help their children with their evening work, and there are suggestions from several that the school day should be lengthened by one or two hours, so that preparation might be done at school. This is a suggestion that could easily be carried out wherever parents are prepared to pay for the extra time and work involved.

Other critics contend that the real way to find out what a boy knows is to question him in class rather than to set written homework. This will only be possible when all examinations are *vivâ voce*. Several parents object to the heavy satchels of books their children have to carry home; one or more suggest morning classes only, with prep. in the afternoon, as in the case of some girls' schools, and then there is the inevitable group of anti-chauvinists who tell us from the depths of their inexperience how much better such things are managed abroad.

A boy's school-life in England is so short that the elimination of homework would inevitably entail a considerable lowering in the standard of knowledge throughout the country unless parents were willing to allow their sons to stop much longer at school than they do at present. This will not come about until we get a school leaving certificate qualifying for entrance to all professional careers, and for this consummation all devout schoolmasters may cry in the words of a once popular song, "Oh, let it be soon!"

I am afraid no parent is ever likely to hear anything I have to say here, but if such a thing were possible I would say to him just this, that English schoolboys are the healthiest, the happiest, the laziest, the most natural, the most truthful, the pluckiest, the most self-reliant, and the most original schoolboys in Europe. They have a very rigid code of honour peculiar to themselves, they can take hard knocks without whining, and they have a more independent outlook and are better able to do things for themselves than any foreign schoolboys I have ever had to do with, and I have come across a great many.

The reason for this, so far as I can discover, is that they are trusted to do a certain amount of work and play, particularly perhaps play, every day entirely by themselves. If school authorities yielded to the clamour for no homework, raised by a comparatively small section of the public, one conspicuous test of originality and self-reliance would be eliminated.

Only in preparation does the boy grapple with his own difficulties, learn the methods of meeting them, and gain power over his own resources. In form he is mainly listener, not producer, or is having his results put to the

test. He is of course learning how to cope with difficulties, gaining quickness and imbibing information, but he is not himself grappling with obstacles and getting self-reliant power.

If we are to continue to insist, and quite rightly so, on a moderate amount of homework, there must be some method in our madness. It is no part of my brief to argue that the objections of parents to homework are entirely without foundation. By all means let children in weak health, or in a backward state of physical or mental development, be excused *all* homework. The difficulty in such cases has always been to persuade parents to permit such relaxation; indeed, they generally say that the boy in question would be unhappy if he were not allowed to attempt something. And then again it is obvious that homework, unless it is to be a burden both to boys and parents, must be as carefully organised as any other part of the school curriculum. In the greater public schools there is not the same necessity for this as in day schools, because the hours allotted to preparation are so long that every master taking a form can set homework on every lesson he gives, but even here a homework scheme is of service as a guide to masters as to the amount which they can reasonably expect as their share of preparation hours. When this is ascertained, it should be, and generally is, a point of honour with masters to exact neither too much nor too little.

When I was a boy at school there were no such homework schemes. Homework among the masters was a case of "all against all." Every master set homework on every lesson, and every master used the same formula: "WHATEVER WORK YOU LEAVE UNDONE IN PREPARATION I SHALL EXPECT YOU TO DO THE WORK I SET."

In these circumstances the greatest martinet among the masters got most homework out of his boys, and no new master, so far as my recollection serves me, ever got any at all. This was, however, away back in the Dark Ages.

There are certain sorts of homework which should be "taboo," especially competitive homework, which takes the form of "the more lines, or the more sums you do, the more marks you'll get."

I used at one time to set so much obligatory and so much voluntary homework, but I gave up the voluntary system as soon as I found that the maximum had become a minimum, and that consequently the less intelligent boys were being overworked.

I think it is a safe rule that a boy should

do for homework the things which no master can do for him: things he must learn by heart; problems he must think out for himself; essays and exercises which no one can write for him without manifest unfairness.

In day schools it is usual now I believe almost everywhere to have a time-limit for each home lesson set, and most schools have a journal or register in which the homework set is written down.

If parents would only see that this time-limit is not exceeded we should have few or no complaints, and we should be saved from inadvertently overworking the conscientious but rather dull boy, who spends unconscionable hours in doing what the normal boy can easily accomplish in the allotted time.

I have found that the best test for overwork is loss of weight in the subject, and physical measurements taken twice a term, at the beginning of term and at mid-term, give invaluable indications.

In conclusion, I might add that before writing this paper I circulated a questionnaire on the subject of homework among the parents of my own boys, asking many questions, among which were the following:

"Would you prefer that your son should have no homework, so that he might be free after 4 o'clock p.m.?"

This was answered with an everlasting NO. Only one parent out of upwards of 200 wished his boy to have no homework, and as the boy in question had a very long bicycle ride to school and back daily I very heartily concurred.

So far as I am personally concerned, this result supplies a useful corrective to the dictum of the *Morning Post* that "Homework is exceedingly unpopular amongst parents."

"How long does your boy spend over his homework?" The answers to this question surprised me, as I found that the great majority of boys took less than the time we prescribe; indeed, only 6 per cent. exceeded our time-limit, and these were boys of limited intelligence.

"Are the safeguards we propose against excessive homework sufficient?" Yes, in all cases. Our safeguards are:

1. A half-hour limit for each of the three lessons set in the middle and lower schools, and that if a boy cannot complete his homework in the prescribed time the parent should certify that the allotted time has been spent on it. (In the fifths and sixths this limit is not imposed.)

2. That work shall only be set on subjects thoroughly prepared and explained during the day.

In boarding schools, with house tutors and preparation masters to supervise preparation, it is an advantage that boys should have fresh work to prepare; but in day schools, where boys often have to do their homework under difficulties, it is, I think, essential that homework should be thoroughly prepared beforehand.

No photograph can be permanent until it has been fixed, and I look upon homework as the fixing solution tending to make permanent the impressions made on a pupil's mind in the course of his day's work.

Further, if a boy's progress is to be satisfactory, it is essential that he shall make as few mistakes as possible in his written work, and for this reason a simple "fair copy" is infinitely preferable to the most laborious original composition when riddled with mistakes.

This then is, I believe, the root of the whole matter. Home lessons for day boys should be a *résumé* of the day's work, and should consist of exercises of various sorts on work that has been thoroughly prepared and thoroughly explained in class. I put it broadly thus, because in most day schools the average leaving age does not exceed sixteen, so that the number of boys doing special work is very limited, and for all boys under the age of sixteen I believe "assisted" homework is most productive.

Under the foregoing system homework becomes a test of a boy's industry and ability. As soon as a parent is convinced that nothing is ever set for homework until the subject has been thoroughly explained to his boy he will know that any failure on the boy's part must be due either to want of ability or to want of attention, and the schoolmasters' battle is won.

I came across a superior person a few weeks ago. He may have been an archbishop, or perhaps an archdeacon, and we fell to discussing the only problem of real importance on the political horizon.

"I have a simple expedient," he said; "give all of them the vote that want it, and when they grow tired they can give it up again."

I suggest that, to compare the infinitely little with the infinitely great, we might very well adopt a similar course with homework, and freely allow any boy whose parents object to homework to be excused from it.

I think we should be on perfectly safe ground, for not 5 per cent. of our boys would claim exemption, and I suggest this, quite seriously, as the most satisfactory solution of the problem, which only, indeed, becomes a problem in day schools.

THE EDUCATIONAL VALUE OF THE KINEMATOGRAPH.¹

By J. W. GREGORY, D.Sc., F.R.S.,

Professor of Geology in the University of Glasgow.

IN our crowded island the greatest difficulty is the shortness of raw material; but we have one raw material of the highest value—the brain-power of our people. In utilising this, our greatest national asset, the very best educational methods are wanted, and as the kinematograph is the most complete and most vivid method of illustration, educationists should be prepared to accept its aid.

The educational value of good illustration is now generally recognised, as is shown by the heavy costs involved in the preparation of text-books. Pictures often teach essential facts more accurately than words can do, and they are often also superior as a stimulus to thought. The value of illustrations depends not only on the recreative interest added to study, but on the presentation of facts which could not be truly realised by any effort of the imagination. It is surely better to show students pictorially the chief natural features and processes than to expect them to evolve true ideas out of their inner consciousness or from verbal descriptions. The use of clear pictures needs no justification, but there still seems some hesitation in the adoption of the kinematograph, though it seems illogical to object to it on principle, while other illustrations are admitted. The kinematograph is as valuable a supplement to fixed pictures, as the latter are to verbal descriptions.

The branch of primary education in which I am most interested is that of geography; and the kinematograph appears to be especially adapted to the illustration of that subject, though it is also very useful in other branches of natural science. Geographical text-books have gained much by the extended use of photographs, and many school atlases have been improved by the addition of collections of views, and they are usefully supplemented in school libraries by albums of pictures.

The educational value of geography has been greatly increased in recent years by representing the earth as a living progressive body, with an individuality and evolution of its own. Geography now stirs the imagination of the student by classifying valleys into the old and the young, by describing countries as mature and immature, by explaining the difference in action between rivers as due to some having been revived and rejuvenated, whereas others are senile; and by pointing out that mountains come and go with a com-

paratively short life, while the life of rivers is so much longer that the poets are justified in representing them as flowing on for ever. The older geographical conceptions were fairly represented by ordinary photographs, which show the different geographical types. They show these types as fixed and dead. They strengthen the old belief in the everlastingness of the hills and the immutability of the earth features. The kinematograph, on the other hand, illustrates the changeful earth; it shows the earth's features being made by various natural forces. There are many natural agencies the work of which it is difficult to appreciate correctly from fixed photographs, and which most dwellers in a British city have no chance of seeing. I remember, as a boy, being interested by a paragraph in a textbook about the bore of the Severn River, and trying to understand its action from a picture; but I utterly misunderstood the illustration, and my mistaken impression was only corrected when I happened to see a miniature bore in a ditch; then the opportunity for watching the successive stages of the movement, and comparing the water levels before and after the passage of the bore, explained its cause and nature. A kinematograph representation of a river bore would help a teacher to explain it more satisfactorily than he could hope to do by words or fixed pictures alone.

There are many interesting and instructive natural operations which most people have no opportunity of seeing. The eruption of a geyser illustrates many important physical, geological, and geographical principles; but it is not easily seen. Even those who can go so far abroad as the distant geyser fields of Iceland may have to wait and watch for weeks, and then the geyser may "do" them by discharging at night. A kinematograph would show the incident exceptionally well, for it is a short performance, of which whirling explosive motion is the most impressive and distinctive feature. The graceful play of a group of dust columns in a desert or the heavier motion of water spouts at sea cannot be adequately realised from any number of fixed pictures or sketches. The appalling impressiveness of an advancing sand storm could be well represented by the kinematograph, and the spectacle could be inspected with greater comfort in a theatre than in the dusty desert.

In primary education the kinematograph appears of most value in the teaching of geography and natural history, but it should also be most useful in history by its records of historical events and ceremonies. It will be remembered that the unorthodox behaviour of an Indian Prince at the King's Durbar was recorded by the kinematograph. The pictures,

¹ Paper read at the International Kinematograph Exhibition and Conference held in Glasgow on February 17th-26th.

of course, did not show what was passing through the Prince's mind. His attitude may have been the result of nervous awkwardness or of insolence; but controversy as to the actual facts was rendered impossible by the kinematograph record.

In technical education the kinematograph promises to afford incalculable help. It will give medical students in all parts of the world the opportunity to observe special surgical operations, and to see them even better than they could do if present at the operation itself. It will, moreover, display costly industrial processes to students who have no chance of seeing them in actual practice.

The kinematograph is not only of value for demonstration but for research. Many geographical processes can be well exhibited by it to people who can never have the opportunity to see them. Such, for example, are some of the phases of volcanic action, including the discharge of steam from steam-vents, the sluggish flow of a lava stream, the ascent of the great cauliflower-like clouds as they slowly surge upward beneath their heavy load of dust, and the play of lightning on the quivering cloud column above the volcanic vent. Many natural events are, however, so rapid that the action cannot be followed in adequate detail; and the kinematograph may then collect original records of high scientific value. Thus the eruption of Asama in Japan threw a column of cloud to the height of a mile and a half in a minute and a half. A kinematograph representation, which can be repeated at leisure and at a slower rate, should prove a most important supplement to actual observations.

It is not only in displaying unusual events that the kinematograph can be useful. One of the most instructive of educational experiences is to watch the change of one geographical type into another during a journey by railway from lowland to highland, or from a well-watered coast into the interior of an arid land, and to note the influence of these changes on the life and industrial development of the country. This change may be seen in its most impressive presentation in the superb unrolling of a continental panorama in a journey by train across America, or from Cape Town through the valleys of Cape Colony until, after climbing up a narrow gorge, the train emerges on to the open plains of the Karroo; or again, by crossing from the luxuriant valleys and gum forests of eastern Australia past the cañons of the Blue Mountains, and descending into the arid plains of the interior. The kinematograph cannot usefully display the whole length of such journeys, but it can show the chief types of country traversed, and illustrate

the gradual passage from one type into another.

Sharper geographical changes may be seen along a railway which climbs from a Swiss valley through the pine woods to the upper meadows, and still higher passes glacier and snow-field, until, after crossing an Alpine pass it descends, with changes in the reverse order, into the walnut groves and orchards of some Italian valley. On my first visit to a modern picture palace I was taken for a railway ride from the Rhone Valley over the Alps to the valley at the foot of Mont Blanc. It happened to be in Lisbon one hot July evening, and that exhibition not only seemed to cool my room in the hotel, but left me convinced of the educational value of the kinematograph. The clear demonstration of geographical facts in such a panorama should be of great service as a basis for the more fruitful teaching of geographical principles, and their bearing on history.

I was recently at a kinematograph exhibition in Birmingham where an educational series of slides, many of them taken in natural colours, was shown to the British Association; and after that exhibition I felt at a loss to understand how anyone could doubt that the kinematograph is as superior, for appropriate subjects, to the fixed picture, as the modern photographic lantern slide is superior to the crude sketches of thirty years ago. The slides illustrated zoological, botanical and geographical subjects, and the economic applications of science. They showed the rapid unfolding of a gladiolus, in which the development of a fortnight was condensed into about two minutes; and this exaggeration of the contrasts showed the processes of growth with the vividness of a diagram in which every line was true to life.

From such demonstrations of visible facts it is possible to teach important facts that cannot be seen. In some subjects the mental effort apart from observation may be the only valuable part of education; but this is not so in natural science. Its educational value is due to its combined training in observation and inference. The more accurate and wider the observations, the truer the inferences are likely to be, and the further the knowledge will help the student forward on his road. The kinematograph appeals first to the eye; and its moving pictures should be of the greatest help to children in visualising many natural conceptions. It is a sound principle not to trust to the imagination for facts, if they can be gained by a more direct and certain method. If a child's thinking powers are used up in obtaining by mental construction what could be gained by simple vision, the child must

end at a lower stage than if it started the mental process from a higher platform. And a platform reached by simple direct observation may not only be higher, but should be firmer and surer.

In the use of the observations made during a mountain railway ride, there is sufficient to be learnt, which can only be learnt by inference, to tax the mental powers of any child. The explanation of the observations can only be understood by thought. The diminution in the vegetation with height due to increasing cold, the fall of the temperature with the rise in level, the resemblance of the fir forests in the Alpine valleys to those on the lowland plains in more northern latitudes, the differences in the tree forms in the sheltered gully and on the exposed ridge, the relations of snow-field and glacier, the passage from the wide valley to the mountain gorge, the contrast between the rounded lower slopes and the rugged crags and pinnacles on the mountain crest, the influence of mountains on the course of history—these are a few of the problems which could be illustrated by such a trans-alpine railway ride.

For kinematograph exhibitions to be of real value it will not do to rush them through with merely brief titles thrown on the screen. The views must be explained clearly and supplemented by diagrams and ordinary slides, which can be examined at greater leisure. I went some months ago to see a much advertised exhibition in a kinematograph hall. Its educational quality was most disappointing; the explanations were too technical to have been intelligible to most of the audience, and too brief to be really useful; there was no attempt to link the various pictures, which were not representative, but showed isolated incidents that happened to lend themselves easily to this method of illustration. Kinematograph pictures, to be of sufficient value educationally to justify their use by school authorities, must be instructively prepared. There should be a demonstrator on the platform, preferably a teacher from one of the classes in attendance. The exhibition about to be made should be briefly explained by the aid of a few fixed slides showing the main stages of the process, so that the audience may know exactly what is to be looked for, and the demonstrator should be ready with a pointer to direct the eye to the critical point of each picture. It would be generally advisable to repeat each exhibit, after a few words of supplementary explanation. The exact course would vary with the subjects, and the demonstrator for the occasion should decide as to the best arrangement; but attend-

ance at an unexplained procession of rushing pictures would be of little educational value.

Possibly owing to the unorganised use of the kinematograph it has severe critics. One objection is based on the ground that it is too trying to the eyesight; that is a medical consideration which I have no qualification to judge. Kinematographs running with their present increased speeds appear to be less trying than the earlier certainly were. On this question the Medical School Inspectors should be consulted and they may be trusted to see that the programmes are not too fatiguing to head or eye.

The objection to which most weight is usually attached is that the kinematograph is educationally deadening, as it shows too much to the child and discourages the use of the pupils' imagination. It is urged that as the main value of education is to stimulate the mind, it is better to make the students conjure up mental pictures for themselves and not teach the whole lesson by pictures ready made. It is said that the kinematograph teaches by the eye what should be learnt by the mind. This objection would appear applicable to all pictures, while even diagrams and maps are open to it, as they facilitate visualisation, which is all that any picture can do.

This objection seems to me invalid. Education consists in supplying a certain basis of knowledge as well as a training in its use. The more easily the facts are taught, the more time and strength are left for their digestion and development. Education needs the best available appliances; and the kinematograph with its intensified pictures, and its exhibition of living animals and of natural forces at their work is an educational instrument of such high value that those who cater for popular amusement must not be allowed the monopoly of its use. I trust the authorities will see that education obtains its fair share of help from this valuable instrument of instruction and research.

THE TEACHING OF SCIENCE.¹

By the Rev. STUART BLOFELD, B.A., B.Sc.
Principal, Saltley College, Birmingham.

CHILDREN confided to our care come to us already possessing the two natural faculties of (a) being able to look and (b) being able to infer; or, in other words, of ability to note facts and ability to discover the laws underlying them.

They are placed in front of a work of mosaic; true, they can and do, sometimes more easily than the adult, see the picture as

¹ From a paper read before the Private Schools Association, January 8th 1914.

a whole; but it is for the teacher to train their natural endowments to see the *constituents* of the picture in detail, and then to see them in proper perspective and proportion. More is required of our children than that they should be good citizen soldiers in a Spartan state, *i.e.* possessing sound minds (in which disciplined obedience is the *Ultimum Bonum*) in healthy bodies (in which the *Ultimum Bonum* is an ability to endure successfully a long hungry march in the neighbourhood of an enemy). Boys and girls are to grow into men and women who have:—

(1) Thoughts which are in accord with the developed thought of the time in which they live.

(2) Faculties which have been so well guided and developed as to give them (i) an appreciation of their material surroundings, (ii) an intellectual control over these surroundings, and therefore (iii) an ability to recognise the beauty of the world and the detail which enables them to discover rational laws and underlying purpose in the world, so that it shall be true here that *studia abeunt in mores*.

A characteristic of every child—not an idiot—to which I would direct your attention is “inquisitiveness.” His mind, as his body, is growing. For the body he needs much food. Therefore he eats a great deal, and he does not discriminate. The rawest things, the nastiest things, are put into his little stomach. Analogously he is always mentally hungry. Therefore he is continually looking for food for his mind; therefore he persistently asks questions, in season and out of season; therefore he stuffs into his little head things good, bad, and indifferent, raw, nasty, leaving to a hearty nature the function of digesting all.

Now the first mental pabulum in the realm of science which should be offered to the child is *nature study*, and for the following reasons:—

The power of observation is present; he must be taught to *see* when he *looks*.

This does not mean *implanting* activities so much as directing into the study of nature these activities which are neither absent nor even dormant, but which are bound to find some outlet.

An observant attitude towards nature within these early limits is rarely acquired in after-years. When we are older, ignorance in few things is regretted to a greater extent.

Means and materials are most easily and naturally available in this particular branch of science work.

This being true, nature study is more than a series of elementary lessons in biology, geology, and the rest; more than a means of arousing a love of nature; more even than a

means of developing and encouraging æsthetic taste. For education is largely concerned with the drawing out of the powers of observation and reasoning, and success in life greatly depends on the power of making accurate observation and drawing correct inferences, perceiving cause and effect, and discriminating between the important and the trivial; and certainly in the first stage the class of subjects included within the scope of nature study—animals, plants, clouds, seasons, rocks, soil—is well adapted to these ends.

Well, then, every school which contains young children up to the ages of ten to twelve should provide such instruction in nature study within limits with a view to further work in later years, and higher forms, as shall minister to the following results:—

In higher classes the power of exact observation will be assumed. Therefore such a foundation must be laid as shall enable pupils to reflect and reason on their own direct observation rather than encourage them to take things for granted. It is scarcely necessary for me to remind you of the value of excursions, collections by the children, or well-planned and not too crowded school museums as contributing to the required result.

Early lessons should be *real observation lessons*; that is, all data obtained by observation will be in the first place of like significance. Emphasis on particular aspects and activities will come later.

The objects chosen should be mainly such as the children are familiar with.

The early study will inevitably be ministered to by the ordinary instruction in language, number, drawing, and other hand-work, all of which so largely find their concretion in familiar things.

To preserve the deductive element in instruction, one lesson should always lead up to another; but this need not mean that a teacher must be afraid of being at times informal and digressive as long as he is following a general system.

May I close these general remarks about the necessity of nature study in the pupils' young days by saying that here may be found ways to develop interest, a right attitude of mind towards life problems (*e.g.* sexual and social matter bereft of much that is undesirable), a sense of fitness, an æsthetic taste, and a right turn to the imaginative faculty.

As regards the later stage in science instruction, certain easy comparisons and calculations will have necessarily been made already, and now the object is to make the study more connected and orderly and the training more exact. For scientific study must not be merely guesswork. Very briefly I must

touch upon the rival merits of chemistry and physics as the first branch to be studied. I find that in England there is much of that inconsistency which is one of our virtues. The voting is on the side of physics, the practice is on the side of chemistry. It seems to me that there must be a preliminary course in the methods of measuring length, area, volume, mass, elementary enough to exclude such agents of accuracy as the spherometer, the vernier, etc. But here let the methods be such as induce interest: The measurement of an irregular line may well be the measurement of the distance from one town to another on a map; the weighing of coins of the same value but of different ages may well be a valuable piece of work in weighing and comparison and inference.

Physics should come first, dealing as it does with objects and activities that are seen and felt more easily than chemistry, the study of which consists so largely of inference in the dark. For the same reason a course of physics is more easily planned. In the case of the general work of pupils up to the age of sixteen or even seventeen, and excluding the exceptional boys who are going to specialise, a course in chemistry should be largely an experimental course with a minimum of theoretical lessons and lectures.

In the earlier stage, from twelve upwards, the experiments, materials, and apparatus should be of the simplest pattern, but should be performed and used with the greatest care and thoroughness. A few experiments well chosen and completely executed, simple apparatus accurately used and understood, will promote accuracy of expression and clearness of thought and inference more certainly than a fuller series insufficiently carried out. To modify slightly Fresenius's remark, "One need not perform every experiment to be a good man of science."

With regard to the other sciences of zoology, botany, and geology, they possess that sort of primary claim which arises from their dealing with objects which are intimate and near. They are not expensive, they possess inherent interest, and they certainly contribute to after-happiness. But they are not so patient of orderly and exact treatment, and there is, I think, a greater temptation to let their study degenerate into mere memorising. Physics, chemistry, and (in connection with the geography) physiography, are probably the three physical sciences alone required for elementary systematised treatment in these schools which are not technical or special.

How far should we make accuracy a chief aim? Accuracy must be taught and pains endeavoured to attain it because:—

Scientific work must be more than guess work.

Human beings require to see some justification for work, and an accurate answer often provides the highest encouragement for future work.

The discipline of concentration necessary to accurate results is itself of the highest value.

The small element of error in the best accurate work often serves to illustrate other laws of which knowledge is valuable.

Nature herself works "quantitatively," and some small corner of her vast field should have been so dug up by each one as to reveal the laws of the universe in subjection to mathematical control. On the other hand, it is true to say that scientific accuracy may become "impertinent."

Over-attention to detail may cloud important principles, just as a photograph more accurate in detail may yet be less true to life than the painted picture. There is always something left which defies analysis. In other words, it is possible to be effective without the last decimal place, on other levels as on the height where Shakespeare could say that choughs were russet-pated without losing his efficiency. So there should not be that undue attention to accuracy in the work which has no more value than the putting in of every detail in the picture of a long vista, or the expression of one's age in years, months, weeks and days, the drawing in of individual hairs on the back of a dog, or the mixing of the constituents of a pudding by our cook by means of a careful graph on the kitchen-wall. Very often the answer is the least important part of a sum. "Science is measurement" does not mean that the converse is necessarily true. Science teaching in our schools is to beget an intelligent interest in objects around us, so that when we look we shall see, when we see we shall always find something to wonder at; for without that wonder there would be neither poetry nor religion. The accuracy necessary to real knowledge can be best obtained by the discovery of a number of general truths arrived at for good and sufficient reasons; and though the mind need not be always concentrated upon details, nor be always able because of former accurate observations to state the number of ribs in an umbrella, yet the teacher who makes it possible for his pupils to discover that things are true on grounds of logic, and because of their own accurate work, teaches priceless lessons which cover the whole range of practical activity.

May I offer a few suggestions about methods?

Training in observation and experiment must be accompanied by training in careful

description. Each pupil should, at least from twelve years onwards, keep a careful record of work done—in good writing (as a heretic, I mean legible and tidy writing) and in good and clear English; you can, indeed, be a great help to the English master or mistress.

The illustrations should be diagrammatic and lettered and not elaborate (light and shade, filbert nails, and shirt-cuffs need not be portrayed).

Accuracy in description is most important; every observation, good or bad, should be given. Fair copies should not be required, and a result should state exactly what is meant.

After every experiment the class should stop work, the results be rapidly tabulated on the blackboard, the whole experiment discussed; I need scarcely say how valuable a general discussion on the results may be to pupils and teachers.

The question of text-books is a perennial one. It seems to me that, whatever may be said about their importance in many school subjects, in the teaching of natural science they ought to play a comparatively unimportant part. The work must be largely experimental. Teachers themselves suffer still largely from second-hand information from text-books and deplorable diagrams, and more attention must be paid to a first-hand acquaintance with objects and principles involved, even if it means a curtailment of the range.

A few years ago you would probably have looked for some discussion of the rival merits of the heuristic and the dogmatic methods. Much of what I have said will have suggested that the heuristic method of putting the pupil so far as possible in the position of an original discoverer is the plan I should more strongly recommend. But there are two drawbacks to the wholesale adoption of the heuristic method:—

One is that though the facts are discovered, the inferences do not always come naturally, and "suggestion" from the teacher is required, thus destroying the method in its essence.

The second is that "life is short," and that needs no comment save to say that it is that that largely puts me into the category of those safe and invertebrate people who believe that a combination of the two systems is the remedy.

Finally, for both teacher and pupil there is one kind of work which, as food for reading and reflection and as indicative of the methods of discovery, should take a definite place in this scientific instruction. The modern history of the subject. the biographies of the

discoverers, and the study of their attempts, successes, and failures will do a very great deal towards rousing interest, encouraging pupils, and putting them *en rapport* with the work, and I suggest that every child should have an opportunity of dealing with the science work to some extent in this manner.

PERSONAL PARAGRAPHS.

MR. SPURLEY HEY, Secretary to the Newcastle Education Committee, has been appointed Director of Education at Manchester in succession to the late Mr. C. H. Wyatt. Mr. Hey served as a pupil-teacher for four years, proceeded to St. John's College, York; after two years' training he was at the Sheffield University College and Sheffield Technical School. He was a master at Sheffield and Rotherham from 1893 to 1900, and from 1900 to 1903 he was Principal of the Pupil-Teacher's Centre and Preparatory Classes at Rotherham. Mr. Hey then became inspector of elementary schools, and supervisor of the training of all pupil-teachers in Rotherham; in 1905 he was appointed Organising Master of the Technical and Art Schools, the School of Commerce, and the Evening Continuation Schools at Rotherham. His next appointment was that of Director of Education at Rotherham, and this he left in 1911 to become the Secretary of the Newcastle Education Committee. He is a member of the Council of the Froebel Society and of the Executive Committee of the Association of Directors and Secretaries of Education.

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MR. JAMES SHELLEY has been appointed Professor of Education at the University College, Southampton, in succession to Professor Maxwell. Mr. Shelley was educated at Bablake School, Coventry, and Christ's College, Cambridge. He was a master at Heanor Secondary School, and in 1908 became Master of Method and Resident Tutor at Chester Training College for Teachers. In 1910 he became Assistant Lecturer and Demonstrator in the Department of Education of the Victoria University, Manchester, where he was in close contact with Professor Findlay in the Directorship of the Fielden Demonstration School.

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DR. G. SENTER has been appointed head of the chemistry department of the Birkbeck College to succeed Dr. Alexander McKenzie, who has been appointed Professor of Chemistry at University College, Dundee. Dr. Senter has taken an active part in the affairs of the London University; he is a

member of the Standing Committee of Convocation, and gave evidence before the Royal Commission on University Education in London. He is a staunch advocate of the external side of the University.

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THE REV. E. W. CLARKE, of Loretto School, has been appointed Headmaster of the London Orphan Asylum, Watford, to succeed the Rev. O. C. Cockrem, who will retire in July after twenty-eight years' service. Mr. Cockrem was formerly for twelve years at King Edward the Sixth School, East Retford, for six years as second master, and for six years as headmaster. Mr. Clarke was educated at St. Peter's School, York, and St. Catherine's College, Cambridge. He was for five years a master of Monkton Combe School, Bath, for two terms at Dover College, then at Bromsgrove, Blundell's, and Gresham's School, Holt. He left the last-named school in 1908, in order to go to Glenalmond, where he remained until the end of 1911, when he was appointed Chaplain of Loretto.

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MR. C. B. GUTTERIDGE, of the Grammar School, Dartford, has been appointed headmaster of the Proprietary School, Gravesend. Mr. Gutteridge was formerly a pupil, and afterwards a master, at the school of which he now becomes headmaster. He has had experience as a master at Chorlton High School, at Bishops Stortford Grammar School, at Alleyn's School, Dulwich, and before going to Dartford was headmaster of the Clerks' and Warehousemen's School at Purley.

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THE REV. A. C. KNIGHT, Second and House Master of Wolverley School, Kidderminster, has been appointed headmaster of the Grammar School, Stratford-on-Avon. Mr. Knight was educated at Epsom College and Pembroke College, Cambridge, and was for some time a master at Epsom College.

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MR. H. SHARPLEY, of the Cathedral School, Hereford, has become headmaster of the Grammar School, Richmond, Yorkshire. Mr. Sharpley was for three and a half years a master at Brighton College, for a year at Marlborough College; he was at Hereford for fourteen years.

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MR. G. A. ROBERTS, Senior Modern Language Master and House Master of the Royal Masonic School, Bushey, has been appointed headmaster of Russell Hill School, Purley. Mr. Roberts has been at Bushey since 1894.

THE post of Director of Music at Marlborough College, rendered vacant by the resignation of Mr. G. Dyson, who has accepted a similar position at Rugby, has been filled by the appointment of Mr. A. C. Heberden, at present Music Master at the Royal Naval College, Osborne. Mr. Dyson was a scholar at the Royal College of Music from 1900 to 1904, was Mendelssohn's scholar from 1904 to 1907, and was Director of Music at the Royal Naval College, Osborne, from 1908 to 1911, when he was appointed to Marlborough.

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MR. P. B. BALLARD, the London County Council Inspector for the Camberwell district, has just had conferred upon him by the Senate of the London University the degree of D. Lit. for the thesis on "Obliviscence and Reminiscence," which was reviewed in our February issue. His work in connection with memory and handwork is well known, and his services are frequently in demand as a lucid and convincing platform exponent.

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AN influential committee has been formed to make a presentation of his portrait to Mr. W. G. Rushbrooke on the completion of twenty-one years' service as headmaster of St. Olave's and St. Saviour's Grammar School. Before going to St. Olave's, Mr. Rushbrooke was for twenty years master at the City of London School. Among the members of the committee are Mr. Asquith, Mr. Arthur Acland, the Bishops of Southwark, Hereford, and Chelmsford, Lord Moulton, Lord Southwark, and the headmasters of Mill Hill School and the Ley's School, Cambridge. Mr. Rushbrooke has been for many years a prominent member of the Headmasters' Association, and is at present the Dean of the College of Preceptors; he represents the College of Preceptors on the Registration Council.

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MR. W. A. Nicholls, a retired schoolmaster and for many years an active member of the National Union of Teachers, has been elected a London County Councillor for the West Islington electoral division, to fill the vacancy caused by the death of Mr. H. L. Jephson.

ONLOOKER.

The Public Schools Year Book, 1914. Edited by H. F. W. Deane and W. A. Evans. xxxii+810 pp. (Year Book Press.) 5s. net.—It is sufficient to say of this twenty-fifth issue of the official book of reference of the Headmasters' Conference that it well maintains its reputation for usefulness and comprehensiveness. It is invaluable to parents and schoolmasters alike, containing as it does everything it is necessary to know of our public schools for boys.

THE MEDICAL SIDE OF NATIONAL EDUCATION IN 1912.

IN his Annual Report for 1912¹ Sir George Newman reviews the work achieved by his department during that year along lines very similar to those which have been followed in its immediate predecessors. Its pages possibly contain nothing with which the school medical officers are not already acquainted; but for the general public it presents a mass of facts, more or less epitomised under special headings, elucidated by a sort of running commentary which enables the reader to contrast the present with the past—and to some extent to visualise, if not to estimate, the future. It is, indeed, largely a record of justification and of progress. Its general tone is one of satisfaction with the results, which it has been possible to secure through perseverance with, and development of, a policy which, beginning with a sort of outline scheme *in posse*, can already point to the existence of a system conformable with the essentials of that scheme, and now working with laudable harmony towards a more detailed completion of its purpose. Within five years of its inception the scheme devised for the medical inspection of school children has so developed that medical inspection has now become an integral part of the administrative work of every local education authority; and, since this work is being carried out on a basis more or less uniform, the results which it shows for various areas are, in a broad sense, comparable with one another. The general institution of measures for following up defects thus revealed, the increasing provision of means of treatment, combined with the clinical experience gained by medical inspection, enable the school medical officers to record, tabulate, and interpret their findings with increasing accuracy and definition. Such yearly records are valuable for purposes of general comparison, and also as a check and guide for the future policy of each local authority. But it is obvious that, if such records are to attain and retain a permanent national value they must be shaped on fairly uniform lines. School doctors are therefore urged to carry out the work with some further regard to a system of uniform classification and standardisation; and particularly with reference to:

- (1) the number of children examined in the general specified groups;
 - (2) the diseases and defects thus revealed;
- and
- (3) for the registration and classification of

the "exceptional" children discovered within the area of each authority.

In Appendix J three tables are given as those recommended for adoption for the recording of such statistics.

The report states, in regard to the public schools and the proprietary secondary schools, that the public schools are in some cases in receipt of grants-in-aid from the Board of Education, while a certain number invite inspection without receiving grants, and are recognised as "Efficient Schools"; but that "there is, in most cases, no routine medical inspection in these schools as yet." Nevertheless, it is a fact that several of our public schools beyond the three mentioned by name have practised for several years past a very thorough and efficient system of medical inspection for all their pupils—with results which have furnished a large amount of information which has proved of considerable practical value. Further, the annual reports based on these observations and on the statistics which they furnish have proved of great value to the governing authorities of such schools, in determining the importance of such modifications and improvements—structural and administrative—as have from time to time been called for. It is, indeed, no exaggeration to say that a very complete system of medical inspection of all its pupils had been in force in several large public schools for many years before anything of the kind was applied to elementary-school children.

The medical inspection of elementary schools has shown what had long been suspected—that much of the poor mental energy of many elementary-school children is dependent on their relative malnutrition, which, like nutrition, "is a process." It is more common among boys than girls, and is more frequently observed in the urban than in the rural districts; one of the reasons for this is that boys in urban areas are employed out of school hours to a greater extent than girls. The percentage of sub-normally nourished children has been found to vary from thirteen among entrants in rural districts to twenty-five among leavers in the urban districts. In the rural districts a not uncommon cause is the long distance which many children have to walk on the way to school and the poor quality and scanty amount of the food for their mid-day meal, which they carry with them to school, where, in most cases, there is no provision for storing the children's food in the interim. In this connection it is interesting to note a remark which occurs in a report by Dr. Hamer (London) on the question of the differences in physique and nutrition observed

¹ Annual Report for 1912 of the Chief Medical Officer of the Board of Education (Eyre and Spottiswoode, 1912.) 25. 67.

in different neighbourhoods and under different environmental conditions:—" . . . Improvement in physique has gone *pari passu* with the improvement of the mid-day meal."

Instruction in the elements of hygiene is now given in the majority of elementary schools. It is obvious that the value of such instruction is directly dependent upon the manner in which the subject is presented to the pupils by the teacher.

Unless it is taught in such a way as to lead the children to form habits conducive to a healthy mode of life, both while they are at school and in later years, the time given to this subject will not have been spent to advantage. It is the subject which of all others must be taught by practice. Thus it comes about that effective teaching cannot be secured in the schools until the teachers themselves possess not only a sufficient knowledge of personal, general, and school hygiene, but also an appreciation of the way in which the simple facts should be presented to the children in order to make a permanent impression. The methods adopted in teaching hygiene in training colleges are, therefore, of the first importance. Time should not be spent unnecessarily on technical details, but an endeavour should be made to give the students a comprehensive view of the broad facts and an understanding of the true relation of hygiene to education.

As regards the physical condition of school children much has already been revealed as one of the 'outcomes of medical inspection. These catalogues of existence of illness and disability are, however, of little value for practical purposes—unless they be made the basis of, and combined with, careful investigation of the causes and conditions in which they originate. The school medical officer has to bear in mind that it is the beginnings of disease in children—the morbid conditions of its initiation—which demand his chief attention if the processes of disease and the methods of preventing and remedying it are to be understood. Moreover, in children, disease is not merely a present entity, but a potential crippling agency: it is this disabling power which needs to be borne in mind whenever the common maladies of early life are found to be present, though but in a minor degree. Nor must it be overlooked that the close sympathy which exists in so marked a degree in childhood between *all* the different structures, tissues, and organs of the body, both in growth and in disease, entails a disturbance of the whole system of the individual by local conditions which—in the case of the adult—would produce little or no general effect.

And, lastly, childhood is especially the time when remedial measures can be employed with the most hopeful prospects of success.

The body of the child is peculiarly responsive to internal and external agencies of health and healing: childhood is the normal period of growth and repair and of the development of the natural defences of the body.

With the object of obtaining statistics which shall be more valuable as a check and guide for future policy as well as for general comparison on a basis as nearly uniform as may be, school medical officers will henceforward be called upon to present these returns in accordance with newly drafted tables (Appendix J, pp. 409-414), beginning with the official report for 1913.

The estimation of the nutrition of an individual, apart from his physique, presents a difficult problem; especially so in the case of children in whom, even in normal individuals and under identical conditions, growth and development do not proceed along lines which necessarily correspond with each other or with that indicating the advance in age. Natural and quite healthy variations from "the paper average" are too frequent to permit of the universal application of any rigid mathematical formula. For general purposes, however, and as a rough approximation to an index any marked deviation from which clearly indicates the need for further investigation of the individual concerned, the relationship between height and weight still holds its own. An interesting point is made by Dr. Duncan Forbes, who has tabulated the weight-height measurements of nearly 48,000 Brighton school children during the period 1908-13. He remarks:

A child which is not up to the proper weight for a certain height is more in need of feeding than is the child below *both* weight and height standard for its age, but of an average height-weight ratio; the latter child is well nourished, and its deficiency in general physique is often due to other causes than improper or insufficient food.

It must be confessed regretfully that the children of our elementary schools—or, perhaps, it should rather be said, the households from which they come—appear still to illustrate that period in our national history, not so many generations past, when the English were considered the dirtiest of the European peoples. "It is unfortunately true that uncleanliness still occupies a large share of the time, thought, and energy of the officers belonging to the school medical service in practically every area," although a decided and progressive improvement is shown by the various returns. The persistence of this evil and the extreme difficulty of eradicating it is, of course, due to the opportunities for re-infection constantly provided by the too-numerous

homes in which a verminous condition is regarded with indifferent tolerance.

The presence of adenoids and of enlarged tonsils is very common. Its existence is of importance—not to the child alone, but also to others, since such children are often persistent "carriers" of serious forms of infectious disease. Hence an examination of the throat (and nose) should be a matter of routine in the case of every child, and the appropriate treatment (surgical or otherwise) of any abnormal condition thus discovered should be promptly secured. It is satisfactory to observe an emphatic endorsement of the opinion that these cases, when operation is required, should be admitted as in-patients, though often the most which a crowded hospital can do is to retain them for twenty-four hours. The importance of perfect hearing to the school child, whether in relation to its health, its power to receive adequate benefit from instruction, or its chances of subsequent employment, is almost impossible to overestimate. Hence the detection of defective hearing, however slight in degree at the time, is all-important; for it is just in the slighter cases and in the earliest stage of the malady that the greatest benefit can be secured by appropriate treatment.

The practice of applying a hearing test to all children is not, as it should be, universally adopted, and the children who are omitted are not only infants but elder children as well. Many medical officers submit to a hearing test such children only as are notified by teacher or parents. Thus it is certain that many cases must be overlooked, for it is highly probable that a considerable amount of defect may be present without leading to readily recognisable symptoms, or the child may fail to be reported because the symptoms are not attributed to defective hearing, but to apparent dullness or stupidity. Again, though a minor defect will cause no immediate trouble, it may become worse and less amenable to remedy, or the child may be needlessly undergoing mental strain from excessive effort to attend to what is being said. It is necessary, therefore, to emphasise the view that a suitable hearing test should be applied to every child inspected.

The forced whisper test has been recommended frequently in these reports as the most suitable. It is important that the distance chosen should not be less than 20 ft. The practical value of the test thus taken is that this is, generally speaking, the measure of the maximum distance of the child from the teacher in class, and a child who can respond to the test adequately will be able to hear the teacher in ordinary circumstances. Children who are slightly deaf, *i.e.*, who can respond at not more than 10 ft., should be placed in the front row of the class, and those who cannot respond at more than 5 ft. should be reconsidered for special educational treatment. In using the whisper test it is important that each ear

should be noted separately and that the child should close the eyes to prevent lip-reading.

The provision of shower, douche, and spray baths is being increasingly adopted; their value is becoming more widely recognised by school authorities, not merely as a means of cleansing dirty children, but as a means of education and for the inculcation of the habits of cleanliness. Having regard to these practical considerations, the Board is willing to consider, on their merits, applications from education authorities for the installation of shower-baths of a simple and effective kind under certain specified conditions. At present English schools compare very unfavourably with those of many Continental countries, where the school bath occupies a definite place in the system of elementary education.

The capital cost in proportion to the advantages gained need not be great. It may be roughly stated that an installation of, say, twenty showers with independent boiler, dressing boxes, etc., complete, placed in the basement of a new building, will cost £200 to £300, while an independent bathhouse will raise the figure to £350 or £450. The current expenditure is comparatively small, and as each batch of twenty children need not occupy more than about half an hour in bathing, it is apparent that relatively large numbers of children can be dealt with each week at a very small cost per head.

The possession of good binocular vision is obviously of the greatest importance to the school child—from the very first. Hence the condition and the care of the eyes must always occupy a position in the forefront of the duties of the school medical officer. Whatever other condition of the child is neglected, no parent and no local education authority can afford to neglect any reasonable measures which are necessary to the securing of proper eyesight. Broadly speaking, what is required is: adequate examination by appropriate vision-tests; early treatment of any defects or errors of vision; the proper and effective following-up of such cases; and the removal or correction of all conditions and habits, in school or home, which are injurious to the eyesight.

In regard to the preliminary testing of vision, the school medical officer must retain full personal supervision. Nurses and teachers should only be entrusted with this duty when the school medical officer has himself instructed them in the details of procedure, and has assured himself by control observations that they are in fact able to conduct the test with accuracy and trustworthiness. If need be the authority should consider the desirability of making provision for the further examination by ophthalmic specialists of cases of visual defect, and thus take the first step toward obtaining a comprehensive knowledge and control of the problem of defective eyesight in its area. Local

education authorities will find it advantageous to deal with the various parts of the problem of the prevention and cure of visual defect as a whole, and thus contribute towards the healthy and useful vision of every child compelled to attend school within their areas.

That there is still ample room for improvement in the conditions under which school work is carried on and vision-testing carried out in some cases is unfortunately true.

The examination by Snellen's test types is still hampered by bad lighting in the case of many schools. In Cumberland and elsewhere it appears that in a great number of schools the illumination is so poor that it has been impossible to test the vision of children within the school. In many of these schools the vision has been tested in the playgrounds, in the open, or under a shed where such a place exists. In many cases it is not possible to obtain within school and in a position of good illumination the necessary 20 ft. of distance required for the use of Snellen's types. In such a case it will be found that the distance can often be obtained across the diagonal of a room where either side happens to be short of the 20 ft.; or a mirror may be used, the types (printed in a reverse position) being placed next the child and the mirror being set 10 ft. away from the child, a distance of 20 ft. being gained in this way. This method has been employed in Croydon successfully for some years.

But not less important than the early detection and correction of existing defects are the recognition and avoidance of those causes in which visual abnormalities originate and are developed. In addition to heredity, these include early eye-strain, defective lighting, impairment of general health, and the incidence of certain acute infectious maladies, and the neglect of parents in obtaining early medical advice in cases of disease or defect. And amongst the most important considerations to be kept in view in connection with the educational life of the child are: (1) attention to its general health (including nutrition and physical training); (2) the proper and adequate lighting of the school and of class-rooms—on which the last word has not yet been said; (3) the use only of text-types of suitable size and form, together with a proper relative position of seat and desk; and (4) the avoidance of near-distance work for young children, and of all forms of eye-strain such as are brought about by too long use of the eyes or by the nature of the task.

Though the accommodation available for the special treatment of tuberculous children is slowly increasing, it is still totally inadequate to provide day or residential treatment for more than a small number of the cases requiring it. It is satisfactory to be able to record that the committees responsible for several sana-

torias or hospitals which formerly provided no education for their patients have realised the value, not only educational, but therapeutic, of securing suitable teaching for such children as are fit to receive it and have applied to the Board for the recognition of such places as certified schools for physically defective children.

In the case of children suffering from "surgical" (*i.e.*, non-pulmonary) tuberculosis, who need prolonged care, sometimes for years, in specially equipped residential institutions, provision for such teaching is still more necessary. It is also an aid to treatment; a well-qualified authority observes in this connection that he knows of "no other method by which a number of children can be kept together for an hour or two each day in a state of physical rest." Most sanatoria for children which accept early or chronic cases have now been certified as schools under the Elementary Education Act, and are thus in a position to obtain grants-in-aid from the Board of Education and to admit children sent by local or public health authorities.

Comparatively little attention has hitherto been paid to the epileptic child. Although the Act of 1899 conferred upon local authorities powers for ascertaining the existence of such children and of making provision towards the education of at least those suffering from the severer type of the disease, few have availed themselves of its powers. "The vast majority of epileptic children throughout the country fail at present to receive treatment specially adapted to their condition."

There is an excellent section (No. XV.) on physical training. It cannot be satisfactorily quoted from, but will well repay careful perusal by all who are interested in this important branch of education. As is well known, the Board favours what is known as the Swedish system of exercises; and there can be no doubt but that, when properly carried out, this can be made of enormous value to the *properly nourished child*. Here again we are confronted with one of the root-problems of the whole matter. The under-fed and the ill-fed child *cannot* be properly educated—either physically or intellectually. The attempt is about as hopeful—and as remunerative—as would be that of carefully sowing good seed in frost-bound soil. The ill-nourished child is incapable of absorbing or digesting the intellectual pabulum presented to him at school. His body must be adequately fed before his mind can be effectively trained. Recent legislation has made more easy the provision of meals for such school children as are found to need them. For the selection of such children the physical test should be the one qualifying condition. In

practice it is found that "the poverty test" is unsatisfactory; it is, indeed, often misleading.

In a considerable number of households which are fairly well-to-do there will be found children who, owing to the unsuitable character of the food provided, or to neglect, are suffering from malnutrition, and are therefore fit subjects for admission to the meals. Where selection is on a poverty basis, children of this type are passed over. Another objection to the adoption of the poverty test lies in the fact that it stamps the meals with the stigma of pauperism, with the result that many parents will not apply for their children to be placed on the feeding list, or will actually forbid them to attend the meals if they are placed on the list. . . . There does not appear to be any reason why the physical basis of selection should involve substantially greater expenditure than the poverty basis. Even if an increase in the expenditure resulted from the change in the method of selection, it appears probable that this increase would be counterbalanced by a saving in other directions owing to an improvement in school attendance and a diminution of the necessity for medical treatment of other kinds.

The problem of juvenile employment remains one of anxious gravity, although the Board has somewhat extended its operations by requiring, from 1st April, 1914, the medical inspection of all children between 12 and 13 years of age, as well as of all those above 13 years of age who have not already been examined after reaching the age of 12—thus taking stock of the physical condition of a much larger proportion than previously of those children who are already engaged in some form of employment. It has also extended its benediction and sage counsel to those voluntary associations which endeavour to secure proper care and upbringing of the young child throughout its pre-school age.

Eleven appendices crowded with explanatory details complete a review of twelve months' labour which is, on the whole, both encouraging and hopeful in its tone. At the same time, this record of much good work well done serves to throw into clear relief the nature and the magnitude of regions still beyond the scope of its application. For it must be admitted that, as yet, our "system" of national elementary education is far from complete. It is, indeed, conspicuous, as a system, by its gaps and ragged edges. It is only tentatively cognisant of those early years which are automatically stored with environic impressions—for good or for ill. It has but a feeble, tremulous, and slippery grasp of that perilous period of early adolescence which supervenes on the official limit of the "school age." And it does not pretend to be able, as yet, to deal effectively with all that calls for remedial care and treatment during the school age itself.

THE GLASGOW CONFERENCE ON THE KINEMATOGRAPH IN EDUCATION.

OPPORTUNITY was taken of the recent International Kinematograph Exhibition in Glasgow to hold a series of conferences on the educational value of the kinematograph. The programme had been arranged by a committee representing the chief educational institutions in western Scotland, and included five meetings, at which a wide range of subjects was considered. The speakers at the conference represented different branches of educational work and interests, and the meetings were interesting from the statement of the opinions of Scottish educationists as to the help they expect from the kinematograph.

The exhibition was open by Sir John Ure Primrose, an ex-Lord Provost of Glasgow, and a former member of the University Court; in an eloquent address he claimed for the kinematograph a great future as an educational instrument. He declared that its adoption in primary schools is the logical extension of the kindergarten system. He said that the educational value of the kinematograph is greater than we have any conception of at present. He referred especially to its value in the teaching of history and of medicine, owing to its illustrating the dexterity of the surgeon to a larger audience than could be present in any operating theatre.

Lord Provost Stevenson opened the educational conferences by a speech in which he expressed his faith in the future usefulness of the moving picture. He remarked that a visit to some large engineering works made as a school excursion had, he believed, induced some of his school-fellows to become engineers, to the great benefit both of themselves and of Glasgow; and he thought that the display of great industrial operations, such as might now be shown to all school children, would be a most excellent educational stimulus.

Prof. J. W. Gregory then followed with a paper which is printed almost in full in the present issue of THE SCHOOL WORLD, so there is no need to say more than it dealt especially with the value of the kinematograph in representing natural forces at work, the transition between different geographical types, the habits of animals and plants, surgical operations, and technical industrial processes on a full scale. It also insisted on the precautions to be taken to ensure that kinematograph exhibitions are of full educational value.

The kinematograph may appear less suitable as an aid to literary studies, but in the next session of the conference Mr. J. H. Cuthbertson showed that it may also be of great value in that field of education. In the next paper Mr. George Eyre-Todd discussed its use in the teaching of history and geography. He insisted that hitherto there has been too much teaching merely through the intellect, while the powers of observation have not been duly cultivated. He deplored that the kinematograph had been confined so much to the atmosphere of melodrama, and thought it well adapted in history for the display of the unspoken drama of pageant and the drama of action.

He thought, for example, that the Vikings afforded an infinitely better subject than the hackneyed cowboys of the West. At a later session Mr. D. B. Duncanson, of the Glasgow Provincial Training College, read a paper on science and industries illustrated by the kinematograph. He maintained that in physical science it must be kept secondary to laboratory work, but that it would be extremely useful in illustrating phenomena that cannot be conveniently reproduced in the school room. The last of the educational conferences discussed the use of the kinematograph in nature-study, for which it was strongly recommended by the Rev. J. Smith, the chairman of the Govan School Board, and by Mr. J. H. Cuthbertson, of the Glasgow High School.

Dr. John Smith, in his address, said that the inherent advantages of the moving picture over any other form of pictorial illustration for teaching purposes must at once be admitted. The moving picture riveted the attention. Its rapidity of change exhilarated. That bespoke a kind of magnetism, and it was magnetism more than anything else that they needed in teaching. In the teaching of history, of geography, of literature, there was clear scope for realistic pictorial illustration, and in the teaching of natural science they might go further and say that pictures were absolutely indispensable. And as life is movement, a true presentation of life must reproduce the living movement. In the motion they had the truth. Even a landscape had a truer appeal when it spoke through rhythmic swaying of tree-tops or the shifting shadows of clouds. If the kinematograph is to become part of our educational machinery, it must not be looked at as mere entertainment. It should only be adopted if it serves an educational end, and serves that end better than anything else which could readily be devised.

Mr. J. H. Cuthbertson, of the Glasgow High School, emphasised the value of the kinematograph as a medium for the teaching of nature-study, and at the close of the meeting a resolution was adopted:—"That this conference, representing members of educational institutions throughout Glasgow and district, strongly supports the adoption of kinematography in schools and colleges as an aid to education," and it further directed the attention of the Scotch Education Department to Dr. Smith's address.

The feeling at the conference was practically unanimous that the kinematograph will prove a most helpful instrument in many branches of education. The various contributors to the discussion appeared to recognise that the instrument has severe critics, and were rather concerned with advocacy of its value than with consideration of the methods of its use. Two methods are available—the installation of the kinematograph in the schools and visits to specially arranged educational exhibitions at moving picture theatres. The latter method would appear to be advisable during the present experimental stage. It would certainly be the easier and less costly. A sufficient length of film for a single lesson can be hired for £1. The price quoted by one firm was 30s., but it offered for that more than would be suitable for a single session. Some kinematograph theatres are

said to be prepared to admit children to a special exhibition on a Saturday morning at the cost of a penny a head. Hence an educational demonstration could be given to a thousand children for about £5. The kinematograph theatres must have better instruments than the schools could afford, as well as having superior accommodation. Hence it appears to be both more convenient and economical for the educational demonstrations to be given at the special theatres. The programme should, however, be arranged by the educational authorities, and the lessons of each set of pictures should be pointed out by a teacher who might be appropriately selected from one of the schools in attendance; and the moving picture should be supplemented by fixed lantern slides, which could be explained in detail and examined deliberately.

The recent conference led to such a widespread and emphatic expression of faith in the future educational usefulness of the kinematograph that it will probably soon have a practical trial in Scotland.

HISTORY AND CURRENT EVENTS.

"ATHENS is to be rebuilt." That, of course, is not literally true, but it expresses the idea that rises in our minds as we read our newspapers. How the words recall very ancient history! For Athens is one of the cities which have apparently an eternal reason for existence. Dating so far back that scholars must discuss the origin, it has had a long and varied history, linked always with its port, which we call the Piræus. Saved, as it were, by water from the invading Great Kings, it rose for a time to brilliant pre-eminence in Hellas and adorned itself with buildings the remains of which the world will not willingly allow to perish. Hellas perished at the hands of Rome, and Athens had a long period of subjection to conquerors from west and east. Now she is again "free," and has earned the long-delayed reward of her early sacrifices by being the capital of a new Hellas. Now that the kingdom has begun to prosper after nearly a century of poverty, Athens is to share in its well-being. And the new Pericles is—an Englishman.

ALBANIA is to be—so the Powers of Europe have decided, as the solution on the lines of least resistance of the long contest between the hardy mountaineers and their long-time suzerain, the Porte. Whether the State thus formed and provided with a sovereign from that nursery of kings, Germany, will maintain its unity in face of the Greek aspirations of its southern half, is a problem that no man can solve this year or next. William of Wied has a throne excellently described in *Punch's* recent cartoon. We who only look on at the whirl of events that is making our century one which the future historian will describe as one of revolution, are interested in the title which, they say, is the only Albanian equivalent for "sovereign ruler." The Romans, disliking a "rex," submitted to an "imperator," and a corruption of this word, "mpret," is Albanian for king. How Rome survives!

SOME years ago a Wesleyan minister in Australia won renown by writing a book on "Deeds that Won

the Empire"—largely a drum and trumpet story which did not appeal to our tastes. A book breathing a different spirit and inspiring nobler ideals would easily be possible nowadays, when so many of the Victorian statesmen are slowly passing to their rest one after the other. Such a one is he who disguised his earlier fame under the title of Lord Strathcona. A Scotsman of the name of Smith, who served the Hudson's Bay Company in his early manhood and rose to power and influence in what was then a vast undeveloped country, he was, if any one man is to be named, the maker of the great transcontinental railway which has made Canada what it is to-day. The fighters have been doubtless necessary in their day and generation, but we should not forget or neglect the memory of those who have used the opportunities thus afforded to make the British Empire worth having been won.

How big that Empire of Britain is! And how its bigness affects its history! At the beginning of this century, Great-Britain-and-Ireland were fighting the Boers of the Transvaal and the Orange Free State, with help from Canada and Australia. "Regions Cæsar never knew," and even the poet Cowper but dimly realised are "swayed" by Boadicea's "posterity," or at least by those who inhabit the country in which she ruled. And now that, as the result of that war, we have absorbed into our heterogeneous dominion the Boer descendants of Dutch and French Protestants, it is one of them, General Botha, who is realising the bigness of the Empire to which he belongs. When certain men are considered by him undesirable in South Africa, he sends them to another part of the British Dominions, exiling them after the fashion of Roman Emperors, or like Louis XIV. of France, in his smaller way, but only to a distant part of the same State, because there is no other "world" to which to send them.

ITEMS OF INTEREST.

GENERAL.

A CIRCULAR has been issued by the Board of Education dealing with the question of the employment of supplementary teachers in public elementary schools. It will be remembered that a supplementary teacher has received no particular training and is uncertificated; they are called upon to show only that they are suitable women above eighteen years of age, who have secured a satisfactory medical certificate. The Code of 1909 made provision for the replacement of all supplementary by properly qualified teachers by July 31st next. But the scarcity in the supply of qualified teachers has forced the Board to the conclusion that it would be impossible to staff the elementary schools if the services of supplementary teachers were dispensed with just now. The Board has consequently determined to allow the employment of supplementary teachers until July 31st, 1919. In the opinion of the Board the time has come when it is no longer necessary to sanction new appointments of unqualified teachers to urban schools, and the future recognition of new supplementary teachers will be restricted to infants' classes in rural schools or depart-

ments, and to the lowest class of older pupils in such schools provided that the average attendance does not exceed one hundred. It is to be hoped that the present necessity will enable the Board to hasten the time when increased attractions in the way of higher salaries and smaller classes will put an end to the present scarcity of qualified teachers.

IN June of last year the Board of Education issued regulations governing the conduct of schools established for the purpose of providing full-time education for boys preparing for employment at sea. To such schools as fulfil the conditions laid down in the regulations the Board is now prepared to pay a grant at the rate of £10 per annum for each pupil as from March 19th last. This is very satisfactory, and is what the National Committee on Sea Training has been striving to gain for some years past. It means official recognition of the excellence of the specialised training offered by the various sea-training institutions in the country, most of which are under voluntary management, and are mainly supported by charitable funds. It is not, however, to institutions of this kind alone that the regulations apply, for they enable local education authorities to establish day schools providing a course of training in nautical subjects for pupils from the elementary schools not under thirteen years of age. No doubt several local education authorities of seaport towns will now be encouraged to prepare schemes for establishing schools of this character, in view of the financial assistance extended by the Board; but is the Board's recognition yet wide enough?

It may be of interest to know that the Liverpool Education Committee has already in active working a scheme of nautical training on a less pretentious, but quite effective, plan, though not one which the Board's new regulations will recognise for special financial assistance. The Liverpool Committee has started a nautical evening continuation class, which meets on three evenings a week, and runs practically all the year round. The class consists of about fifty pupils under the tuition of qualified instructors, and is formed of boys who during the day are working as shop and errand boys, or in other occupations offering little or no future. The syllabus of instruction embraces all the subjects enumerated in the National Committee's programme, and includes boat practice, which is taken at the docks. The class has proved markedly successful, and now, after a year's work, ten of its older pupils have just been found berths on board vessels owned by leading shipping firms. No grant, however, is received from the Board of Education beyond that payable under the Evening School Regulations, and the Board will be asked to give special recognition to this real effort to carry out in the most economical way possible an enterprise which must commend itself to national sentiment.

THE Children (Employment and School Attendance) Bill, introduced into the House of Commons by Mr. R. D. Denman, M.P. for Carlisle, passed its second reading on Friday, February 20th, by a substantial majority, comprising members on both sides of the

House, and is now under the consideration of a Standing Committee, from which it is to be hoped it may emerge with its recommendations, if possible, strengthened for the final consideration and approval of Parliament in the present session. The Bill endeavours to embody the proposals of Bills dealing with the employment of children which have been before Parliament for the last three sessions, as well as the proposals of the Government itself in 1911 for raising the school age and to enable local education authorities to establish compulsory continuation classes.

HAVING regard to the educational and physical welfare of the children and to the need for conserving in larger measure the results of the great expenditure on elementary education, the Bill proposes to extend compulsorily and uniformly throughout England and Wales the school age without any exceptions until thirteen (in place of twelve in urban and eleven in rural areas), and to give permissive powers to extend the age until fifteen. It incidentally abolishes half-time, which prevails almost exclusively in the textile districts, and it makes provision for continued education in evening or part-time day schools. It further proposes to allow children aged thirteen, only to be exempted from school attendance on entrance upon ascertained beneficial employment, and so to regulate street-trading as to raise the minimum age in all urban areas to fifteen for boys and seventeen for girls, and to require all boys between fifteen and eighteen so engaged to hold the licence of the local education authority, which is also given the power to regulate the hours and conditions of employment of children under sixteen with special regard to the introduction of compulsory attendance at continuation schools.

THE Bill also contains an important and beneficial clause transferring the oversight of this matter from the Home Office to the Board of Education. In some respects the Bill is disappointing in not fixing the absolute age limit for elementary education at fourteen and in not providing for continued education under humane conditions until seventeen, but it is a valuable measure, and will receive the warm support of the local authorities provided that the Government is willing to aid them to meet the large cost which the application of its provisions will necessarily entail. The evils of excessive child labour, not only under the conditions of half-time, but in respect of children already in full school attendance, and of those also who enter at an early age into undesirable occupations and work unduly long hours, are fully admitted, and they cry out for immediate remedy. The textile districts of Lancashire and Yorkshire and the rural areas ought not to be allowed to stand in the way of measures so essential to the future well-being of the nation.

THE dispute, referred to at some length in our last issue, between the Herefordshire Education Committee and the teachers in its employ, is now settled, and settled in a sense favourable to the teachers. As was expected, the teachers were willing to accept less

than they originally demanded; but they have obtained terms which amount to a very substantial "victory." There are to be fixed maximum and minimum salaries for certificated teachers, and fixed annual increments, which, it is understood, will be granted as a matter of course, provided work and conduct have been satisfactory. Since it is only in this sense that the word "automatic" is used in connection with increments of salary, the sub-committee's remark that the scale adopted "is not an automatic scale" probably means very little. The teachers have thus secured the principles for which they fought, and they have also secured a considerable addition to the amount spent by the authority on salaries. We are glad to note that even the local newspaper which was unfriendly to the teachers' cause now expresses the view that "the policy for both sides to pursue is to settle down to the work of education with a determination to do the best for the county."

THIS is a happy termination of an unhappy struggle, and we trust that the struggle will not be repeated in any other part of the country. But we believe that the prevalent indisposition of rural authorities to spend money on their schools is to a great extent symptomatic of the real trouble—the defective condition of education in the country districts, and the consequent lack of faith on the part of those who have to supply the funds. The desire for one's money's worth is a perfectly natural desire, and somehow there seems to be a widespread feeling among the agricultural classes that the rural schools, as at present organised, are not yielding them their money's worth. As an obviously well-informed correspondent of the *Times* remarks, "in an agricultural district it is of little use to conduct schools which are mainly literary and academic in tone. Instruction of this kind is insulated from any ordinary experience of the child, and therefore it is forgotten almost as soon as received." We do not desire that country children, any more than town children, should receive premature instruction of a technical kind; but we do desire that the curriculum should be brought into vital relationship with the child's daily experience and environment. Only so can education attain to reality, and only so will it be appreciated alike by children, parents, and employers.

THE Board of Education has just published a list of forty-three holiday courses in modern languages which will be held at different times during the present year, but mostly in the summer months. Eight of the courses are in German-speaking countries, viz.: at Berlin, Freiburg in Breisgau, Greifswald, Jena, Marburg, Salzburg, Lübeck, and Kaiserslautern; three in French Switzerland, at Geneva, Lausanne, and Neuchâtel; four in Spain, of which two are at Madrid, one at Burgos, and one at Santander; one in Italy at Florence; five in Great Britain, at Edinburgh, Letchworth, Oxford, London, and Ramsgate; and the rest in France, at Besançon, Dijon, Grenoble, Nancy, Boulogne, St. Malo, Bayeux, Bordeaux, Granville, Caen, Havre, Honfleur, Lisieux, Paris, Rouen, St. Servan, St. Valery-sur-Somme, Tours, Trouville,

and Versailles. The table published by the Board of Education gives the date of each course, the fees, return fares from London, lowest cost of boarding, principal subjects of instruction, address of local secretary, and other details of importance to intending students. 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.

THE University of Oxford School of Geography has issued a preliminary announcement of its seventh biennial vacation course, which will be held from August 4th-21st next. An introductory lecture will be given on August 4th. There will be at least two lectures and a class or an excursion each day. The lectures will be on the teaching of geography, climate, economic and social geography, local geography, natural regions of the British Empire and India. There will be classes on map-making and map-reading in field and laboratory for beginners, and on surveying for advanced students; classes for the study of local geography, land forms, climate, economic and social geography, the historical geography of the British Isles, and the geography of India. Further particulars will be issued in June. Names should be sent as soon as possible to the vacation course secretary, School of Geography, Oxford.

A VACATION meeting for the study and practice of regional survey in country and town and for the consideration of its application in primary and secondary education is to be held at Outlook Tower, Edinburgh, from April 13-27. The course is being organised by Miss M. M. Barker, Outlook Tower, Edinburgh, and Mr. G. Morris, of the Friends' School, Saffron Walden. The first week's course will include lectures and discussions on the general principles of regional survey, and the manner in which survey work may be used in schools. Lectures with practical work will be given in the morning, followed by afternoon excursions illustrating the subject of the lectures. The evenings will be spent socially. The second week will continue upon the same lines, but with a closer study of the Edinburgh Survey.

THE Local Lectures summer meeting will be held this year at the University of Cambridge from July 31st to August 24th. Part i. will last until August 12th. The inaugural lecture will be delivered by Sir J. J. Thomson, O.M. The lectures at the meeting will be grouped round the general subject, "Some Aspects of Modern Life." In the education section it is intended to arrange a short course on the Montessori method. Miss Margaret McMillan will lecture on the health centre—its aims and function, and Miss E. P. Hughes on the art of homemaking—why and how it should be taught. The full programme of the meeting, in pamphlet form, price 7d., post free, giving full information on subjects connected with the meeting, will be ready in May. It will contain a map of Cambridge, a plan of the examination- and lecture-rooms, and a list of lodgings with the number of rooms available and their prices. Board and lodging

can be obtained for 25s. a week or even less. Forms of entry will be supplied by the Rev. Dr. Cranage, Syndicate Buildings, Cambridge.

THE Modern Language Association has arranged a very attractive meeting for Whitsuntide. It has invited Prof. Rudolf Eucken, of Jena, to come to England and lecture on language and philosophy. The lecture will be given in London, and a certain number of tickets will be available for non-members. This happy idea started with the chairman of committees of the association, the Rev. Dr. W. S. Macgowan, who is an old friend of Prof. Eucken, and has just published a little manual on his religious philosophy. The association is also combining with the professor's publishers to entertain him at a banquet at the Savoy Hotel. Bishop Boyd Carpenter will preside, and Sir Henry Miers, the president of the association, will propose one of the toasts. It is to be hoped that this dinner will be as successful as that given to Anatole France last December, for the assistance of Mr. Holford Knight, the secretary on that occasion, has been secured.

As an outcome of services which have been held in St. Paul's Cathedral from time to time for students in training colleges, arrangements are now being made by a committee appointed by representatives of most of the larger associations of both elementary- and secondary-school teachers, for holding a service in the cathedral on the evening of Ascension Day, May 21st, 1914, to which all members of the teaching profession are invited. Tickets of admission are not required. The service will consist of Evensong and sermon, and will begin at 6.30. The sermon will be preached by the Bishop of Southwell. There will be an offertory for the expenses of the service.

SCIENCE mistresses and teachers of domestic economy should certainly try to secure a copy of the annual report for 1913 of the Association of Teachers of Domestic Economy, which has reached us. It contains among other important matters the interim report of the standing science committee to which the consideration of the scientific problems relating to difficulties met with by teachers of cookery, laundry-work, and housewifery, are referred from time to time. In this interim report are included very valuable answers to a number of questions proposed by teachers in different parts of the country, which have a direct bearing on the scientific explanation of practices in common use in kitchens and laundries. The information embodied in the answers cannot be found in text-books and represents the results of much original work carried out by members of the committee. The honorary secretary of the association is Miss K. Mildred Buck, 10 Hastings House, Norfolk Street, Strand, W.C.

WE have received a copy of the first issue of a new monthly magazine for boys and girls, entitled *Work and Play*. The new periodical is edited by Mr. Morley Adams, and has a twofold object, first, to impart instruction in hobbies and home handicrafts, and, secondly, to provide stories and other healthy reading.

The combination of entertainment and instruction will appeal not only to children, but to parents and teachers, who take interest in young people. Judging from the contents of the first issue we think it will not be long before the new magazine has a large circle of readers. Certainly it is an excellent pennyworth.

THE number of entries for the Royal Society of Arts Commercial Examinations, which commenced on March 23rd, was 37,973, an increase of 2,057 above last year, when the number was 35,916, and an increase of 850 above the total for 1911, the highest previous year. The examinations are conducted almost entirely by the local education authorities, and were held in London, and at 407 other centres throughout the United Kingdom. The subjects include book-keeping, shorthand, typewriting, theory and practice of commerce, commercial law, economics, and modern languages.

SCOTTISH.

THE twelfth annual report of the Carnegie Trustees for the universities of Scotland has just been issued. It has a special interest as it marks the close of the second quinquennium, both of their scheme of endowment of post-graduate research and of their scheme of distribution of grants to the various universities and colleges. The review of the results of the research shows that this part of the trust's operations has been attended by a notable and gratifying success. The aid given under the scheme has stimulated a spirit of research in all departments of knowledge. There has been a growing recognition of the principle that a university does not attain its true ideal merely by efficiently training its students, but that it can only be a living force when a full proportion of its members devote themselves to original research. The research scheme for the next five years will remain essentially as at present but the trustees have adopted Prof. Hume Brown's suggestion of offering an annual essay prize of the value of £100 for competition among the graduates of Scottish universities. The thesis may be on any subject relating to history, economics, modern languages, or literature. Fellows or scholars of the trust will not be eligible for competition. Essays should be lodged with the secretary of the trust by April 15th, 1915. A table shows the total number of beneficiaries, and the total payment for class fees at each university centre from the institution of the trust in 1901 to 1913. It appears that 9,382 men and 4,000 women have together drawn in fees £534,000. Of these eighty-six men and thirty-one women have repaid £2,813. During the next quinquennial period a sum of £45,000 will be paid to Glasgow University in order to complete the fourth side of the quadrangle. Everyone who knows these beautiful buildings on Gilmorehill will rejoice that the noble design of their architect is after many years to be consummated.

THE Glasgow Chamber of Commerce has petitioned the School Board of the city to revoke or suspend the operation of the by-laws requiring the attendance at continuation classes of all pupils under seventeen years of age who have not obtained the leaving certificate of

the elementary school. They state that inquiries have shown that this regulation would have a serious effect on many local industries. In many instances it meant the stoppage of a large part of the machinery for two hours two days a week, and the consequent loss of employment to many adults. The Glasgow School Board is the only large board, they state, that has put these compulsory powers into execution, and it is scarcely fair that manufacturers within the board's area should be placed at a disadvantage as compared with their competitors in other areas.

THE report of the year on Aberdeen University shows that there has been a steady growth in recent years in the numbers of students in attendance. This is highly satisfactory, both from the educational and the financial point of view. The increase in fees from students is largely responsible for the rise in the surplus revenue of the general fund of the University from £804 in 1911 to £2,499 in 1913. The University Court has prepared a scheme for a further large extension of the buildings at King's College at a probable cost of £20,000. It is also pledged to provide a pension scheme for lecturers, and to institute an adequate curriculum in forestry. From the Carnegie Trust the Court will receive during the next five years a sum of £40,000, part of which is to be added to the building fund for the proposed extension.

THE discussion in the House of Commons on the Supplementary Estimates for education in Scotland revealed an amazing ignorance on the part both of English and Scottish members. A sum of £19,250 was asked for above and beyond what Parliament had already voted for education. English members at once rose to ask that an equivalent should be given for purposes connected with English education. Scottish members, too, had no clear understanding of the subject, and demanded why the increase had not been foreseen. The Secretary for Scotland and Sir Henry Craik seemed to be the only two members who thoroughly understood the situation, but their explanations were thrown away on their colleagues, who scented some dark plot on the part of the Education Department. The increase is capable of easy explanation. The Education Act of 1872 provided that where a school rate of 3d. in the £ did not produce more than 7s. 6d. a child in average attendance, a grant from the Treasury would be given to bring up the amount to 7s. 6d. The short Act of 1897 went a step further, and provided that for every penny of the school rate above 3d.—the 7s. 6d. limit still remaining—the Treasury would pay 4d. Thus if there was a 6d. rate, under the above conditions the Treasury would pay 1s., being 4d. for every penny above the 3d. During the past year the school rates, owing to the cost of medical inspection, feeding, and other causes, had increased so much that a great number of boards which had formerly been ineligible came within the scope of the conditions. The Department had no means of estimating these increases until the rates were actually imposed, which was after the estimates for the year had been made up.

At a meeting of the Educational Institute of Scotland (Glasgow Branch), held in the Royal Philosophical rooms, Mr. E. J. V. Brown, Provincial Training College, delivered an address on the teaching of grammar in elementary schools. He said that the proposal to abolish grammar was specially popular with those who had failed to teach it. In speaking of grammar he desired it to be understood that he included the rules of composition. He was totally opposed to teaching grammar and composition as a deductive science from definitions and first principles. The grammar taught should be a natural growth from the real and written compositions of the pupils. The rules obtained by this study would make expression a most delicate thing, and opened up shades of meaning to which pupils would be blind without a knowledge of those rules.

THE report of the Scottish Departmental Committee on the North Sea Fishery industry, in addition to various recommendations for reorganising the Fishery Board, outlines a comprehensive scheme for the education of those engaged or likely to be engaged in this industry. The Committee suggests the institution of nautical courses for pupils in fishing centres, just as there are at present rural courses and industrial courses. This, it is suggested, should be followed by similar courses in continuation schools. Among the subjects proposed are navigation, mechanical propulsion, cookery, manual work, hygiene, and English and arithmetic. These proposals are significant of the growing appreciation of the need for direct vocational training. If finally adopted these suggestions will do much to place an all-important national industry on a much more scientific basis than ever it has occupied in the past.

IRISH.

IN answer to a question by Mr. O'Donnell in the House of Commons, Mr. Birrell has stated that he hopes early this session to introduce into Parliament a Bill for the regulation of the proposed grant of £40,000 to improve the position of Irish lay secondary teachers, and if progress is made with the Bill, the grant will be placed on the July Supplementary Estimates. Irish teachers, who have now waited nearly two years since Mr. Birrell first promised this sum, will sincerely hope that they will not again be disappointed, and will wait anxiously to see the Bill and to hear that it has passed. Even if this grant becomes an accomplished fact, it must be remembered that Ireland's claim to Imperial grants from the Treasury for secondary education will be in no way diminished. This was clearly stated by Mr. Birrell. England receives for secondary education from this source £800,000, Scotland £287,000, Wales £88,000, and Ireland nothing. There is therefore all the more reason to hope that the present momentous session will not see the £40,000 grant once more endangered.

THE annual general meeting of the Irish Schoolmistresses' Association was held in Alexandra College, Dublin, on Friday, March 13th, and a paper was read by Dr. Trench, the recently-elected Professor of English Literature in Dublin University on the education of a schoolgirl one hundred years ago.

THE association has recently forwarded to Mr. Birrell a letter dealing with the registration of secondary-school teachers. It points out that conditions of registration have been recently published by the Registration Council for England and Wales, and that it is desirable that a similar register should be established in Ireland. The first step towards any improvement in the position of secondary-school teachers would be the formation of a register that will secure the maintenance of a high standard of efficiency, and the association urges that due regard being paid to the differences of conditions in the two countries the qualifications for admission to the Irish register should not be lower than those required in England. A lower qualification in Ireland would have an injurious effect on Irish teachers, and would make it difficult for them to obtain posts in Great Britain or the colonies, where, owing to the few openings in their own country, they are often obliged to seek work. It is also urged that there should be on any registration council due representation of those actually engaged in teaching, whether as heads or assistant teachers.

INQUIRIES in the House of Commons have elicited the following information with regard to grants made from the Development Fund in the course of the ten years ending March, 1912, towards educational purposes. The grant amounts to a little more than £170,000 a year, i.e., to £1,700,000 for the ten years, and was originally a grant made to Ireland corresponding to a grant for primary and technical instruction in England, Scotland, and Wales. Of this sum only somewhat above £300,000 went to education, as follows: (a) for primary education in connection with training colleges and salaries of assistant teachers, £230,000; (b) £727 for new national school buildings; and (c) £52,000 for technical instruction. It is well known that the bulk of the Development Fund went to help the financing of the Land Act, and that Irish education was thereby deprived of much-needed assistance.

THE new president of the Dublin Education Society, Rev. T. J. Irwin, headmaster of Wesley College, took for the subject of his opening address last month the present position of education, primary, secondary, and university in Ireland.

WELSH.

A CORRESPONDENT has directed our attention to the fact that the British National Anthem is mentioned on p. 20 of the St. David's Day pamphlet issued by the Board of Education. The writer of these notes pleads guilty to having missed the words, "God save the King," probably because, though they come at the end of the twenty-three numbered "Suggestions to Teachers," they do not, like "God bless the Prince of Wales," and "Hen Wlad fy Nhadan," form the subject of one of the numbered paragraphs. The celebrations of St. David's Day throughout the Principality were never so universal, so varied, or so enthusiastic as they have been this year, as a glance through the local newspapers plainly shows. This is no doubt in great part due to the Board of Education booklet, of which 12,500 copies have been issued, which well deserves to be read by all friends of Wales; it is a

model of sane patriotic writing, and teachers on the look-out for ideas will find in it many suggestions that may be made permanently useful in the teaching of Welsh history and geography. Especially valuable is the appendix on the Myddeltons of Denbigh, whose tercentenary occurs this year—the three brothers who in Elizabeth's time were renowned alike in literature, in commercial adventure, and in engineering. We quote the last sentence of their story:—"Each St. David's Day, while not forgetting Arthur and Dewi, Caradog and Gruffydd, Llywelyn and Owen, we should remember those great Welshmen who, like the Myddeltons, served Wales so well by serving the greater country of which Wales is the most ancient part."

THE Welsh National Library, the home of which is to be at Aberystwyth, has been planned on a scale worthy of its place among the educational institutions of the country, and of the great work it is expected to do. The buildings are to be so arranged that the administration portion will need no enlargement for many years to come, but room for expansion is provided in the storage department. Perhaps the most interesting innovation in the scheme of the library is the deliberate provision for the formation of duplicate and multiplicate collections of standard books, to be sent away for the use of classes and students unable to visit Aberystwyth. Already seven small collections have been lent to classes of the Workers' Educational Association in small towns and villages of South Wales, and the buildings contain storage room for such collections on a large scale. Considerable progress has been made in the accumulation of books. Sir John Williams's great Welsh collection formed a nucleus, and many other donations and purchases have since been made. In response to an appeal to Parliament, the library was in 1912 granted the copyright privilege which already belongs to various libraries—the Bodleian, the Advocates' Library in Edinburgh, Trinity College in Dublin, and others—and which will secure to it all new copyright publications.

A SPECIAL appeal is made for the collecting of £50,000 by April 5th. Of this amount £35,000 is already raised, and the Treasury has undertaken to meet this £50,000 by a like amount. On February 14th the executive of the South Wales Miners' Federation passed a resolution warmly recommending to the miners of South Wales this urgent appeal. The clubs of the Rhondda Valley had collected £122 by the end of January, and residents in the valley had provided more than £1,100. It will be remembered that large total sums were contributed in small amounts by the quarrymen of the north, the colliers and other workmen of the south, and farmers of all parts of Wales to help in the foundation of the university colleges and intermediate schools, and in this respect history is at the present moment repeating itself.

A TABLET bearing the following inscription has been placed on the walls of Lewis's School, Pengam:—"In affectionate remembrance of Humphrey Owen Jones, M.A., D.Sc., F.R.S., Fellow of Clare College, Cambridge. A distinguished worker in the field of physical chemistry—a former pupil of the school—who

while on his honeymoon in the Alps was killed with his wife by falling from the Aiguille Rouge de Peteret on the 15th August, 1912, at the age of 34 years. This tablet is by the staff, boys, and friends of Lewis's School sorrowfully inscribed."

PROF. JONES, who had an extraordinarily brilliant career as an investigator, was one of the first Bachelors of Science of the Welsh University, and married, precisely a fortnight before the accident recorded on the tablet, Muriel Gwendolen Edwards, a distinguished scholar of Newnham, and the first woman who was awarded a fellowship of the Welsh University.

RECENT BOOKS ON EDUCATION.

- (1) *The Problem of the Continuation School*. By R. H. Best and C. K. Ogden. 80 pp. (P. S. King.) 1s. net.
- (2) *The Hampshire Experiment in Education*. By C. R. Ashbee. 166 pp. (Allen.) 3s. net.
- (3) *What Children Study and Why*. By C. B. Gilbert. 331 pp. (Harrap.) 3s. 6d. net.
- (4) *From Locke to Montessori*. By W. Boyd. 272 pp. (Harrap.) 2s. 6d. net.
- (5) *The Kindergarten Theory and Practice*. Authorised by the International Kindergarten Union. 301 pp. (Harrap.) 3s. 6d. net.
- (6) *Man's Miracle: The Story of Helen Keller and her European Sisters*. From the French of Gerard Harry. 197 pp. (Heinemann.) 3s. 6d. net.
- (7) *A History of Education in Modern Times*. By F. P. Graves. 410 pp. (Macmillan.) 5s. net.

(1) THOUGH we find little that is new in Messrs. Best and Ogden's book, "The Problem of the Continuation School," yet we direct attention to it, not only because it deals in a very practical way with a pressing question, but also because one of the authors is an experienced business man. This circumstance stamps the book as authoritative in a special sense. Dr. Kerschensteiner contributes an introduction, and the experience of Munich is succinctly described. A constructive policy for our own country is then outlined. Our chief educational defect is in our provision for the rank and file, and our chief problem is that of the continuation school. What trade continuation schools should aim at and how they should be organised the authors discuss clearly and forcibly, and with no waste of words. We hope the book will have a large sale.

(2) Mr. Ashbee's new volume is, to say the least, a timely one. Recent events in Herefordshire have directed more attention than usual to the unrest that exists in the sphere of rural education, and we think "The Hampshire Experiment" should help people to see what is really wrong. Mr. Ashbee rightly contends that "educational ideals and methods suitable to industrial and town conditions do not necessarily apply to a country community." He pleads for experiment, and he gives an interesting and suggestive account of what has been done experimentally in "Hampshire" towards correlating existing educational agencies, making higher educational centres real centres of local life, and bringing elementary-school work into living relationship with the children's environment. We welcome the book as an indication that somewhere the stagnant waters of rural education are being stirred.

(3) Why is the course of study in use in our elementary schools constituted as it is? What particular gift has each of the conventional school studies to

bestow upon the children, and hence upon society, as justification for its place in the curriculum, and as compensation for the labour, the tears, the time of the students, and the care, the effort, and the financial expenditure of the community? These are the questions which Mr. Gilbert sets out to answer, and we think his book deserves special notice because he answers them in a fresh and stimulating way. The book is difficult to review, because of the great variety of its contents, but where we have tested it we have generally found the modern view expressed in a racy and effective style. In what he has to say about moral training, sex hygiene, industrial and manual training, and a score of other topics, the author's ripe experience and unflinching common sense are manifest on every page.

(4) Dr. Boyd's contribution to the growing Montessori literature falls into two parts, the first historical and the second critical. Readers of Dr. Montessori's books know how generously she acknowledges her debt to Itard and Séguin, the two great doctors who anticipated her in yoking together medicine and pedagogy. Dr. Boyd thinks that for a proper understanding of this obligation we must go further back, and he tries to show that Itard and Séguin were simply developing ideas first suggested by Locke and afterwards elaborated by Rousseau. We dare say this is so, and though we think a good deal of this part of the book superfluous, we believe many persons interested in the Montessori movement will be glad to have an account of Itard and Séguin in so convenient a form. The second part of the book examines in a judicial spirit Dr. Montessori's fundamental ideas—individuality, freedom, and sense-training—and discusses how far they are original and how far valid. The book is on the whole a sound and useful piece of work. We wish, however, that in his introductory remarks Dr. Boyd had refused to admit even the possibility of transplanting the "system"—if indeed there is a Montessori "system"—into this country.

(5) "The Kindergarten Theory and Practice" is a book which could not, we think, have been produced in any other country than the United States, because there alone has the education of young children received the serious attention, not only of some of the ablest teachers, but also of some of the foremost educational thinkers. This volume aims at a re-statement of Froebelian principles in the light of modern educational thought. It consists of three reports, in which Froebelism is regarded from the conservative, the progressive, and the middle points of view respectively. The first and longest of these reports is ably written by Miss Blow, and is signed by ten out of the committee of nineteen. The second is obviously written under the inspiration of Dr. J. Dewey, and incidentally represents, we think, the best opinion among English Froebelians. The whole book is full of thought, and reflects the greatest credit upon the leading women teachers of America.

(6) The author of "Man's Miracle" gives a sympathetic, and in considerable part a first-hand, account of the wonderful transformations effected in the condition of blind and deaf mutes. He gives a brief history of these extraordinary attempts to educate in spite of apparently hopeless obstacles, and he describes in some detail the famous cases of Laura Bridgeman, Marie Heurtin, and, in particular, Helen Keller. Of especial interest, however, are M. Harry's reflections upon the deeper problems raised by the "miracles" wrought upon these persons. At the beginning of their lives they were "only animals," but vastly inferior to most animals in that they lacked the most indispensable senses; yet compare the results of their

education with what can be done with the most gifted animals! This is one example of the many profoundly interesting questions that arise. Incidentally, the writer points out the great part that women have taken in illuminating these minds which would otherwise have remained in cavernous darkness. "With a few exceptions, the man has theorised, and the woman has put the theory into practice."

(7) Prof. Graves's books on the history of education must now be fairly well known in English training colleges. His latest volume, "The History of Education in Modern Times," is a sequel to two preceding volumes, the three together forming a continuous treatment of the subject. The writer takes the sound view that the history of education is a part or aspect of the history of civilisation, and his references to general history are therefore frequent. Of the twelve chapters of which this book consists, three deal specifically with American education, the remaining nine being general in their scope. In chapter iii. we should have liked to see a reference to the Edgeworths; and if any names are to be mentioned in connection with the development of English elementary schools, we think Sir J. P. Kay Shuttleworth's should be one of them. Generally speaking, however, Prof. Graves's selection of material is judicious. His writing is marked, too, by that continuity which is so essential to the effective treatment of his subject.

MODERN INORGANIC CHEMISTRY.

Introduction to Modern Inorganic Chemistry. By T. W. Mellor. xvi+684 pp. (Longmans.) 4s. 6d.

Two years ago Dr. Mellor accomplished the feat of producing a novel text-book. So multitudinous have been the offspring of the fertile "Roscoe and Schorlemmer," that the creation of a fresh work is indeed a thing to wonder at. The present volume is the first-fruits of Dr. Mellor's new strain, and is "intended for the use of students who wish to start with a rather simpler book." In an interesting and suggestive preface the author discusses the aims of the teacher, and points out the importance of developing a balanced and critical attitude of mind which shall be retained even when the facts of chemistry are forgotten. He insists that the student must also attain through his laboratory experiences a dexterity in manipulation, a knowledge of useful fact, a habit of logical reasoning, and some exercise in imagination. These desiderata are kept in view throughout the book, and, given sufficient time, there can be no doubt but that a conscientious teacher would be able to make a delightful course of lectures and practical work out of the material here provided.

The constant reference to the historical side of chemistry is one of the excellent features of the book, and although many science masters know what an appeal this method of treatment has to their classes, doubtless there are many others who will be converted by Dr. Mellor to a belief in the efficacy of arousing their pupils' interest in the antiquity and evolution of our science. A remarkable characteristic of this book and its predecessor is the collection of pithy and appropriate quotations from all sorts and conditions of men; Shelley's "The Cloud" may be instanced in connection with the transformation of water in nature. Wherever possible there are statements culled from contemporary sources describing new discoveries, and excerpts from the original papers of distinguished chemists, whilst the *obiter dicta* of philosophers, ancient and modern, abound.

Dr. Mellor's scheme is somewhat intricate, his ideal, no doubt, being to raise no point of theory

without a corresponding body of evidence. Nevertheless, his method necessitates the splitting of the atomic theory chapter into two, between which are sandwiched sections on the composition of water and chlorine. Acids, bases, and salts, again, are divorced from oxygen, and ozone has to be sought for in the chapter devoted to thermochemistry. The oxides of nitrogen are distant nine chapters from nitric acid and the nitrates, whilst the alkaline earths suddenly transfer the student's attention to the metals. It is rather difficult to see the author's reason for taking the metallic elements in the order he has adopted. In spite of this somewhat perplexing arrangement, it may be emphasised once more that Dr. Mellor has produced a school text-book on chemistry the like of which has never before been seen. It is the antithesis of the cram book; it is permeated with a chemist's enthusiasm for the science; it is sound in its facts, and advances no theory without ample demonstration. It may be cordially recommended, and no teacher of chemistry should fail to read it.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

WE have received the first number of *David Nutt's French Students' Magazine*, a cumbersome title for a neat little production. The editor is M. Albert Noblet; the price 6d. net; and this number contains 32 demy 8vo pages. The sub-title is "A Monthly Journal devoted to Current French News, Sports, Literature, and all Practical Topics," which sounds comprehensive, if a little mixed. The number before us consists largely of extracts from various sources. Erckmann-Chatrian's "L'Ami Fritz" appears as a serial; we have Daudet's poem, "Les Prunes"; a letter from Napoléon to Joséphine; pieces from *Le Matin*, *La Revue*, etc. Most of the "current news" is a month old; but this may be due to some unavoidable delay in publication. There are also passages for translation into French, the renderings of which are corrected for a small fee, and help is promised by the Reference Bureau to those who require information. We wish success to this fresh aid in adding interest to the teaching of French.

Bell's French Picture Cards. Third series. Edited by H. N. Adair. (Bell.) 1s. 6d. net.—This series consists of twelve cards, each with three coloured pictures on one side, and the text (subjects for free composition and a good list of suitable words) on the other. The subjects are varied, e.g., "Une promenade à bicyclette," "Histoire d'une miche de pain," "Jeanne d'Arc," "La prise de Québec." The artist (whose name does not appear) has done her (?) work very well; the drawing and colouring are alike good, without the occasional tendency to grotesqueness which spoils some of the work in the earlier series. Mr. Adair has shown excellent judgment in supplying the text. These cards will be found very useful indeed for extending the vocabulary, and for practice in oral as well as in written composition.

La Classe en Français (Cours Moyen). Edited by E. J. A. Groves. xii+224 pp. (Hachette.) 2s.—This intermediate French course, based on L. Soulié's "Tour de France," is an excellent piece of work. Mr. Groves is well known as a "reform" teacher, and the editing of the interesting text he has chosen does him very great credit. The explanations in French (we should have preferred them at the bottom of the page) are clear and good; the questionnaires

have been prepared with care; there are good vocabulary exercises; and the grammatical exercises also deserve praise. Some good photographic illustrations add to the value of the book, which we are able to recommend without reserve.

Beaumarchais, Le Barbier de Séville. Edited by F. H. Osgood. xix+161 pp. (Ginn.) 2s.—Mr. Osgood's introduction deals pleasantly with the interesting life of Beaumarchais and with his literary works, in a style which has nothing of the pretentiousness too often affected by American editors. The text is well printed, and the notes give all necessary (and very little superfluous) information. There is also a vocabulary, which in a book of this kind seems unnecessary; do American boys and girls not learn to use a dictionary?

English.

The Romance of Names. By Ernest Weekley. 250 pp. (Murray.) 3s. 6d. net.—Those who know Prof. Weekley's "Romance of Words" will not need to be told that we have here a fascinating study of the development and history of the surname. The extent of research involved is best shown by the twenty pages of index, containing some 3,500 surnames still in use. But in a work of this kind everything depends on the method employed, and we may say at once that Prof. Weekley's method is ideal, for he combines historical sequence and scientific analysis with an abundance of interesting illustration. For instance, in his second chapter he takes a medieval roll, and, as it were, brings it up to date. Incidentally a great deal of social history will be found in his pages, as the mere headings of some of his chapters, such as "On Occupational Names," "Trades and Crafts," "Official and Domestic," will clearly indicate. We are very grateful to Prof. Weekley for his refreshing book.

Representative Passages from English Literature. Arranged by W. H. Hudson. 319 pp. (Bell.) 2s. 6d. net.—This companion to the author's "Outline History of English Literature" is very sensibly arranged. In the words of the preface, "each extract has been selected because it serves to bring out either the distinctive personal features of an author's genius and style, or some feature of importance in the spirit and style of his age." It will be seen at once how such a selection enhances the value of the previous work. By omitting extracts from such authors as Shakespeare—so far as the plays are concerned—and the classical novelists, room has been found for a wonderfully varied and satisfying scheme of literary illustration. Not the least acceptable feature of the collection is the emphasis placed where practicable on the critical relationships of the authors.

Great Names in English Literature. Vol. i. *Chaucer to Bunyan*. By E. L. Eliás. 244 pp. (Harrap.) 1s. 6d.

English Literature in Prose and Verse, from the Beginning to the Fourteenth Century. Compiled by A. Cruse. 111 pp. (Harrap.) 1s.

These volumes belong to the same series; a book on literary history, based on the great names of our literature, has as a companion a book of extracts from the works of these great authors. This is, of course, the only possible way of studying literary history, and the present enterprise has our best wishes, not because it is in any sense new, or because we wish to see this exact method followed, but because the more books we have of this sort, the easier it will be for teachers to supplement their English lessons with that amount of comparison which places an author in his proper setting in the national literature.

A Dictionary of Classical Names for English Readers. By W. T. Jeffcott. 112 pp. (Macmillan.) 1s. 6d. net.—This is a sign of the times. "Shakespeare, Milton, Spenser, Bacon, Gray, and other writers whose works are studied in secondary schools, teem with allusions to the ancient fables and to events connected with Greek and Roman history." And these writers are obscure or even unintelligible to the pupils who "study in secondary schools." For them this royal road to knowledge has been compiled. It is likely to be useful to those whose "education" does not include Greek and Latin, and perhaps it may bring home to them that English literature is not unconnected with those literatures; but no one will ever feel our literature, so far as it comes under classical influence, unless he has gone to the fountain-head. A book like this is, however, far preferable to annotated editions.

The Shorter Modern Dictionary. 380 pp. (Macmillan.) 1s.—We are very glad to see this revision of the "Modern Dictionary." It contains all that a young pupil will need, and—what is of equal importance—it leaves out most that he will not need. The type is excellent, and by the use of suitable covers and paper a vast amount of matter is brought within convenient compass and bulk. We heartily commend it to the notice of masters in secondary schools.

History.

The Contemporary English View of Napoleon. By F. J. MacCunn. viii+311 pp. (Bell.) 5s. net.—In his introduction, Mr. MacCunn almost seems to warn us off his subject. He begins by disparaging contemporary history as so distorted by ignorance and prejudice as to be quite unhistorical, and for some time after reading this we began to wonder why he thought the subject worth pursuing. But he has read widely in the newspapers and pamphlets of the period covered by Napoleon's life, and the result is that, when we have reached the middle of his book, we find ourselves quite interested and follow his story cheerfully to the end. He devotes three chapters to opinions on the rise of Bonaparte, on his power and his fall, reserving three others for military criticism, the English poets and Napoleon's personal character. Some twenty pages are devoted to special points by way of appendices. As we have said, it is all very interesting. What the *Times* thought in the days before it had become staid, what Englishmen thought, at least those who recorded their thoughts, both those who stayed at home and those who went abroad, especially if they met the great man himself, how the poets changed their opinion, especially Coleridge, and how Bonaparte was regarded even after his fall, all this can be read in this collection. The only criticism we offer is that MacCunn seems sometimes to like to be sarcastic, and the sarcasm is so subtle that we are in doubt if the remark is meant seriously or sarcastically. Will he excuse us if we remind him of Defoe?

Prehistoric Britain. By R. Munro. 256 pp. (Williams and Norgate.) 1s. net.—The science of prehistory is still in its infancy; the material, abundant as it is in many ways, is still insufficient to base thereon any certain knowledge of more than a few features of prehistoric life. Above all, there is so much uncertainty as to comparative chronology (absolute chronology is, of course, as yet impossible) that those who know most about the matter differ widely in their opinions. The consequence is that it is impossible as yet to write a simple book on the subject. All that an author can do is to set forward the evidence available, give the opinions of his fellow-workers as well as his own, and leave the student to

make his own conclusions. This Dr. Munro has done; but, we think, with not sufficient allowance for the ordinary reader's knowledge of many technical terms. Some of these, no doubt, are explained in the other volumes of the "Home University Library" to which he refers us, but there are many words of Greek and Latin derivation which Dr. Munro might have put into simpler language. One other disadvantage this book suffers under: it is impossible to write an account of prehistoric Britain only; the material in the country is too scanty to form any conclusions without reference to Continental discoveries, which in the mass are far larger than those of this island. This little book should therefore have been called "Pre-History, with Special Reference to Britain." Taken so, it is an excellent presentation of the present knowledge of the subject. It has an excellent bibliography and an index.

Britannia's Growth and Greatness. By A. J. Berry. 304 pp. (Pitman.) 2s.—We direct attention to this book because it is markedly different from many books on the same subject. It is choice in its style, there is evidently a desire to express things in good language and a total suppression of the "jingo" elements. It is a historical geography, and the account of each part of the Empire is preceded, or rather introduced, with much topography, which is helped by the good photographs with which the book is plentifully illustrated. The order of treatment is good. We begin with India and its neighbourhood, and it is some time before we come to the growth of British influence and power. Then we pass to the Far East, and afterwards to America, Australia, etc. Altogether an excellent book for the school library, but there is no index, though the table of contents partly fills the gap.

ALL teachers of history should subscribe to *History*, a quarterly magazine for the student and the expert. It costs only a shilling for each number, and its contributors are in touch with the latest research, even if they do not pursue it themselves. The articles naturally vary in value; some of them are reports of papers read before one or other branch of the Historical Association, but some are very good. We can especially recommend an article in the current issue, which gives the essence of Mr. McKechnie's big book on Magna Carta, though it uses other material as well. It is quite time we ceased to talk about this much overrated document, as was the case fifty years ago.

THE New Zealand Government still continues to issue pictures on cards with information on the back, illustrative of history. The last batch contains some pictures from other countries than England, some of them reproductions of well-known paintings. We think them good and useful, but we receive no information as to publishers or prices in this country. Perhaps an inquiry from the agent in this country for the Dominion would put our readers on the track of what they would be glad to know.

Geography.

Model Surveying Instruments: For Teaching Practical Geography in Schools. Prepared under the direction of E. A. Reeves, map curator to the Royal Geographical Society. (Philip.)—These surveying instruments, which are models of the more delicate and expensive instruments used in regular surveying, include a theodolite, sextant, aneroid, dumpy level, prismatic compass, and plane table with their appurtenances. They are strongly made, and should be serviceable; they appear to be "fool-proof." There can be little doubt that the complete set marks an advance

upon the apparatus which has previously been available for school use. Practical exercises in map-making in the field are so important a part of the school course in geography that there is little need to emphasize the value of this set of instruments; that Mr. Reeves, who has charge of the department of the Royal Geographical Society, where explorers and others receive training in practical surveying work, has supervised the construction of the instruments is a guarantee of the suitability of the apparatus. Teachers should write to Messrs. Philip and Son for a price list, and they are advised to obtain the little book of notes and directions which has been prepared by Mr. James Fairgrieve, and costs 6d. Mr. Fairgrieve's notes are brief yet explicit.

The World and its Discovery. By H. B. Wetherill. 320 pp. Maps. (The Oxford Geographies.) (The Clarendon Press.) 3s. 6d.—The story of man's growth in knowledge about the earth has a fascination for children, and there can be little doubt that the child's interest in such a story can be made extremely useful in the class-room. Mr. Wetherill intends his book for use in the lower and middle forms by the side of the ordinary text-book, and he suggests that the discovery book should serve as the introduction to the study of the continent. He treats of the continents in the order: Africa, Asia, America, Australia; frequently the accounts of the work of the explorers is given in their own words, or in early English translations from the original. The old and the modern knowledge is mixed, and it is probable that the book is too difficult for young children. Teachers should see this book, and if they have not made use of the story of exploration they will find Mr. Wetherill's work a great stimulus. With such a wealth of possible material from which to draw Mr. Wetherill has been somewhat handicapped, and his choice has given greater predominance to Africa than to America or Australia.

A School Geography of the World. By Prof. L. W. Lyde. Eighth edition, revised and enlarged, with an appendix of problems and exercises by E. R. Wethey. 411 pp. Maps in the appendix. (Black.) 3s. 6d.—In this re-issue Prof. Lyde has met the modern need in geographical education by the inclusion of about one hundred exercises, illustrated by a series of maps; the exercises are good and of the type which is familiar to teachers, the maps are in some case indistinct owing to the paper on which they are printed. It is, perhaps, too much to expect that a revised edition of an old text-book shall be perfect, hence one may excuse such matters as the unequal treatment of the Panama Canal, or the retention of such names as Cape Colony, Congo Free State; but there are other matters which might reasonably have been corrected, e.g., the statements that Holland has about four million more cows than the United Kingdom, or that Denmark exports a million cattle annually to Great Britain alone; that Europe is free from extremes of heat and cold; that the chief grain crops of Canada are wheat and barley. Surely the treatment of Australasia, Japan, and Argentina, which was adequate in 1900, should have been expanded to suit the facts of 1914!

Industrial Studies: Europe. By Nellie B. Allen. 409 pp. Maps and illustrations. (Ginn.) 3s. 6d.—This American publication should prove of interest to teachers; it consists of a description for American school children of a trip through Europe in search of matter referring to the occupations of the people. The author aims at a description, and only inferentially lays bare the geographical controls, yet the geographical element of this study of human industries

is undoubtedly well maintained. There is frankly no attempt to cover the ground completely, yet the topics which are chosen for each of the European countries serve to provide a fairly complete picture of the workers of each land. Viewed through American eyes Europe is seen with a freshness of vision which is to some degree denied to those of us who have grown up amidst the surroundings which are described.

"Cambridge County Geographies." *Merionethshire.* By A. Morris. 166 pp. *Northumberland.* By S. Rennie Haselhurst. 181 pp. Maps, diagrams, photographs. (Cambridge University Press.) 1s. 6d. each.

"Provincial Geographies of India." *The Madras Presidency.* By E. Thurston. 293 pp. Maps, diagrams, and illustrations. (Cambridge University Press.) 3s. net.

County by county the important series of reference books and supplementary geographical readers known as the "Cambridge County Geographies" approaches completion. The two volumes before us maintain the high standard of their predecessors; in both books human activities are related carefully to the geographical and geological surroundings, and in both the historical element in the progress of the county receives particularly adequate treatment; in one case the castles and all the human progress which they embody, in the other case the Roman wall.

The book on the Madras Presidency is the first of a series which will, in a way, do for India what the other series is doing for Britain: provide in a handy and correlated form the latest information about all the aspects of human life in the area. Mr. Thurston has to deal with a province which is roughly one-sixth greater than the British Isles, and has roughly one-sixth fewer people. His book is a storehouse of geographical fact, and the teacher should pay particular attention to the minerals, the irrigation, and the agriculture of the province. No geographical library can be considered complete without this book.

"Cassell's Modern School Series." Geographical Section. Book I.: *Stories of other Lands.* By J. Duckworth. 128 pp. 10d. Book II.: *Under other Skies.* By J. Duckworth. 160 pp. 1s. Book III.: *England and Wales.* By A. R. Palmer. 212 pp. 1s. 3d. Book IV.: *Scotland, Ireland, and Canada.* By T. W. Berry. 224 pp. 1s. 4d. Illustrations, some in colour. (Cassell.)—These books appear to be intended for the classes in the upper departments of primary schools, and the children who use them as reading books will learn much that is of interest and value as they proceed from book to book. We are not sure of the utility of the airship and of all the appurtenances thereto, which is such a feature of Book III.; the plain unvarnished tale of Book IV. seems as if it would answer the purpose just as well.

Mathematics.

Dynamics. By H. Lamb. xi+344 pp. (Cambridge University Press.) 10s. 6d. net.—This excellent work is a fitting companion volume to the author's "Statics," and will serve to enhance, if that be possible, his reputation as a luminous expounder of dynamical principles. He has a happy faculty of selecting or devising simple examples to illustrate theorems of great generality, and in this way he enables the student to gain a firm grasp of fundamental principles, his attention not being distracted by unessential complications usually of a geometrical character. Only a few three-dimensional problems are discussed, and though Lagrange's equations are

obtained in the first instance by transformation from three-space co-ordinates, the number of degrees in the system is limited to two. As in the statics used, though somewhat sparing, is made of the vector notation. We are glad to find that a teacher of Prof. Lamb's eminence and influence should show himself favourable to its introduction into ordinary teaching. There are many points in the book worthy of note. For example, a very instructive discussion of oscillations of finite amplitude on a smooth curve furnishes the key to a good many problems in physics and dynamical astronomy. The essential features of seismographs are elucidated, and a very neat piece of work shows the effect of resistance on projectiles. Rotating axes are introduced early, but it is not explicitly pointed out that all expressions for accelerations can be derived from those referred to rotating axes. We think this might be done. The book is one which every teacher will be glad to possess, and our only regret is that in both the "Statics" and "Dynamics" Prof. Lamb has confined himself to two-dimensions. For his treatment of three-dimensional problems we must for the present at least have recourse to the articles on mechanics and analytical dynamics of the "Encyclopædia Britannica."

Practical Geometry and Graphics for Advanced Students. By J. Harrison and G. A. Baxandall. xiv+677 pp. Enlarged edition. (Macmillan.) 6s.—In the present edition a considerable amount of new matter has been added. Amongst the fresh problems treated are graphic integration and differentiation; vector addition, multiplication, and differentiation; graphic statics in two- and three-dimensions, graphic dynamics, rotation vectors and harmonic analysis. Mathematicians do not as a rule pay much attention to graphics, the reason doubtless being that solutions of problems obtained by graphical construction are only particular, not general, solutions, and are of limited accuracy. The engineer is, however, entitled to maintain against the mathematician that in graphics combined judiciously with arithmetical rules based upon the calculus of finite differences, he possesses an instrument exactly suited to his needs, and that by means of it he can solve rapidly and with sufficient accuracy problems which would be quite intractable to analytical treatment. The present edition seems to contain everything that an engineer could want, and our only complaint is that the scale of the diagrams is so small.

Models to Illustrate the Foundations of Mathematics. By C. Elliott. viii+116 pp. (Edinburgh: Lindsay.) 2s. 6d. net.—The student of the modern abstract view of mathematics finds it necessary to familiarise himself with ideas and terms to which explicit reference is never made in the usual course of elementary mathematical instruction. Such concepts as those of correspondence, manifold, order, group, though underlying every branch of mathematics are kept out of sight. The writer of this interesting pamphlet considers that some at least of these fundamental ideas may be made more accessible to beginners, and of the ideas to be explained he thinks that that of a *correspondence* or function, and that of a *multiplex* lend themselves readily to illustration by classificatory models, the significance of which can be appreciated by comparatively young pupils. In this way it might be possible to introduce the ideas with some of their developments, apart from abstract reasoning, at a very early stage, and make them form part of the groundwork of mathematical teaching. The suggested models are very simple, being merely pieces of cardboard classified according to colour, shape, size, and so on. We do not know

whether the writer's suggestion is practicable or not, and he does not say whether any experiments have been made. Still, the pamphlet is one which may be read with profit, especially in conjunction with J. W. Young's "Fundamental Concepts of Algebra and Geometry," upon which it is based.

Science and Technology.

The Life-Story of Insects. By Prof. G. H. Carpenter. 134 pp. (Cambridge University Press.) 1s.—This book supplies a real need. Although it is very concise and by no means free from technicalities, the descriptions are clear, suggestive, and easily followed by any reader who has witnessed the changing forms of insect life. The chapter on the life-story of insects and the seasons is specially interesting, the fact being emphasised that the life-story of many insects is not rigidly fixed, the creatures being sufficiently plastic at different stages to vary in the development in response to climatic and seasonal stimuli. No mention is made of the biological rhythm of the creatures themselves, which may be another factor in determining change, concomitant in its punctuations with the rhythm of the seasons. The much-debated point, whether ancestral insects should be regarded as aerial or as terrestrial is discussed, and the more generally accepted view is adhered to, viz., that insects, although of common origin with aquatic Crustacea, must have become terrestrial air breathers before they acquired wings.

The Fertility of the Soil. By Dr. E. J. Russell. 126 pp. (Cambridge University Press.) 1s.—This stimulating little book possesses the admirable quality of being free from unnecessary technicalities and yet being scientifically accurate, precise, and definite in its statements. It will appeal to the general reader, who is interested in the cultivation of the land as one of the main forms of human occupation and achievement, and it will be of more immediate and practical value to students of biological and agricultural science. The opening chapter deals with the natural history of the soil, and the fact of the aliveness of the soil is brought out in a most impressive manner. The chapter on plant food contains reference to recent experiments in the nitrification of the soil, and points out the need for research in the problems of denitrification. The term soil fertility is explained, and the factors upon which it depends are discussed. A description is given of various types of soil, and such titles of chapters as "The Chequered Career of Clays" and "The Rise of the Sands" are sufficiently alluring to ensure closer acquaintance with the subject-matter. Throughout the book interest is sustained by constant reference to matters of general human importance.

A First Book of Nature Study. By E. Stenhouse. 145 pp. (Macmillan.) 1s. 6d.—As "nature-study" implies a special method of study, namely, that of first-hand observation and inquiry, a first book might be expected to contain very little actual information, much suggestion for observation, and a presentation of problems that would stimulate curiosity and investigation. As a matter of fact, this book gives descriptive accounts of most of the types of British mammals, of common trees, of pond-life, of the work of a river, etc. Apart from questioning the *raison d'être* of the little book, it is with genuine appreciation that the reader will receive its contents. The treatment is lucid, vigorous, and stimulating. The writer speaks with the authority of an expert, and with the sympathy and insight of a close observer. The book is written in simple language and style, but this very clearness constitutes

a pitfall. Processes and phenomena are presented in so direct and straightforward a manner and in so generalised a form, that they appear much more simple than they actually are in nature, and they will be so readily understood, that there is little incentive to investigation. The book would have most value in the hands of a teacher, who would use it as a guide in the selection and presentation of the various topics of natural history, and to whom the hints for practical work, which are supplied at the end of each chapter, would be useful.

Miscellaneous.

The Faith of the Old Testament. By A. Nairne. ix+226 pp. (Longmans.) 2s. 6d. net.—The inclusion of this book in the new "Layman's Library" is welcome evidence of increasing interest in the intelligent study of the Old Testament. The author's object is "to disentangle from the accumulations of modern study what is of practical importance to a plain reader who wishes to enjoy the Old Testament as great and religious literature." There is a valuable introductory chapter explaining the general principles on which the Old Testament should be read. The points properly emphasised are that all Old Testament revelation is progressive, as regards both morality and faith, and that the element of mysticism in the later books should be allowed greater weight in their interpretation. Then follows a chapter on the prophetic books, which is very fresh and suggestive; in particular, the author's treatment of Jeremiah is very illuminating. Whether the theory that the books are not really the work of the prophets whose names they bear, but biographical compilations put together by later editors, will be generally accepted is doubtful. Other chapters deal with the wisdom books and their relation to contemporary philosophy, the Apocrypha with its illuminating light on the broader outlook of later Jewish thought, and finally the Psalter, the embodiment of Jewish devotional life. The author's happy description of the Psalter as the "Hymns Ancient and Modern" of the Jewish synagogue will sufficiently indicate the lines on which he deals with the book. The hypothesis of a late date for its compilation increases its value rather than otherwise, since it would thus represent the completed faith of the pre-Christian Jewish Church, and a closer approximation to the faith of the Gospels. The book as a whole will prove of very great value to those who have to teach the Old Testament to upper classes in secondary schools.

The Schoolmasters' Yearbook and Educational Directory, 1914. xcvi+418+643+176 pp. (Year Book Press.) 12s. 6d. net.—The new issue of this indispensable work of reference is more exhaustive than ever. There are biographies of 15,000 schoolmasters and other educational workers; the general information in part i. is brought up to date; and altogether the editor has reason to be proud of his work. Speaking for ourselves, we do not know what we should do without the "Yearbook."

EDUCATIONAL BOOKS PUBLISHED DURING FEBRUARY, 1914.

(Compiled from information provided by the publishers.)

Modern Languages.

"Soirées chez les Pascal." Illustrated with five plates in colour. By F. B. Kirkman. 48 pp. (Black.) 6d.

Freytag: "Die Erhebung Preussens Gegen Napoleon im Jahre 1813." Edited by Otto Siepmann. (Siep-

mann's German Series.) 236 pp. (Macmillan.) 2s. 6d. Word and Phrasebook to same. 20 pp. 6d. net. Key to same. 44 pp. 2s. 6d. net.

"Dietrich von Bern." Adapted from the German Saga. Edited by A. E. Wilson. 64 pp. (Oxford University Press.) 1s. 6d.

"First Steps in German Composition." By the Rev. W. H. David. 64 pp. (Oxford University Press.) 1s. 6d.

Classics.

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"C. Juli Cæsaris Commentarii Rerum in Gallia Gestarum VII. A. Hirti Commentarius VIII." Edited by T. Rice Holmes. 528 pp., 13 maps and 7 illustrations. (Clarendon Press.) 8s. 6d. net.

"The Year's Work in Classical Studies, 1913." Edited by Cyril Bailey. 224 pp. (John Murray.) 2s. 6d. net.

English: Grammar, Composition, Literature.

"Blackie's New Systematic English Readers." Book I. 136 pp. 10d. Book II. 160 pp. 1s. (Blackie.)

"Britain and her Neighbours." Book I., "Tales from Far and Near." 112 pp. 10d. Book II., "Tales of Long Ago." 128 pp. 1s. (Blackie.)

Charles Kingsley: "The Heroes, or Greek Fairy Tales for My Children." Frontispiece and 17 illustrations. xx+162 pp. (Cambridge University Press.) 1s.

Shakespeare: "Richard III" (Oxford Plain Texts.) 92 pp. (Clarendon Press.) 6d. net.

Macaulay: "Life of Goldsmith." (Oxford Plain Texts.) 21 pp. (Clarendon Press.) Paper, 3d.; cloth, 4d.

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Longmans' Class Books of English Literature:—Ballantyne, "The Coral Island." (Abridged.) With frontispiece. Introduction and Notes by A. S. Tetley. 1s. Carroll, "Alice's Adventures in Wonderland." 8d. Doyle, "The Refugees: A Tale of Two Continents." (Abridged.) With Introduction and Notes by G. A. Twentyman, and 15 illustrations. 1s. 6d. Haggard, "Eric Brighteyes." (Abridged.) With Introduction and Notes by J. Malins. 1s. 6d. Haggard,

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The Children's Shakespeare: "Scenes from the Plays, with Introductory Readings: 'Henry V.'" 104 pp. (Macmillan.) Paper cover, 4d.; cloth cover, 5d.

"Selected English Short Stories (Nineteenth Century)." With introduction by Hugh Walker. (World's Classics.) 522 pp. (Oxford University Press.) 1s. net.

History.

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"Test Papers in Elementary Algebra." By C. V. Durell. 242 pp. (Macmillan.) 3s. 6d.

Science and Technology.

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"The Montessori Method and the American School." By F. E. Ward. 264 pp. (Macmillan.) 5s. 6d. net.

"A Cyclopaedia of Education." Vol. v., Pol.-Zwi. Edited by Paul Monroe. 906 pp. (Macmillan.) 21s. net.

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"The Schools and Social Reform: The Report of the Unionist Social Reform Committee on Public Education." Arranged by S. J. G. Hoare, M.P. With an Introduction by the Right Hon. F. E. Smith, K.C., M.P. (John Murray.) 6d. net.

"The Schoolmaster." By A. C. Benson, C.V.O. (Murray's Shilling Library.) (John Murray.)

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.

Inaccuracy in Arithmetic.

THE inaccuracy which Mr. H. G. Wells described in his interesting letter in the February issue of THE SCHOOL WORLD is a phenomenon painfully familiar to teachers and examiners. As he shows, by the instance of his young friend, and still more strikingly by his own experience, it may appear in minds of a high order, and side by side with distinct general aptitude for mathematics. He might have gone further and pointed out that even mathematicians of eminence have exhibited a very insecure hold upon the addition and multiplication "tables."

Such facts are not to be explained, as Mr. Wyke Bayliss seems to suggest, by a general tendency of original minds to be inaccurate. Originality in mathematics, whatever else it may imply, must surely imply the power to see and hold relations precisely where ordinary minds, unaided, see only vaguely or not at all. In the words which William James used of metaphysics it must always mean success in "an unusually obstinate attempt to think clearly." A better explanation would be that mathematical ability is not a simple power or "faculty" but a complex of developed interests and aptitudes which exhibits different forms in different minds, and so may or may not contain as one of its constituents a primary interest in the facts of number as such.

This kind of interest appears often enough among young children. It may grow into nothing more striking than skill in arithmetical computation, or it may be the starting point from which a real mathematical complex develops. On the other hand, the mathematical complex may scarcely begin until a maturer age—until the boy's imagination has been awakened by some premonitory vision of mathematics as the gateway of the sciences, or until an incipient taste for "seeking the one in the many" makes him take kindly to algebra. In his earlier years such a boy may, like Newton, seem actually stupid in a field in which he will eventually show himself a genius. In cases of this kind skill in numerical computation is no part of the basis of the mathematical complex, but only an instrument of its development of varying importance. We may have a man who, like Chrystal, is a deft and penetrating analyst but is never quite sure about the sum of eight and five.

The practical question raised by Mr. Wells is how to give all our pupils a secure command of the elementary facts of number. Experiments in connection with allied psychological problems indicate that the first and perhaps the most important step is to make the child's number-knowledge direct and real. His assertion that "three fours are twelve" may mean no more than that he remembers a certain connection between words; it should express a remembrance of facts that he has seen and, if possible, discovered for himself. Scientific pedagogues, from Pestalozzi down to Prof. D. E. Smith, have sought to give practical form to this principle. My colleague, Miss Punnett, in her recent book, "Groundwork of Arithmetic," describes some attractive and useful methods based upon experiments on the perception of groups of distinct elements. There is little doubt that the rational foundations established by such methods act powerfully in restraint of the errancy of numerical asso-

ciations, and that their influence persists long after the "number lessons" have been themselves forgotten.

But, however rationally established, knowledge of the "tables" can scarcely become a secure possession without subsequent drill. To the excellent advice upon this point given by Mr. Wyke Bayliss I will add only a few remarks suggested mainly by simple psychological observations. I have a friend who can tell with quite uncanny facility upon what date a given day will fall many weeks ahead. She has explained to me the secret of her power. Directly a problem about the calendar is proposed she sees with the mind's eye a "ribbon" which unfolds and displays in orderly print the dates of the next two or three months and the days of the week associated with them. We have here a special instance of the "visual number schemes," which were, I believe, first described by Francis Galton. I find that in a fairly large class of graduate students there are generally one or two who possess well-marked number-schemes. If you propose a simple arithmetical problem to these persons they at once "see" the given figures taking definite places in an orderly arrangement of the whole scale of numbers marked out by tens or dozens, etc. There is little doubt that the owners of visual number-schemes have more than average facility as mental computers and that their psychological peculiarity is of advantage to them. A well-known Cambridge lecturer was so conscious of his dependence upon his scheme that he naively supposed that nobody could answer arithmetical questions without one.

The efficacy of a number-scheme probably depends upon the fact that it represents and preserves the results of early efforts to bring number-facts into rational relations with one another. It is the child's first "graph," constructed mentally and by the light of nature. Frequently it can be seen to be in part a sublimation of physical objects, such as the clock-face, from which his number-knowledge was gained. But, whatever its origin, the spatial ordering of the figures in the scheme guarantees that its owner shall always have, as it were, a rational statement of number-facts before him.

The moral of these observations is clear.

We may not be able to give everybody a number-scheme, but we may and should drill children in number-facts by means which would sublime, in the visually gifted mind, into as logical and effective a scheme as possible. Miss Punnett has described charts for number-drill which are intended to have this property. Even if a child does not preserve a conscious visual memory of such a chart his work with it will remain as an active force beneath the threshold, tending to keep his mind in the narrow path of arithmetical rectitude. The too common method of drill by verbal repetition of the "multiplication tables" guarantees no such rational assistance to mechanical association.

I am myself humiliatingly "weak at figures," and have never set myself, like Mr. Wells, to purge my memory of its tendencies to err. Often, especially when fatigued, I am quite unable to reach certainty about such questions as the product of seven and eight. For information about such topics I am dependent upon a disembodied voice which is almost all that is left of a little boy who once learnt to recite the seven-times table. If the whisperer will not "oblige" or is in a freakish mood, I have no information or am misled. Thus it is the honest truth that ever since I wrote the last sentence but one the whisperer has repeated "fifty-four"; I have detected his treachery only by laboriously adding eight to forty-eight by fours. If you ask why I do not suspect the answer "six eights are forty-eight" as I suspected "seven eights

are fifty-four," I can only say that the former truth, for reasons intrinsic or adventitious, made an extraordinary impression upon my infancy and remains a rock to which I cling in a howling sea of arithmetical uncertainty.

The pain which it costs me to make these confessions is endured in the hope that they may help to convince my colleagues of the superiority of rationalised visual arrangements of numerical facts as a basis for arithmetical accuracy.

T. PERCY NUNN.

I IMAGINE that the reason Mr. H. G. Wells gives for the unsoundness in arithmetic of a pupil, who is good at algebra and geometry, is the true one, and is known to most mathematical masters. Accuracy in any subject can only be acquired by a certain amount of mechanical drill, a fact that modern methods tend to ignore.

The following is a list of ways of detecting and remedying the "specific error" mentioned by Mr. Wells:—

(1) Draw a network of squares, entering the numbers 1 to 12 at the heads of the columns and at the ends of the rows.

	1	2	3
1			
2			
3			

When a particular square is chosen at *random* the sum of the numbers at the end of the row and at the head of the column should be given orally without hesitation, and the process continued until all the squares have been exhausted. If the numbers at the head of the column and at the end of the row are arranged arbitrarily, the squares may be taken *seriatim*. The squares may be marked by means of some simple code, showing the degree of hesitancy in giving the result, and the particular combinations which present special difficulty noted. This will ensure that all the combinations from 1 to 12 have been exhausted. The squares should be large enough and sufficiently carefully drawn to prevent any mistake being made with regard to the columns and rows. This method may be easily extended to multiplication.

(2) Count to 100, starting with each of the numbers 0 to 9 in turn, and adding the numbers 1 to 12 in turn, *e.g.*, starting with 6 and adding 8, we get 6, 14, 22, 30, etc.

(3) Number games; for a selection see "The Teaching of Arithmetic," by D. E. Smith, chapter xiv. (Ginn).

(4) The plotting of simple graphs. The plotting of points on squared paper can with advantage be introduced very early into arithmetic work, and it has the advantage that a *pupil can check for himself* the answers to a large number of simple arithmetical calculations, provided, of course, that the *majority* of the answers is correct. Thus if the values of $ax + b$ (where a and b are chosen to begin with, and x has in turn the values 1 to 12) be plotted, the results which are wrong are obvious at a glance. Similarly portions of the graphs of the quadratic functions $ax^2 + bx + c$, in which a is positive and $b^2 < 4ac$, may be plotted, there being no negative values of the function for positive values of x .

The introduction of the straight line graph in this way has many useful applications to fractions, decimals, and negative quantities later in the course.

Later in the arithmetical course rough checks should be insisted upon, and approximations, since they are forced upon us by examination syllabuses, should be used to obtain a higher standard of numerical precision.

Nothing, however, is more powerful in producing accurate arithmetical work than the cultivation of a general sense of the need for accuracy of statement, of result, of drawing and measurement in all mathematical work. It is even more important now than in the past that numerical precision in the four simple rules should be acquired by a pupil before he enters upon the secondary-school stage of his education, as the crowded state of the curriculum, which rarely allows more than two periods a week to arithmetic does not allow sufficient time for much mechanical drill in the simple processes.

S. LISTER.

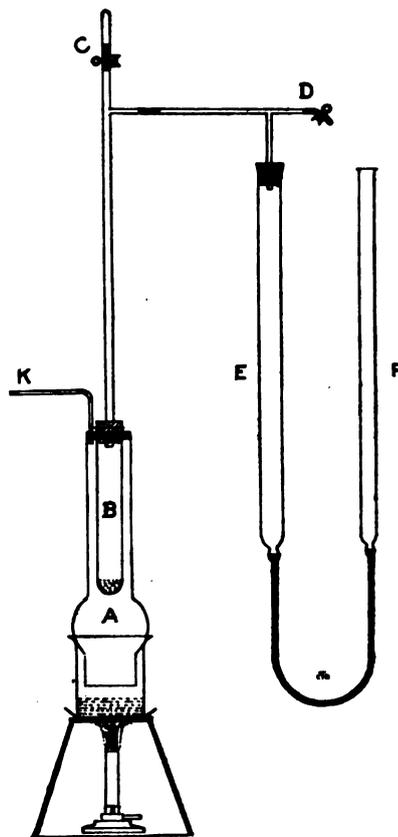
The County School, Uxbridge.

The Determination of Vapour Densities.

THE apparatus is a simple form of that of Victor Meyer. The bulb of the lamp glass A fits into a beaker, and thus forms a boiling vessel. The top of the lamp glass is fitted with a cork through which passes a large test tube B. An elbow tube K provides for the exit of steam. The mouth of the test tube is fitted with a cork and long glass tube terminating in a removable piece of glass tubing C, closed at one end. The little bottle (a short piece of narrow glass tubing closed at one end) is seen inside the glass tube C.

E is a plain glass tube drawn out at one end, with a cork and three-way tube fitted at the wide end. The narrow end is fitted with a piece of rubber tubing which connects with a burette F.

To determine the vapour density of, say chloroform, proceed as follows: weigh out some chloroform in the small tube and introduce it into the tube C. When the water in the beaker has been boiling for some time adjust the levels of water in the two tubes by means of the pinchcock at D. See that these remain level. Now open the pinchcock at C, allowing the small tube to fall into the sand at the bottom of the large test tube. Air will be displaced, and by taking the reading of the burette F, before and after, the volume of air displaced can be ascertained. The temperature will be the temperature



of the room. The burette method of ascertaining the volumes of gases has already been explained in my communication on "Apparatus for the Determination of Some Chemical Equivalents," which appeared in THE SCHOOL WORLD for August, 1907. It will be seen that the apparatus can be easily constructed out of materials found in any laboratory; it is cheap, parts easily replaced if broken, and, moreover, parts easily cleaned and dried.

E. T. BUCKNELL.

Kingsholme School, Weston-super-Mare.

Superfluous Scholarships in Secondary Schools.

"ASSISTANT-MISTRESS" will, I feel sure, have earned the gratitude of every teacher in secondary schools by her able statement of the case against the unsatisfactory scholarship-holder. There is, however, much that ought to be said on the question from another point of view.

The present system of election to scholarships is farcical. It usually depends upon the results of a simple examination which neither tests the work done in the elementary schools, nor assures the secondary-school teacher that the child has sufficient basis for further education. The examination is further so simple that election or non-election becomes a matter of chance, comparable with the chance of winning a Limerick competition. This is easily proved by the fact that a boy just not elected for a minor scholarship may compete again the following week in a similar competition against the same competitors for another form of minor scholarship, and be hopelessly out-classed.

Many children cannot survive the change from the elementary to the secondary school. When it is remembered how great is the difference between the traditional school methods of these types of schools, how largely the worship of order in the huge classes of elementary schools narrows the capacities of a boy or girl, and how often the energies of the elementary-school teacher are diverted into teaching those moral, social, and general lessons that receive adequate attention in the educated home, and, most of all, when note is taken of the fact that this change of method and environment coincides with the age of puberty, and its extraordinary and mysterious effects on the child, the presence of the incompetent minor scholar is easily accounted for. Of those children who survive intellectually, some will wither for a time like transplanted flowers, but bloom again later; some who were distinctly non-brilliant before—arrested development, adenoids, and so on—will become brilliant; and some will remain as before the transplanting.

To my mind, one of the greatest hindrances to the development of the minor scholar is the fact that he is often underfed in relation to the work he is called upon to do in the secondary school. Not that he comes from a bad home, but that he comes from a home where temperate habits have made secondary education possible for him. Otherwise he would have had to go to work early to keep the family larder full, as indeed his brothers and sisters usually have to do, though not less endowed with brains.

Now the remedy for this lies here: the nation or municipality in providing secondary education is not performing a charitable deed, but is giving definite pay (education) for definite work done (the child is fitting himself for the more responsible posts in national life). The pay is, however, grossly inadequate, and should be increased. Let every child in the elementary schools who at the age of ten is considered by his or her teachers fit to profit by secondary education be given a free place for four years in a secondary school. The change will then

be made before puberty and before the child is stereotyped. At the end of these four years, let every fit child be elected to a scholarship for three or four years, the election to be made by the whole staff of the secondary school and to depend upon either general all-round ability or special ability in certain directions, e.g., art, science, literature, manual work. The unfit are thus eliminated. Let every scholarship be then recognised as a kind of civil or municipal appointment—civil preferably, with teachers who are Civil Servants—and let the appointment carry with it free education and books, free attendance at school-provided dinners, and a graduated scale of pay, instead of a maintenance allowance, representing the difference between the cost of education and the economic value of a boy who is slightly above the average.

In such a way will it be possible to provide a satisfactory system of education for the promising and for the fit. All the rest of the pupils will be adequately provided for in the elementary schools, and the special schools for delicate and defective children—a type of school which is woefully lacking in our modern system of education.

EDW. H. AXTON.

Rotherham.

Open-Air Education at Home and Abroad.

THE National League for Physical Education and Improvement, of which I am chairman, is carrying on an investigation into the present facilities for open-air education in this country and abroad, a report of which it will subsequently publish.

We have already a considerable amount of valuable information on the subject, but being desirous of making the report as exhaustive as possible, I venture to appeal through your columns for further information, to be sent to us by all who have experience in the working of open-air schools, classes held in playgrounds or on the roofs of schools, school excursions, outdoor holiday courses, special schools for tuberculous children, etc.

Communications should be sent to the secretary of the National League at 4, Tavistock Square, London, W.C.

W. BOYD CARPENTER.

4, Tavistock Square, London, W.C., March 5.

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SIXPENCE.

THE PUBLIC SCHOOL EDUCATION OF THE AVERAGE BOY.

By CLOUDESLEY BRERETON, M.A., L-ès-L.

THE attacks on the public schools seem destined to increase rather than diminish in the near future. On the one hand, the growing efficiency of the municipal secondary school is likely to lead to the drawing of unfavourable comparisons, and on the other the need for a more thorough education for those entering business at 16, 17, or 18 is bound to provoke still further criticism of their existing organisation and methods of teaching.

Such criticism, broadly speaking, has hitherto centred round the alleged lack of intelligence among the mass of the products of the public school. The reason for this lack of "gumption" and knowledge in the average public-school boy lies in the fact that the majority of the public schools cater too much for the purely intellectual type of boy, mainly literary, and neglect the provision of a suitable preparation for life and livelihood for the ordinary pupil. Nominally, as a rule, they provide two main types of education, the classical, which is more or less well defined, and the modern, which too often merely connotes a form of education which is semi- or non-classical. The division recalls to a certain extent that once made by a man who said that music for him consisted of two tunes—one was "God Save the King!" and the other wasn't.

The "modern" version of what the Greeks called *Μουσική* certainly needs revision in many schools. Still, to do some schools justice, their modern side is so organised that the clever boys at the top do get more or less a chance of obtaining a scholarship at the university in subjects other than classics. But the fact remains that the claims of the great bulk of the boys, the boys of average ability who will never go to the university, are still largely overlooked. Little or no attention is paid to giving them an education suitable for

their future careers. In fact, apart from the army class, and here and there an engineering department, such specialisation as there is is organised with a view of benefiting the clever boys and ignoring the average, while the absolute school failures are eliminated under that euphonious but iniquitous system known as superannuation. We wax indignant at a state of society which throws on to the pavement certain of its members as look old at 40, yet we calmly put up with a system in our public schools that brands certain of their own failures as too old at 17.

The organisation of the curriculum in schools where the chief leaving age is 16 has already been dealt with in *THE SCHOOL WORLD*. In the big public schools the problem, assuming there is a properly developed modern side, is rather the reorganisation of the curriculum for those who remain after 16, and who in fact constitute the far greater number of those who go through the school. This problem is, as we have indicated, likely to become still more prominent in the near future owing to the growing discontent of the business man who sends his boy into business at 17, 18, 19. While fully alive to the unique character-training given in the public schools and anxious that his boy who is "earmarked" for business should be educated at the same school as his son (should he have one) who is going to the university, or with the boys of his class, he none the less finds that under the stress of modern competition the public school is becoming less rather than more the proper place of education for the future business man.

The problem may be a difficult one, but is far from insuperable. Its solution may be summed up not as specialisation for the clever boy only, or specialisation *ad hoc* to meet a few stray cases, but a scientific differentiation of the curriculum for those over 16. One school at least is experimenting along these lines, and may be said to be solving the problem, judging by the results that have accrued during the

five years during which it has already been working. That school is Highgate, and what Highgate has been able to effect ought to be possible in other schools. Heaven forbid that the Highgate experiment should be taken as a sealed pattern to be copied blindly in every jot and tittle elsewhere, but surely the principles so successfully developed in this particular school should *mutatis mutandis* be applicable in other quarters.

There are in round numbers about 500 boys in the school. The distribution of these boys is very interesting. They fall, in fact, into four categories, each containing about 120 boys. These categories are the junior school (ages 9-12); the lower school (12-14), where Latin and French are the only "foreign" languages studied; the classes in which the bifurcation into classical and modern takes place (14-16); and the top section (16-19). In this top section about one-third leave at 17, the greatest number at 18, and the balance, who leave at 19, proceed to Oxford and Cambridge. Those leaving before 16 are a very small minority.

This top section of 120 falls into two divisions which are roughly equal, containing as they do about 60 boys each. For convenience they may be described as *university* and *non-university*.

A. *University pupils* (60).

Of these 60 about 24 go to London University and the rest to Oxford or Cambridge, and an average of 8-10 are scholarship winners. These *university* pupils are of two types: (1) scholarship boys; (2) boys who, after a university career, are going to enter the professions or business. All belong to forms, but may join *groups* (of which more anon) for classics, history, mathematics, or science.

B. *Non-university pupils* (60).

As the leaving age of these *non-university* pupils is 17 rather than 18 or 19, the number 60 represents the passage through this division of nearly three times as many boys as those passing through the university section, since, leaving, as it were, after one year's training, it takes nearly three times as many recruits to keep up the strength of this division at the same figure as the university division.

Roughly, then, one may say that, of the boys passing through the school, one-quarter, or 25 per cent., go to the university, and three-quarters, or 75 per cent., do not go to the university. This 25 per cent. probably represents the percentage of many public schools, if indeed it is not higher. Incidentally, it brings out the unfairness of our public schools in allowing the composition of their curricula to be so predominantly influenced by the needs of their university pupils, who constitute a dis-

tinct minority of their total school population.

To come back to the non-university pupils: 20 per cent. go on with the regular course, *i.e.*, they do form-work only, whether classical or modern. They take the London matriculation, not to enter the university, but as an "open sesame" to such professions as accountancy, architecture, etc. In the case of the remaining 80 per cent., the curriculum, whether classical or modern, is modified in view of

- (1) the boys special ability;
- (2) his future career;
- (3) financial resources of his parents to continue his technical or professional education there or elsewhere.

This adaptation of the curriculum to meet the needs of the rank and file is the pith and kernel of the whole system.

It is carried out (1) by narrowing the curriculum; the pupil takes fewer subjects and devotes more time to them, the other subjects being dropped; (2) the choice of the subjects he does take is decided by his aptitude, his after-career, and his ability to continue his education there or elsewhere. The adoption of these precautions allows the educational value of the subject to be retained, though the percentage of the technical element is increased. While specialising thus to a certain extent, the boy still works with his form for periods varying from 1-4 hours a day; English, history, geography, and arithmetic being compulsory for all boys. As the group subjects taken are not dominated by examination demands, the future officer, farmer, or lawyer may be found working together in the same group. The fissiparous tendencies attendant on excessive specialisation at the top of the school are thus held in check.

Such is the elasticity of this group system that in one and the same subject there is, so to say, a fast service for the clever boys and a slower service for the average boys.

A bird's-eye view of the top 120 boys shows us that 40 are following form-work only; *i.e.*, 10 in the classical VI., 10 in the classical V., and 20 on the modern side, consisting of boys who are going into business and are taught together in a special Form. This leaves us with 80 "groupistes" on the two sides, consisting either of specialists or of average boys concentrating on fewer subjects. One or two boys join a group before 16, but their number is negligible.

But schools in the future will not only have to concern themselves with the *production* of suitable pupils, they will also have to pay attention to the problem of putting them out, to their *distribution*, in fact.

How, then, does the particular school help the parent to a choice of a career for his boy?

I. Ability records are kept of all boys who enter the school, whether early or late. And in the case of those who enter between 12 and 14 the head of the boy's previous school is consulted.

II. Parents are directly consulted, as a rule, before the boy reaches 16. In about 50 per cent. the parent's choice and the boy's predilection decide. In the other 50 per cent. the record has acted as the deciding factor.

III. In a school of this kind the majority of boys are assured of a professional career either through the degree they obtain later at the university or through their parents' position, but in numerous cases the school has been able to plant out boys, thanks to the close cooperation maintained between the headmaster and big firms in London. There are practically no waste products.

To sum up, then. The school appears to have solved the problem of making its education "purposeful" and preparatory for livelihood, while retaining the ideals of liberal studies as a preparation for life, the form system, that sheet-anchor of English education, being preserved to the end. The long novitiate from 12-16, and in many cases from 9-16, and the careful records kept of each boy afford the requisite data for wide differentiation and specialisation. The provision of alternative routes in knowledge, fast and slow (one might christen them *grande et petite vitesse*), caters alike for the clever and the average boy. There is no scamping, as the latter, who works at a slower pace, is able to keep abreast of his subjects, owing to the longer time he has to devote to them.

And lastly, the school has largely solved one of the most pressing of problems, that of combining the function of successful *production* with the function of successful *distribution*, of not only turning out well-educated and well-equipped boys, but also of seeing that they are duly placed out, and thereby reducing to a negligible quantity that residuum of waste products which in many public schools is still too marked a feature.

The remedy for this great and crying evil is, no doubt, partly in the hands of the parents. Let them realise that in too many cases the average boy is still being miserably sacrificed to the exigencies of a hide-bound and inelastic curriculum; let them combine together in the interests of their own sons to get such crustean conditions rendered more elastic. Nay, judging by the Highgate experiment, the modifications to be made seem so comparatively easy and sensible, it is perhaps not too much to hope that such of the schools as are

in need of reform, whether partial or otherwise, may themselves be willing to remodel their curricula in order to remove from the public schools as a whole their chief defect and stigma to-day—the provision of what is nothing more nor less than a blind-alley form of education for many of their pupils.

THE PROBLEM OF THE JUNIOR SCHOLAR.

By G. H. CLARKE, M.A.

Headmaster of Acton County School.

THE problem may be stated: How can a school best assimilate its "Junior Scholars"¹ drawn directly from elementary schools?

FREE PLACERS vary in age from 11+ to 13-; they may come from good higher grade schools or from indifferent elementary schools; they may have been taught in different standards by teachers of unequal powers; they may have been carefully chosen or hurriedly picked by means of some perfunctory test. Again, there will be a great difference between children from fee-paying schools in a well-to-do district and those from schools in a poorer part even of the same town. The candidates may be children of parents who are able to maintain a bungalow at a fashionable watering place, to which they retire during any holiday, or of parents who do not supply them with sufficient food. Many a free placer sports his bicycle, or even rides in a motor car, while the son of the taxpayer who provides his fees, has to go on foot. In some districts there may be severe competition to secure a place, in others it may be impossible to collect the requisite percentage. Lastly, a school may have only 8½ per cent of Free Placers to assimilate, or it may be forced to attempt to digest the full quarter of its last year's entry.

HOME INFLUENCE:—Many of these difficulties connected with the children are, of course, reflections of the circumstances of the parent. It may happen in the case of a desirable pupil that his home influences are bad, or that the school is not backed up. A parent who has not benefited by proper training in his youth is apt to be devoid of public spirit. His attitude to his son's school may be: to take all he can get and admit no duty in return.

Though one school will scarcely have to face all the complications enumerated above, yet the circumstances in each case are so complex that a general discussion must take account of all possibilities. It is human to look at the

¹ The term "Junior Scholars" is used in this article as synonymous with "Free Placers."

problem from its darkest side. We will, however, admit boldly—and what we say applies throughout the whole discussion—that many Free Placers are valuable pupils, pleasant to deal with, successful students, grateful for their opportunities, sure to return to the State in after-life all that has been done for them. Such cases as the following are in the memory of most schoolmasters. The writer, at least, can think of a pupil from an elementary school who is now high up in the Indian Civil Service, of another doing equally well in the Civil Service at home, of others with brilliant futures before them, judging from their performances at Oxford and Cambridge.

THE NEW SCHOOL.—If the circumstances in which Free Placers enter a school vary in each case, so the schools which admit them absorb them with greater or less ease according to their own particular conditions. A school with a low leaving age, admitting no child younger than twelve years of age and drawing chiefly from elementary schools, will have little trouble in assimilating a few more picked pupils similar to the predominant type. It follows—indeed one scarcely needs to point it out—that a large school of almost public school status, with a preparatory department attached, from which it draws many of its boys about twelve years old, and a high leaving age, will be unable to incorporate successfully even 8½ per cent. of elementary pupils. A small school will be at a disadvantage compared with a school of more than 300. The problem will not be the same in a day school as in a boarding school. In the latter instance the problem has become so intricate that the condition of things reminds us of the lot of Prometheus. The school is Prometheus, the Free Placers the eagle, the boarders, the vitals of many schools, the prey of the eagle.

ENGLISH SCHOOLBOYS.—So much certainly must be said of the two classes of schools the pupils of which are to be brought into contact, and if possible amalgamated. How shall we describe the elements of the assimilating school before the attempted combination is begun?

In his admirable paper on home work, Mr. Shaw Jeffrey has sketched the boys of English schools as: “the healthiest, the happiest, the laziest, the most natural, the most truthful, the pluckiest, the most self-reliant and the most original schoolboys in Europe. They have a very rigid code of honour peculiar to themselves, they can take hard knocks without whining, and they have a more independent outlook, and are better able to do things for themselves than any foreign schoolboys I have ever come across and I have had to do

with a great many.” Let us take this as a fair characterisation of a grammar school boy.

We use the term in preference to the objectionable name “secondary school,” which is an official’s designation for a good old institution. Everyone knows what a grammar school is, many have no idea what a secondary school may be. The latter term is misleading because the schools under consideration are not continuations of primary schools as now existing. They are the complements of preparatory schools. They differ from primary schools in conception, working, aim and spirit. The boys consequently have a different outlook, a different character from the average elementary schoolboy. As a child the English schoolboy has begun his school career hearing:

To-day and here the fight’s begun,
Of the great fellowship you’re free;
Henceforth the School and you are one,
And what you are, the race shall be.

As an old boy he goes back to his school with feelings of love and reverence:

We played again the immortal games,
And grappled with the fierce old friends,
And cheered the dead undying names,
And sang the song that never ends.

ELEMENTARY SCHOOLCHILDREN.—If the elementary schoolchild is lacking in some qualities, he is not the person to blame. He is not set good examples. Let us take two instances, one from the school and one from the home life of the child. A governor of Eton enters the school hat in hand, a manager of an elementary school walks into it with his hat on his head and sometimes with a cigar in his mouth. If it is true that manners maketh man, local educationists have a great responsibility. Still more are many parents to blame. The attendance officer has far too much work, for children are represented as being younger than they are in early years so that they shall not have to go to school, and are freed from attending by false declarations of age before they are legally due to leave.

It is not then the fault of the elementary schoolchild if he has taken colour from his surroundings, which may be little conducive to fostering public spirit. His life is possibly a hard struggle. His is not “the sunny window looking towards the gray little church across the park.” His books, if he has any, are borrowed. His place for work is a stuffy room or nowhere. His preparation for school, very likely, an hour or so spent in house work. The fight for existence influences his whole life. No wonder then that an ambitious Free Placer comes to his new school simply set on getting what he can for himself. He pursues what he thinks is his education with the in-

tion of turning it into the pay of a boy clerk as soon as possible. The "ladder" in his case is not the path to a higher sphere, but a means of reaching a more promising commercial level. Hence it comes that a pupil makes up his mind on a certain course, works for it selfishly, and having achieved his object may leave his school without notice, without returning his books, without thanks, without farewell.

Yet we must not forget that he may have come to his new school some years earlier absolutely ignorant not only of learning, but of the way to learn. At his elementary school he has not been trusted, the very pen he has used has been collected before he left his class-room. He has learnt by rote, but he has never learnt to think. He has been moulded to a standard and has acquired the precocious knowledge of the town child. It is known to those who have questioned on general topics candidates from grammar schools and candidates from elementary schools side by side at an oral examination, that those from the latter may often seem to answer best and be granted scholarships. Supposing that some unsuccessful candidates come from the school to which the chosen pupils are going and enter into competition with them later as members of the same school, it may well happen that the original members of the school without scholarships leave the scholarship-holders far behind.

ALLOCATION INTO FORMS.—We have now to consider the many ways in which Free Placers are dealt with during the first term or two of their new school life. In the worst case, they are put into a form which seems likely to suit them and there left to do the best they can. If there are no sets corresponding to the forms for languages and for subjects in which children from elementary schools are backward, the progress of the Free Placer will be slow, that of weak ones almost nil.

A better plan is to teach each year's batch of junior scholars together for a time, raising their standard and drafting them off by degrees. Even this system has its drawbacks, for the more Free Placers are kept together, the longer they take in catching the spirit of the new school. It is hard too to bring some of them up to the standard of the rest in three terms, in which case a fresh consignment arrives before the previous one is disposed of.

At certain schools time is taken from hours usually devoted to gymnastics, drawing, carpentry, for extra work for pupils in their weak subjects. Under these conditions, junior scholars are perhaps sorted into two grades and placed in two forms. The result of this experiment as described to the writer showed

that after all the boys had much difficulty in making headway. Their teaching could not be made systematic without an unduly large staff, so their lessons became scrappy.

In a group of twelve or fourteen junior scholars, not only will there be a few really clever boys and several slow, but there will probably be some who have done a little French, some possibly even algebra, few who have done any geometry, many who cannot tell a noun from a verb, a number who say they have done science. In spite of these dissimilarities, it should not be impossible to place all pupils satisfactorily, given a school which, having 250 to 300 pupils, is worked by means of as many sets as can be provided. Sets for beginners, skipped by most ordinary pupils of the school, in subjects unknown to Free Placers, must be arranged to correspond with the forms into which the junior scholars are likely to be drafted. On their arrival they must be sorted into express and luggage trains and placed in one or other of two forms. Before everything time must be allowed to the new comers to feel their feet, for they will be bewildered at first. So the final allocation into form and sets should be deferred for a time, and sifting and rearranging be undertaken in the light of experience. By half-term all boys should be properly placed, and being largely divided up, should feel the effect of the general life of the school. It has been shown that satisfactory Free Placers treated in this way can plunge into the varied syllabus of their new school, if only they are started at their proper levels, and by the third term be in a position to enter into competition with their fellows.

INCORPORATION.—Given then the mechanism, the mere allocation of Free Placers is a matter of no real difficulty. The incorporation of them is less easy. Some boys simply consider their own point of view. On the other hand we have known Free Placers who took a full share in the life of the school as musicians, as actors, or gymnasts, or debaters, or athletes, or writers in the magazine, or workers for the scientific society, who, after making their mark in the commercial, history, or other side of the school, have gone to the University or become members of the Old Boys' association, leaving school after a useful, perhaps distinguished career.

Many hard things are said about Free Placers as a class—and much foolish adulation lavished on them—which should only be applied to individuals. Too large a percentage has, no doubt, been fixed by party politicians; the State is paying the fees of many pupils who do not deserve to have public

money spent on them, but this does not prevent our endeavouring to assimilate the best of the class, all indeed who permit of assimilation. If the task is taken up with tact and zeal, if the parents of the pupils can be won over, a great deal may be done.

As Prussia was saved by her schoolmasters in her dark days, so the English schoolmasters have it in their power to serve their country by teaching Free Placers what school life alone can teach, by educating them in the real sense of the word.

THE TREATMENT OF FRENCH LITERATURE IN CLASS.

By HARDRESS O'GRADY.

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EVERY method of teaching is liable to be mishandled or misunderstood. It is mishandled by those who have not grasped the principles which underlie it, who have caught only the more spectacular and pretty of its details, who believe it to be a way out of hard work. It is misunderstood by those whose previous practice has prejudiced them. In the course of certain official duties I have seen some of the very worst lessons in French given under the name of the direct method. This method is, above all, one that lends itself to mishandling. It has suffered often at the hands of extremists on one hand and of the untrained and inexperienced on the other. It has suffered because it had never been standardised by any educational association, so that acknowledged experts who were getting admirable results, each according to his kind, appeared to contradict one another in their speeches and writings. It has suffered most, I think, because of its lack of an ideal. For what, in effect, has been the ideal of the direct methodists, *quorum pars minima sum?* Have we not bent our attention too much to mere verbal and written facility? Have we not allowed the name "the phonetic method of teaching languages" to go unchallenged, as if phonetics or pronunciation were the be-all and end-all of our work? And with some of us have not phonetics and pronunciation actually been the be-all and end-all of our work? The reason for this is plain. The direct method in its amorphous beginnings was a revolt against deadening influences, especially against the type of teaching that allowed the spoken word (the golden word, the *sound* of which is the secret of its power and its magic, of its associations, of its life) to pass an alien in an alien land, under a hideous guise that was not the garb of its adopted country, nor the familiar homespun of its own. As a

revolt, the direct method laid stress upon all that was bad in the old, and bent its first energies to correcting those errors. Unfortunately it stagnated, and the time is over-ripe now to ask ourselves whether we are using the excellent teaching of pronunciation and vocabulary for their right purposes. It is my belief, based upon a really wide experience, that on the whole we are not.

Words, as words, have a beauty of their own. But their chiefest beauty is that which arises from their combination into sentences, then into paragraphs, and lastly into the many forms of prose and verse which are the methods by which man expresses his inmost being. In short, words have no value except as the hieroglyphs and musical notation of literature. And it seems to me that the very last thing to be thought of in most French language courses which have come under my notice is the literature of France. This is a challenging statement. I propose to amplify. It is quite true that both in the "old" method and in the direct method plays and verses are read. But they are read either as the *corpus vile* of notes on philology, grammar, syntax, archæology, or what not, or on the other hand, as the *corpus vile* of conversation, (*Que fit Chimène? Pourquoi Rodrigue se battit-il avec le père de Chimène? Faites une description de la bataille?*)

Is literature this? Is literature the pedant's knowledge of a particle? Is it the tattle of a tea-table? And, since we are asking questions, is it possible that a direct methodist who in one way and another duly excited the wrath of teachers who were opposed to the direct method has now come to years of discretion, and is about to burn that which he worshipped? By no means. I believe as firmly as ever in the direct method, in the use of phonetics, in applied grammar, in free composition; in the teaching of vocabulary by association-groups. But I believe that all this work is ancillary and preparatory, that it is the necessary tilling of the field on which we shall raise a better crop than conversational weeds. But we may take heart of grace. English literature is quite as much disregarded as French. On the whole it is quite as badly handled, and I commend those whom my statement may annoy to Mr. H. G. Wells's remarks in "Mankind in the Making." The enthusiastic laudation of an author is not teaching literature. The expounding of the author's meaning by the teacher is not teaching literature.

Literature cannot be taught. And yet literature should be the goal of all language teaching. It is the ability to read books, to understand them, later and in later life to make

generalisations about an author based on that author's actual words; to group together the writings of a period; to contrast them with the writings of other periods, and of the same period in other countries; to use books as human documents which reveal the soul of a man or of a nation, which take us from a too complacent estimation of ourselves and of our country. Literature cannot be taught. But we can train our pupils to read books in such a way as I have said, and the method of training is on the whole that of the French *lecture expliquée*, the *explication de textes*. I say "on the whole," because we have to remember that such treatment of a French text in an English class is necessarily more difficult than the treatment of a French text by a French class.

I propose to take in detail the method or methods which I venture to submit to the consideration of those who agree with me that French literature has been too much neglected in certain quarters. But once more, so that there may be no possibility whatever of misunderstanding on the subject, I assert here my views on the preparatory stages. All the advanced class-work on an author will be conducted in French, and an important part of that training will be reading the author aloud after preparation, according to the lines I shall lay down. All the homework (except the preparation for reading aloud, naturally) will be in the form of written commentary on the author studied, and this commentary will be in French. *Therefore* it is essential that the fourth or fifth year pupils shall have a correct pronunciation, a knowledge of French intonation, and the ability to understand easily French of a fairly advanced and abstract type, together with the power of writing correctly their ideas in French. I have not come across any school in which a good French pronunciation prevailed where some form of phonetic training was not in force. Nor have I found any conversational ability in any school where the general principles of the direct method were neglected. For these lessons which I am about to sketch in this and succeeding articles I must postulate a thorough course of vocabulary, grammar, and pronunciation training, that is, the pupils must be able to use the language with fair fluency and correctness, to understand what is said without trouble, and to read silently or aloud without constant reference to a dictionary.

GENERAL METHOD.—The general method is the intensive study of a text with the object of getting at the author's methods of writing and at his outlook upon life. The work comes under two heads:—(1) Prepared reading

aloud; (2) Study by the answering of a series of definite questions.

The method is explained by the teacher in the first place, a *questionnaire* being drawn up for general use, both for preparation for reading aloud, and for the commentary. Next, the passage or poem is prepared, read aloud, and commented on by individual pupils. A discussion follows or runs parallel. The point upon which stress must be laid is that the opinions expressed by the pupils, once the preparatory work is done, are entirely their own, and that no opinion is allowed to pass unchallenged which cannot be proved by direct reference to a particular passage in the author. Leading questions by the master or mistress are to be deprecated, but in the preparatory stage the work is carried out by the teacher asking questions which will extract honest opinions.

DETAILED METHOD.—I shall first give two specimens of French methods used, and then the adaptation of these methods which I have made for use in this country. This adaptation I have actually put into practice successfully with a class composed of English teachers. The first French method is taken from a detailed article in the *Revue Universitaire* of February 15th, 1911. The number was lent to me by the courtesy of Mr. Samuel Smith, of Enfield Grammar School. The second is from notes taken by a former pupil who worked with me at the Goldsmiths' College and afterwards did some useful work in Paris, at the Sorbonne. Considerations of copyright and space make it impossible for me to do more than outline the lesson in the *Revue Universitaire*. It is given in full (excepting the *questionnaire* for reading aloud), and those who are interested should certainly get it, *but not to imitate it slavishly*, as I shall show.

METHOD I.

The passage taken for intensive study is a page from the *Nouvelle Héloïse*. (*Nouvelle Héloïse*, 4^e partie, lettre 17, de "Je lui montrais de loin les embouchures du Rhône...") The master tells a boy B, to read the page. Here it is:—

Là j'expliquais à Julie toutes les parties du superbe horizon qui nous entourait. Je lui montrais de loin les embouchures du Rhône, dont l'impétueux cours s'arrête tout à coup au bout d'un quart de lieue, et semble craindre de souiller de ses eaux bourbeuses le cristal azuré du lac. Je lui faisais observer les redans des montagnes, dont les angles correspondants et parallèles forment dans l'espace qui les sépare un lit digne du fleuve qui les remplit.

En l'écartant de nos côtes j'aimais à lui faire admirer les riches et charmantes rives du pays de

Vaud, où la quantité des villes, l'innombrable foule du peuple, les coteaux verdoyants et parés de toutes parts, forment un tableau ravissant où la terre partout cultivée et partout féconde, offre au laboureur, au pâtre, au vigneron, le fruit assuré de leurs peines, que ne dévore point l'avidité publicain.

Puis lui montrant le Chablais sur la côte opposée, pays non moins favorisé de la nature, et qui n'offre pourtant qu'un spectacle de misère, je lui faisais sensiblement distinguer les différents effets des deux gouvernements pour la richesse, le nombre et le bonheur des hommes. C'est ainsi, lui disais-je, que la terre ouvre son sein fertile et prodigue ses trésors aux heureux peuples qui la cultivent pour eux-mêmes : elle semble sourire et s'animer au doux spectacle de la liberté ; elle aime à nourrir des hommes. Au contraire les tristes masures, la bruyère et les ronces qui couvrent une terre à demi déserte, annoncent de loin qu'un maître absent y domine, et qu'elle donne à regret à des esclaves quelques maigres productions dont ils ne profitent pas.

The master then asks :—

A quelle idée rattacheriez-vous vos observations ?

B. answers—*Au sentiment de la nature.*

To this the master takes exception, as being rather too general. He uses one hundred and fourteen words to do so, asking at last on what particular shade of the *sentiment de la nature* they must lay stress here.

B. *Sur la géographie.*

The master accepts the answer and amplifies it in fifty words, showing that Rousseau was ahead of his time in the teaching of geography, employing modern principles. What are they ?

B. *Toute science étant la recherche des causes, la géographie doit nous rendre compte des causes qui expliquent l'aspect d'un pays.*

A series of short questions elicits what these causes are, coming finally to the answer :—

. . . . *la géographie politique, la géographie économique.*

The master accepts this and amplifies the idea of the relations between the earth and man in eighty words. On this he suggests they should base their written commentary, showing that Rousseau was the first to describe nature as a poet and as an acute observer. He invites the class to study the passage as a piece of physical geography first. A series of questions brings out the wonderful exactness of the terms used with reference to the physical geography of that part of the Rhône Valley. Here the choice of words, the comparisons, are closely examined.

Next, by questions, the passage is studied as a piece of economical and political geography. The master takes one hundred words to introduce the questions. These bring out Rousseau's personal leanings to Republican-

ism. The set of questions then changes to an open discussion between the pupils, each setting out in turn points in this passage or in other passages of Rousseau that illustrate his political tendencies. Finally the master sums up, showing on the strength of what has been generally accepted by the class (1) what were Rousseau's beliefs with regard to the health of a nation, (2) that Rousseau sought deeply for the causes of phenomena, (3) that he had the gift of expressing these causes in vivid language. The remaining sections of the lesson are only given as notes.

A. Série de questions ou de lectures à haute voix, sur le rythme des phrases.

B. Questions relatives à la valeur des images. (Rapide révision des images déjà signalées : *crystal azuré, redans*.—Valeur poétique de celles qui suivent : pas une idée abstraite qui ne soit traduite par un mot concret ;—

Les pâturages : les coteaux verdoyants et parés de toutes parts.

Les habitants : le laboureur, le pâtre, le vigneron, etc.

C. Questions relatives au sentiment poétique.

NOTES ON THE ABOVE LESSON.—It seems to me that the master has talked rather too much from time to time. It should be remembered, however, that this was the first lesson of its kind done with that particular form (a *première* at the *lycée de Versailles*), and that more would be needed from the teacher than with a form well versed in the method. My friend Miss Hart has very properly reminded me that the ultimate object is that the pupils should ask themselves the questions and produce the result in a coherent, logical, and clear critique.

There has been in the above lesson too much "forcing of cards," too many leading questions to introduce the master's conclusions. And as I note again below, the very choice of the passage is, in a manner, a piece of special pleading.

It may be said also that the pupils display rather more general knowledge than English pupils might. This general knowledge is of the utmost value in this passage.

Again, the passage has been very carefully chosen as typical of a certain side of Rousseau's writings. This would lead to one-sided criticism if it were done as a rule. For this season I suggest that a whole short story by an eminent writer, or a series of poems, or a series of passages by the same author, chosen at random, or a play, are better material. Otherwise intellectual sincerity will be sacrificed. Generalisations based upon one passage or poem are bound to be dangerous.

It will be noticed that attention is directed in the second, third, and fourth parts of the lesson to the stylistic elements of the passage. The lesson, therefore falls into two main divisions, that which has reference to the matter (*le fond*) and that which has

reference to the form (*la forme*). These two have been very properly treated separately. Personally I favour the taking of the form first, for reasons I shall set forth when I come to my own lessons. The preparation for reading aloud lends itself peculiarly to an examination of the form and the style.

In my next article I propose to deal with the notes for *lecture expliquée* taken by my former student, at Sorbonne lectures, and with preparation for reading aloud.

ACCURACY AND THE DIRECT METHOD.

By E. CREAGH KITSON, B.A., B.-ès-L.

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I.

I AM invited by the Editors of THE SCHOOL WORLD to deal with the question of *accuracy* in modern language teaching, especially in connection with the direct method; it appears that a good deal of very inaccurate work is handed up from time to time in written examinations by pupils who are supposed to have been taught by this method; and the question arises whether this inaccuracy is to be attributed to some weaknesses in the method itself or to some other hidden causes. The matter is well worth investigation. The charge implied against those who use oral methods of language-teaching is grave; for if we try to define what we mean by scholarship, there is probably no quality that will occur to our minds sooner than accuracy; and if the direct method does not lead to accuracy, it must, equally, be divorced from anything that could be called scholarship.

Whatever else the direct method may be it is chiefly this—a method of teaching a language by teaching to speak it. The assumption is that if a boy can say a thing, he can write it; a perfectly correct assumption, for the only further difficulty that confronts him is that of spelling, and the spelling of French and German (still more of Spanish) is so regular that, if it be approached in a systematic manner, it can be mastered in a very short time by any normal intelligence. No doubt one could find exceptions to such a statement, as one can to most things: for instance, if a pupil has written, *J'ai travailler dur hier soir*, it is clear that he may have been able to say this with perfect purity of pronunciation and intonation, and perhaps *did* say it to himself perfectly correctly as he wrote it; what is indicated in such a case is rather a neglect of formal instruction in grammar—unless, indeed, as would be fairly probable in the case

of a young boy, it were due to pure carelessness. Had he written *travaillais* we should suspect a faulty pronunciation, or that the transition from phonetic to orthographic spelling had been carried out in a manner not sufficiently thorough; *travaillé, travailler, and travaillez*, are, however, all pronounced exactly alike, and if a beginner confuses them the remedy for it is stringent instruction in grammar and much dictation.

Stringent teaching of grammar is an essential part of the direct method, a point to which I shall return later; in the meantime we may assume that—apart from exceptional instances, such as that just mentioned—what a boy can say, he can write. This means that what a boy has not been able to write, he would not have been able to say. The direct method aims, therefore, at teaching the pupil to speak the foreign language; it aims at getting him to use all the forms of the language—accidence, syntax, idiom—so often, so repeatedly, with such freedom, readiness, and conviction, that there is created in the end a familiarity that will render it practically impossible for him to use any forms but the right. The part of a language that can be reduced to rules is not the most essential or living part of it; we have all had the experience of having to condemn English phrases used by foreigners, and on being challenged to give a reason have been able to give none beyond saying that no English person would have expressed himself in that manner; what guides us in such cases is familiarity with the genius of the language, called by the Germans *Sprachgefühl*, and this is acquired in the case of a foreign language by speaking it constantly, learning its nursery rhymes, singing its songs, and reading its literature, and is beyond all comparison the greatest aid to writing it correctly.

That people can in this way be taught at school to speak, read, and write a foreign language has by this time been sufficiently demonstrated; anyone who is in doubt has only to apply to some inspector of modern languages, and he will be told where to go to see it. But it is extraordinary that while there has been so much discussion about the advantages of the method, there has scarcely been any discussion at all about *the conditions under which the method may be successfully employed*. It is surely time we arrived at some definite conclusion in regard to this matter. However good the direct method may be—and I, personally, who have taught earnestly by both methods, believe that it is not only the best, but the *only* method by which a real knowledge of a language, as a living language, may be imparted; however

good it may be, it ought to be obvious even to the most unreflecting person that its mere introduction into a school cannot lead to the desired results quite independently of the conditions under which it is employed. Let us bear in mind that the pupils are to learn the language by dint of speaking it; now if we have twenty pupils in class, and the lesson lasts sixty minutes, a very simple calculation reveals how many minutes conversation each pupil may hope to get; and although the teacher knows secrets by which the precious minutes at his disposal may be multiplied by two, or even by twenty, yet there must be *some* limit to the magic he can perform.

If a headmaster puts forty boys into a class, gives that class two periods a week, and recommends the employment of the direct method, we need scarcely be surprised if, whenever they come to be examined, they write some very queer French; but to blame the method for their mistakes would be as reasonable as to blame the accepted methods of playing cricket or tennis because they do not answer when the ground is uneven. Yet in such a case as this the pupils would no doubt be described as having been taught by the direct method; and it is a fair assumption that a considerable share of the bad work of which we hear is traceable to conditions of teaching under which it is impossible to teach a foreign language by that method (or any other).

In considering the conditions of teaching, three main factors are to be taken into account: the number of pupils in the class, the amount of time devoted to the subject, and the degree of skill possessed by the teacher. If a class of forty be given five periods a week, the work will not be so good as it might be, because the class is too large; if a class of twenty be given two periods a week, the desired results will not be achieved, because the amount of time devoted to the subject is not sufficient; and if a class of twenty be given six periods a week, the results of which ardent supporters of the direct method tell us will yet not be achieved, unless the teacher be a man who knows not only how to get his pupils to talk a foreign language, *but to like talking it*.

If these facts were only realised, it would prevent a great deal of worry and misunderstanding, as well as a great deal of sloppy work; it would save many a conscientious teacher from breaking his (or her) heart trying to achieve the impossible, to say nothing of the effect on the innocent victims. (The stubborn resistance put up by the average schoolboy to our attempts to miseducate him is one of the most admirable things in the world.) No doubt there are some exceptions.

We all know that a brilliant teacher will get more work into half-an-hour than some other kinds of teachers will get into half a term; but these people are geniuses, and had better keep their achievements to themselves. Teachers of modest ability will always, like the writer, hold out for a class of twenty, in the devout hope of finally getting no more than twenty-five; and insist on an absolute minimum of five periods a week, much preferring six, and always ready to accept more.

There are many other circumstances which may interfere with the successful employment of the method, two of which ought at least to be mentioned. The first is the system of term entries, sometimes even of half-term entries. It is a bad system, though it is difficult in the present circumstances of English education to know how to avoid it altogether; it is sometimes dealt with by means of "shell" forms. It is only necessary to point out that where it exists to any extent it is sure to be the cause of much confusion, with the result that the best-laid schemes of the industrious teacher "gang aft a-gley." In the second place, the educational authorities of this country have never properly faced the question of how many hours' work a week the direct-method teacher can normally and efficiently perform. Men (and women) are still often asked as a matter of course to do twenty-six hours' teaching a week, sometimes more; and this apart from the fact that we frequently undertake a great deal of out-of-school work from which the continental teacher is entirely free. There is nothing gained by making such unreasonable demands; in such circumstances a man will either scamp his work, or, if he be a conscientious person, ruin his health in an attempt to accomplish what he should have never been asked to do. A Frenchman who specialises in English is only asked to do fifteen hours' teaching a week; I know some who only do twelve.

Those who introduced the direct method into England, being enthusiasts and very much in love with the system they advocated, were loth to admit that there were any limits to what it could accomplish. I feel strongly that it is time some brutal truth were spoken on this subject. It is a practical problem, and we should deal with it as such. As soon, however, as it is admitted that there are limits to what may be achieved under the direct method, it will certainly be suggested that there are circumstances—as, for instance, where the classes are necessarily very large, or where a sufficient allowance of time cannot be given to the subject—in which it would be more advantageous to employ the old translation method. This may provide some persons

with a suitable field of inquiry; it is certainly a wide field, if not a fruitful one. Let me say at once that it is a subject of inquiry on which I have no intention whatever of entering; I am concerned for the moment with the practical question of how languages may be taught, not with the various ways in which they may *not* be taught.

This problem of the teaching of languages is making itself felt. Every youth who takes to commerce—to say nothing of other callings—soon realises that it is either desirable or necessary to acquire a knowledge of at least one foreign language. In many cases he devotes a portion of his scanty leisure to the attempt, forsaking his gymnasium or swimming club for a School of Languages—weird institutions that have sprung up on all sides to exploit the occasion, meeting us at every hand's turn with insistent offers to teach us French in three months (or is it three weeks?). He may even spend his fortnight's holidays in Boulogne, where he will learn the names of some French drinks and gain considerable familiarity with the phrase, *Rien ne va plus!* The part of the community which understands the problem least are the parents. To do them justice they are eager enough that their children shall learn foreign languages, but for the most part they have a profound distrust of "the French they teach at school"—perhaps not without reason. Having no kind of confidence in the school, they fall back on all kinds of other plans. They exchange children with foreigners—mostly with Germans, since French people are not to be trusted. They take a cottage in Normandy for the summer, where the children sometimes look at French people, but invariably talk English to their parents or amongst themselves. Or they send their son away to a foreign country for a year, generally with disastrous results to his general education and no kind of brilliant result at all with regard to his progress in the foreign language.

I remember well the case of a boy who was treated in this manner: he was taken from school and sent for a year to Germany, where he attended a *Gymnasium* and lived with one of the masters. At the end of the year he came back to us with an exceedingly faulty pronunciation, in which there was scarcely one pure German sound; speaking with a certain measure of fluency, but rather incoherently, the most incorrect German that one could well imagine. His class-mates, who had in the meantime been learning the language at home by the direct method, spoke it and wrote it far better than he; judged by every standard they had a better knowledge of the language, and they proved it in public examination.

And in the interval all his other subjects had got into such a tangle that he was the despair of every master who had to deal with him.

It would be well if parents could be brought to realise that it is in our secondary schools that modern languages must be taught, if they are to be taught; and that the schools *can* teach them. But they cannot teach them under impossible conditions. If the British public wants languages taught it must pay for them; and it is for us schoolmasters, who know our job, to draw up the estimate.

In dealing with the question set me, it has seemed necessary to indicate clearly at the outset that a considerable share of the alleged bad work must be due to the fact that attempts are often made to teach languages in circumstances in which experience has shown us that it is impossible to succeed. To this cause we may attribute, and wipe off the slate, whatever percentage of the mistakes we like; those that remain are supposed to be the work of pupils who have been accustomed to get a lesson about five times a week, and never heard of classes of forty. With this part of the problem I shall deal next month.

PERSONAL PARAGRAPHS.

MISS SLATER, headmistress of Paddington and Maida Vale Girls' High School, died suddenly at Haslemere on March 15th. Miss Slater, who was a brilliant classic, became headmistress of the school that now mourns her loss when it belonged to the Girls' Public Day School Trust; it was taken over by the London County Council at the same time as Highbury Hill School.

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MR. PERCY COLEMAN, of the Northern Polytechnic, is going to South Africa to advise upon technical education. Mr. Coleman formerly held masterships at Dame Owen's School, Islington, under Mr. Easterbrook, and at Mill Hill School under Sir John, then Dr., McClure. He was for many years closely associated with the work of the Assistant Masters' Association, serving on the Executive and on the Legal Committees. Mr. Coleman, after he took up his work at the Northern Polytechnic, became an active member of the Association of Teachers in Technical Institutions, of which Association he has recently been Chairman.

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MISS MABEL LIDDIARD, a mistress at Cheltenham Ladies' College, has been appointed headmistress of the St. Albans High School for Girls in succession to Miss H. A. Ashworth who has resigned.

THE 'Council of the Girls' Public Day School Trust has appointed Miss F. H. Johnston, second mistress at Birkenhead High School, to be headmistress of the same school in succession to Miss Baines who has just resigned. Miss Johnston took Final Honours in Modern Languages at Oxford.

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MR. R. E. MONTAGUE has resigned the headmastership of the Freeman's Orphan School at Brixton owing to ill-health. Mr. Montagu has held this appointment, which is in the gift of the Corporation, since 1890.

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THE REV. R. H. COUCHMAN, the Principal of the Exeter Diocesan Training College, has been appointed headmaster of the St. Paul's Choir School.

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MR. H. E. CLARKE, a master at Winton House School, Winchester, has accepted the headmastership of Charters Towers School, East Grinstead. Mr. Clarke was educated at Repton and at Oriel College, Oxford; he has been at Winton House since 1906.

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MR. JAMES DAVIS, who has recently become Principal of Monkton House School, Cardiff, was formerly a lecturer at Jesus College, Oxford, House master at Reading School and Organiser of the evening technical classes at the County School, Merthyr Tydfil.

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MR. G. E. HARDING, of Southport Modern School, is going to Ceylon as headmaster of All Saints School, Galle. Mr. Harding was educated at Winchester Training College, took a degree in Arts at the University of London in 1904 while a master at the Secondary School, Brighton; he left Brighton for Southport in 1913.

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MR. W. V. P. HEXTER, of Warwick School, has been appointed headmaster of the Grammar School, Crewkerne. Mr. Hexter took third class honours in History at Oxford, spent six years as a master at Sandwich Grammar School, and five years at the King's School, Ely, before going to Warwick in 1909.

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MR. F. H. MOULD, of the Technical College, Swansea, has accepted the headmastership of the Storey Institute, Lancaster.

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MR. JAMES HEBER TAYLOR died suddenly at Cambridge on April 5th. Mr. Taylor was a native of Bristol and was educated at the Grammar School, Wakefield, where his father was headmaster. He went to Queen's Col-

lege, Oxford, gained a first class in both classical and mathematical moderations and a second in Lit. Hum. He afterwards went to Cambridge where he was a Senior Optime in the Mathematical Tripos and was placed in the first class of the Classical Tripos. On leaving Cambridge Mr. Taylor became classical master at Mill Hill School and subsequently headmaster of Brewood School, Staffordshire. Later he settled at Cambridge as a private tutor. He was a graduate of the University of London, as well as of the two older universities, in this case in science.

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MR. ROBERT HARRIS, for thirty-five years head of the art department of St. Paul's School, died on April 7th, after a painful illness. Mr. Harris was a native of Nottingham, was educated at the Nottingham High School, and came to St. Paul's from Manchester Grammar School in 1879, three years after Mr. F. W. Walker, the late High Master came to it from the same school. He took a great interest in various branches of the school's work other than that which was particularly his own. Outside the school, too, he had many interests; he was one of the founders of the Society of Notts Men in London; he was a well-known Freemason; and he was also an alderman of the Fulham Borough Council of which borough he had been mayor.

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MISS LILLA B. STRONG, who died at Wendon on April 8th, has earned lasting fame as an educator of girls. Like Miss Beale, under whose influence she came early in her career, she believed that all real education must be based on religion, and consequently all her work was done in schools which were founded for education on definite Church lines. Her school life falls into three parts: the first she spent in South Africa, where she worked in schools at Bloemfontein, Kimberley and Grahamstown. During the second, Miss Strong was headmistress of the Church of England High School, Baker Street, and here her most important work as an educationist was done. She was an excellent organiser, and inspired those whom she placed at the head of departments with her own enthusiasm. The music of the school she took under her own special care. Her keenness and devotion to duty, her scorn of slackness and intense earnestness, her courage and cheerfulness, have left a lasting impression on all who knew her.

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THE third period of her professional life began in 1905 when, at the request of the Bishop of Lahore, she became headmistress

of the Auckland House School, Simla. In three years she accomplished more than had appeared possible and the Panjab Government made a large grant to carry out the reforms she saw to be necessary. Miss Strong came home in 1908, but took no new post; she showed a deep and active interest in social questions relating to the welfare of women.

ONLOOKER.

THE PROGRESS OF EDUCATION IN INDIA.

THERE has just been published the official report on the progress of education in India during the period 1907-12, this being the sixth quinquennial account of the educational situation in that stupendous country, with its million square miles of territory and 255 millions of people. On the whole, the title of these two volumes appears to be very well justified. It is a tale of "progress," but of slow progress, and it is pretty clear, on the whole, that the slowness is more remarkable than the progress. Yet, considering the vast range and complexity of the problem, and the immense difficulties due to want of funds and to the natural peculiarities of the people, what has been achieved in recent years yields solid grounds for faith in the future. In the last decade, the total expenditure from all sources on education has risen to the extent of 75 per cent.; in the last four years the number of persons under some sort of instruction has increased by 20 per cent.; the crushing weight of examinations has been appreciably lightened; and a beginning has been made in the reform of university and college organisation. Besides, as the report pertinently remarks:

Criticism based on imperfect analogies is often unjust. It is not just, for instance, to compare Indian systems still for the most part in their infancy with the matured systems of the modern Western world, or to disregard the influences of social organisation and mentality. Again the common charge that the higher education of India has been built up on a slender foundation of popular education, and that its teaching agency is inefficient, is one that might have been levelled against every country in Europe at some period of its history. India is now passing through stages taken by other countries in their time.

One is often reminded, in fact, when reading what these volumes have to state about schools and pupils in India, of the condition of education in England somewhere about 1850.

The passages in which the educational policy of the Government of India is laid down leave little to be desired in point of breadth and enlightenment. The formation

of character is put forward as the chief aim, and we note that, though the Government is of course bound to maintain a position of complete neutrality in matters of religion, yet the most thoughtful minds in India are said to lament the tendency of existing systems of education to develop the intellectual at the expense of the moral and religious sides of human nature. Other cardinal principles of policy are stated thus:—

(1) The steady raising of the standard of existing institutions should not be postponed to increasing their number when the new institutions cannot be efficient without a better-trained and better-paid teaching staff.

(2) The scheme of primary and secondary education for the average scholar should steadily, as trained teachers become available, be diverted to more practical ends, *e.g.*, by means of manual training, gardening, outdoor observation, practical teaching of geography, school excursions, organised tours of instruction, etc.

(3) Provision should be made for higher studies and research in India, so that Indian students may have every facility for higher work without having to go abroad.

Leaving these general aspirations, the report proceeds to deal in turn with the actual condition of each class of educational institution, beginning with the universities. Of these there are five, each of which is, in the main, the examining body for a number of affiliated colleges, numbering, in the case of Calcutta, as many as fifty-six. The Indian universities were, in fact, founded on the model of the University of London, and they have been subjected to the same kind of critical scrutiny which in this country has led to the foundation of independent local universities. But in India things do not move so fast. The Indian Universities Act of 1904, which excited strong opposition, gives a new lease of life to the principle of federal universities. The report puts quite fairly the opposite principle of local universities:—

A local university is more adaptable to local ideals, and can more easily provide for local requirements. The numbers are more manageable and allow of greater individual attention to the students on the part of the professors. It can more easily fulfil teaching as well as examining functions. It can more easily be made residential, thus ensuring that the students should come under the influence of the university throughout their college life, and not only in the lecture room. The local university can appeal more strongly to the benevolence of local men. The peculiar danger it is subject to is the tendency to the lowering of university standards, but this can be guarded against by constant watchfulness on the part of government and public opinion.

The inherent defects of the present university system are fully acknowledged, and, in-

deed, what has failed in England could scarcely remain unchallenged in India. Yet, for the present, the dangers of lowered standards, and of neglect of small outlying colleges, have prevented even the better colleges from striking out new lines and "finding themselves." As for the affiliated colleges, they have grown both in numbers and in efficiency, their weak point being their striking inequality in the things that go to make up truly collegiate life, including residence and recreation.

Turning now to the secondary schools, we find that the vast majority are under private management, a few being managed by Government, by local bodies, and by native States respectively. One of the most interesting features of the secondary schools is the great variety of discipline observable in them.

In Madras, discipline is well maintained. The introduction of the school leaving certificate has put into the hands of the headmaster the power of making remarks about character. In Bombay, Government schools have improved in discipline; in private schools it is not up to the mark. "Not that the boys are given to active indiscipline; there have, in fact, been very few instances of such a thing during the past five years. But discipline is generally lax and the boys are to a great extent left to themselves; the school has little influence over them, and is regarded simply as a place where instruction in English and other subjects required for the matriculation examination is given." This reveals a basic fact regarding much of secondary instruction as understood in India. Another important matter is the slender control which parents often exercise over their sons. One inspector complains it is the boys and not the parents who frequently choose the school they shall attend. The Bengal report says that home influence is too often actively hostile to the schoolmaster's efforts.

As regards methods of teaching, the most extraordinary phenomenon of the secondary school is the use of keys and "cribs."

Teaching method in India (as in some other countries too) suffers from the lack of sufficient training facilities and the tyranny of the external examination. Subsidiary causes that tell against improvement are the poor pay attaching to the post of teacher and the particularly unalluring prospects in privately managed schools, the consequent habit of regarding the profession as a stepping-stone to other things; the necessity of attracting pupils to schools that depend mainly on fees by the adoption of methods purely designed for examination results, the slender control exercised by the inspecting staff and their total exclusion from any voice in the final test. A deplorable symptom is the prolific output of "keys." In Eastern Bengal and Assam alone 144 keys were produced during the quinquennium. These are not limited to English works, but attempt explanations of vernacular text-books as well—generally a string of synonyms. Their number and their high price indicate their popularity. Even more deplorable is the fact that in many schools of

certain provinces the teachers do not suppress the use of these works—nay, it is to be feared, even encourage them. The writer cannot refrain from a personal reminiscence—the shock he received on entering a privately managed school in Eastern Bengal to find that not only all the pupils of a certain class, but the teacher himself, were studying the daily lesson from keys to the text-book; neither teacher nor pupils had ever purchased or probably seen the original work; it was considered sufficient if the key was memorised. This an extreme instance.

To turn to a more hopeful theme, our modern language teachers will be interested to know that in the Panjab the direct method of teaching English has been tried with success. In a monograph on this subject, one of the inspectors says:—

I have been astonished how readily untrained men have developed into good teachers, and how successful they have become after a little instruction from me and regular supervision from headmasters. Another point, too, deserving of mention, is that boys trained on this method have no shyness in trying to express themselves. They have learnt by speaking and not by reading and translation, and so have come to think that to speak is the natural thing to do. Lastly, the practical result of the method is already this, that boys who leave school after the fifth primary class, if they have been well taught, have a commercial knowledge of English, in that they can speak with some readiness, can understand what is said, and can write simply.

This, however, appears to be one of the brightest parts of a picture which can scarcely be described as other than gloomy. Here, for instance, is a graphic description of a familiar type of anglo-vernacular school in Bombay:—

The school is approached by a narrow lane leading from a noisy congested road in the bazar. The entrance is by a door between two shops opening on to a very steep staircase which one climbs with the aid of a rope, emerging through a hole in the floor to a class-room.

Here are seated thirty or forty boys on backless benches without writing desks. Each boy has on his knees an enormous pile of books, which he grips with his hands, and he huddles himself up against them for support, when not writing. A blackboard, a small cupboard, the master's chair and table complete the equipment. The room may be large enough to afford each boy the requisite number of cubic feet of air, but it is close, on account of the surrounding buildings, even in cold weather, and noisy, through the traffic in the streets. No attempt has been made to relieve the deadening monotony of the whitewashed walls by pictures, charts, or specimens of work. The room is dingy, depressing, and enervating.

And if this description of the material equipment is not reassuring, neither is the account of the school's mental activity:—

When the class is dismissed, ask the teacher how long it has been doing examples in interest. He answers, for three or four months. Ask him why nearly every boy is unable to spell the word "interest"; he replies that he has told them how it is spelt. Ask why he does not insist on correctness, why the lines ruled for guidance are ignored, except by those who seem to think that English is written below the line, like Marathi; why the very formation of some English letters is not known by certain boys; he murmurs that he has no time to examine all the books and check mistakes. Ask him why he did not first teach every boy the correct spelling of interest and per cent.; he says he could not finish the course if he wasted time in that way at the beginning. Look at the blackboard and inquire whether he could not write the example there; he says he does sometimes, but forgot on this occasion. Call for the copy books to see how writing has been taught and why malformations of English letters are still prevalent. You will then find that boys who have been writing English in notebooks for months are doing pothooks and strokes in their copy books. The explanation of this is that a neat copy book is to be prepared for the annual inspection, and boys are not allowed to begin to write strokes or portions of letters in their copy books until they have been writing complete letters and words elsewhere for some time. Ask if the strokes and pothooks are not intended for initial training; the reply is that he has only been in the school for two months, that he has never taught before, and that his attention has never been drawn to such things by the headmaster.

Evidently the secondary-school system of India is as yet far from a respectable degree of efficiency. The type described above is far too common.

Primary education is defined as the instruction of the masses through the vernacular in such subjects as will best fit them for their position in life. It is mainly carried out in vernacular primary schools, the teaching of English in primary schools being strictly exceptional. There has been, as compared with previous periods, a gratifying increase in the number of schools and pupils during the quinquennium here reviewed, but this statement has to be taken in connection with the fact that less than a quarter of the boys of school-going age are even now to be found at school. An interesting glimpse is afforded of what is meant by a primary school, so far as material accommodation is concerned:—

The schoolhouse may be a substantial building, an open shed, a hired verandah, or the shadow of a tree. There is a certain body of opinion which favours the last two and deprecates expenditure on building material. The trouble about a hired verandah is that its shape, long and narrow, is totally unsuitable for teaching purposes; the hired room or house generally has the same defect, with that of insufficient ventilation in addition. The tree is attractive—so long as the

weather is still and sunny. When the hot wind blows, burning and laden with clouds of dust, or when tropical rain is falling, it becomes untenable, and at no season can the children be surrounded with pictures, charts, blackboards, and the other appurtenances that facilitate instruction and stimulate thought. The problem is to hit the happy mean—a building which shall be cheap and sufficiently large to render the conditions of light and air congenial to health, cheerfulness, and easy study. The main obstacles are lack of funds and lack of agency.

As we all know, the pivot upon which an educational system really turns is the teacher. Given an efficient teacher, working under reasonably liberal conditions of service, not much can go wrong. This lesson has been slowly learnt in England. In India it has not yet been learnt, as the following passage from the chapter on primary education will show:—

Lest much of this chapter threaten to depress the reader, it may be said at once that there are thousands of admirable primary schools in India, where the instruction given is effective and suitable. Were all like this, and could the total number be multiplied several times, all would be well. But the mere figures of training and bare educational qualifications show (what is fully corroborated by experience) that the teacher has too often been driven to his profession by inability to enter any other, has little or no capacity for the discharge of his duties, and shows but faint interest in his work. Better pay, careful training, and effectual supervision are necessary to bring the bad schools into line with the good schools.

The chapters of the report which bear upon technical and professional education, and the training of teachers, are for the most part stories of hopeful and creditable beginnings. Other chapters deal with the education of Europeans, of the backward classes of Indian society, of the physically and mentally defective—and of girls! The desire for the education of boys does not extend to the case of the girls, because of the conservative instincts of the Mohammedans, the system of early marriage among the Hindus, and the rigid seclusion of women which is characteristic of both.

These causes prevent any but the most elementary education being given to girls. The lack of trained female teachers and the alleged unsuitability of the curriculum, which is asserted to have been framed more with a view to the requirements of boys than those of girls, form subsidiary reasons or excuses against more rapid progress. To these difficulties may be added the belief, perhaps more widely felt than expressed, that the general education of women means a social revolution, the extent of which cannot be foreseen. "Indian gentlemen," it has been well said, "may thoroughly allow that when the process has been completed, the nation will rise in intelligence, in character, and in all the graces of life. But they are

none the less apprehensive that while the process of education is going on, while the lessons of emancipation are being learnt and stability has not yet been reached, while, in short, society is slowly struggling to adjust itself to the new conditions, the period of transition will be marked by the loosening of social ties, the upheaval of customary ways, and by prolonged and severe domestic embarrassment." There is, it is true, an advanced section of the community that is entirely out of sympathy with this view. In abandoning child-marriage they have got rid of the chief obstacle to female education; and it is among them, consequently, that female education has made proportionately the greatest progress in quantity and still more in quality. But outside this small and well-marked class, the demand for female education is much less active and spontaneous. . . . In fact, the people at large encourage or tolerate the education of their girls only up to an age and up to a standard at which it can do little good, or according to their point of view, little harm.

The ingrained prejudices of a race can be overcome, if at all, only very slowly, and so there is not much to be said at present about the education of Indian girls and women. As for the other sex, the total impression made upon one by this exhaustive report is well expressed by one of the officials, who says:—

There are departmental rules, departmental instructions and helpful books in plenty. For the present the great need of Indian schools, apart from the financial question, is a new spirit, a new interpretation of the word "education," and a new attitude towards it on the part of teachers and parents which will eventually lead to a new outlook upon life for the pupils.

GALILEO, TORRICELLI, AND PASCAL AND THE PRINCIPLE OF THE BAROMETER.

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THE idea of atmospheric pressure and its measurement by the barometer originated, as everyone knows, in the failure of a common pump to raise water from a greater depth than some thirty feet. This failure was referred to by Galileo (1564–1642) in one of his Dialogues on mechanics published in 1638, and some attempt was made towards explaining it.

Torricelli (1608–1647), who was Galileo's pupil and successor, considering the reason for the failure to be the limit to the pressure of the air, thought to test the truth of his view by replacing water with mercury in order to render the experiment more convenient. At his suggestion the experiment was actually done by Viviani, Torricelli's assistant, in 1644. The result was not published by Torricelli,

who was busy with mathematical work at the time, but he wrote an account of the experiment to his friend and former master, Ricci.

Torricelli's explanation of his discovery was confirmed by experiments due to Pascal (1623–1662) and carried out in 1648. It is interesting to note that at this time Pascal was but 24 years of age.

I.—GALILEO.—From 1634 to 1636 Galileo was engaged on his "Dialogues concerning the Two New Sciences," the subjects considered being cohesion and resistance to fracture and motion. Owing to his condemnation by the Inquisition in 1633, Galileo experienced great difficulty in publishing these Dialogues, but eventually they were issued at Amsterdam in 1638.

In the course of the first Dialogue, Galileo has suggested a method of measuring the "force of a vacuum" by finding the weight to be suspended from a cylinder of water in order to separate a piston or plunger from the water, the cylinder being placed mouth downwards. It was supposed that water was a substance of which "the Parts resist a Separation on no other Account but on that of a Repugnance to a Vacuum . . . as has been at large demonstrated in a certain Tract by our Academic. . . ." The Dialogues are carried on between three persons, Salviati, Sagredo, and Simplicio, and the first named has suggested the experiment just mentioned.

Sagredo: Well, this Discourse has taught me the Reason of an Effect that I have for a long time wonder'd at, and never till now could understand: 'Tis this, I have observed a Cistern, wherein, to draw out the Water from it, there was made a Pump, by the Help whereof, I thought but vainly enough, may be, might be raised the same or a greater Quantity of Water with less Labour, than by the ordinary Buckets; this Pump had its Sucker and Valve on high, so that the Water was raised by Attraction and not by Impulse, as it is in those Pumps which work below. This drew the Water in great Plenty, whilst the Water was at a certain determinate Height in the Cistern; below which if the Water subsided, the Pump was useless. The first Time I observed this, I thought the Engine had been broke; I sent for a Workman to mend it, who told me, that this defect was owing to nothing but to the Water's being too low, and thence not suffering itself to be raised to such a Height; and he added, that neither Pump nor any other Machine which raised Water by Attraction, could ever raise the Water a Hair's Breadth more than 18 Cubits; and let the Pump be big or little, that this is the utmost limited Height. Now although I know that a Rope, a wooden Staff, and an Iron Rod might be so lengthen'd, that by lifting them upright, they would break by their own Weight; yet I was so silly, as never till now to consider, that the same Thing would much more easily happen in a String or Thread of Water; and what else is that

which is attracted within the Pump, but a Cylinder of Water, which being more and more prolong'd, at length arrives at that Term, beyond which if it be elevated, it, like a Rope, is broke by its own excessive Weight?

Salviati: 'Tis exactly as you say; and since the same Height of 18 Cubits, is the prefix'd Term to which any Quantity of Water can sustain itself, be the Pump broad or narrow, or even no thicker than a Straw; whenever we weigh the Water contain'd in 18 Cubits of Pipe, be it broad or narrow, we shall find the Value of the Resistance of a Vacuum in Cylinders, of any solid Matter whatsoever, of the same Thickness with the Bore of the proposed Pipes. (Weston's Translation, London, 1734, 4^o, p. 24.)

This extract clearly shows that Galileo was unaware of the true reason for the water rising in a pump. Yet he was well acquainted with the fact that air had weight, and, indeed, later on in these Dialogues gives three methods for determining the actual value for a known volume.

II.—TORRICELLI.—Torricelli having announced his discovery of the true explanation of the failure of the pump in a letter to his friend Ricci, the latter replied raising certain objections which were answered by Torricelli in a second letter. These three letters were all written in the year 1644. They were published at Florence in 1663 in a pamphlet under the title, "Della Vera Storia della Cicloide, e della Famosissima Esperienza dell' Argento Vivo," written by one of Torricelli's pupils to defend the claims of his late master to the discovery of the barometer principle. This pamphlet has become very rare, only two or three copies being known. A reprint of the letters (1893) forms one of a series, "Neudrucke von Schriften über Meteorologie," etc., issued in Berlin. The letters were described in the preface to Torricelli's "Lezioni Accademiche," published in 1715. It may interest readers to know that this volume contains a fine portrait of the author.

Torricelli to Ricci.

... I have already informed you that I was making some scientific experiments concerning the vacuum, not simply to make a vacuum, but to make an instrument which should show the changes of the air, now heavier and denser, now lighter and more rare. Many have said that it (a vacuum) is impossible, others that it is possible, but with opposition on the part of Nature, and with difficulty; but I do not know that anyone has said that it is possible without difficulty, and without opposition by nature.

Torricelli points out that the weight of the air is sufficient to account for the resistance experienced in making a vacuum. The atmosphere was thought to extend to a height of some fifty miles, an estimate he considered too

high judging by the weight of air as determined by Galileo.

"We have made many vessels of glass like the following marked A and B [the former an ordinary straight sealed tube, the latter a tube with a bulb at its upper end], big ones, two cubits long. These being filled with mercury, then the mouth stopped with a finger and turned upside down in a vessel where there was mercury, C [a vessel resembling a fish bowl] were seen (partly) to empty themselves, but the neck [or portion of the tube] remained always full to the height of a cubit and a quarter and a little bit over. . . . That force which controls the mercury against its natural tendency to fall back, has hitherto been thought to be within the vessel AE [the space now known as the Torricellian vacuum] either of vacuum or of some very rarefied substance [the *funiculus* of some writers], but I maintain that it is external, and that the force comes from without. On the surface of the liquid which is in the basin there presses the weight of fifty miles of air, but what a marvel it is if in the vessel CE [the whole tube] where the mercury has no inclination nor any repugnance, because there is none, it (the mercury) enters and there raises itself to such a height that it equilibrates with the weight of the external air, which presses on it."

Water would rise to a height of 18 cubits by reason of its density being so many times less than that of mercury.

"The reasoning was confirmed by the experiment made at the same time with the two tubes A and B [the former having the bulb at its upper extremity], in which the mercury maintained itself always at the same level, an almost sure sign that the virtue was not within, because the vessel AE [the bulb] would have had more power, where there was more of the rarefied attracting substance, and much more powerful on account of the great rarefaction than in the very small space B" [in the plain tube].

Torricelli says he has been able to show that the pressure of the atmosphere explains many experimental results:—

"I know that many objections will occur to your excellency, but I hope that on thinking them over you will overcome them. I have not been able to succeed in my chief aim, to ascertain when the air was denser or rarer, because the level changes for another reason, which I had not thought of, that is through heat and cold, and very sensitively, as if the vessel AE [the bulb] were full of air. And I humbly reverence you."

Florence, June 11th, 1644.

RICCI'S OBJECTIONS.—On the 18th June, 1644, Ricci, in reply to this letter, wrote expressing his admiration of the way Torricelli had carried out his experiments and of the simplicity of his explanations. He agreed that there was no necessity to invent another reason (Nature's horror of a vacuum) if the

downward motion (gravitation), the universal ruling cause of the world was sufficient. He was ready to accept the explanation offered by Torricelli if one or two objections could be removed, "as I know you will be able to do easily." These objections occurred to Ricci because he did not distinguish between the weight of the air and its pressure, the former acting, of course, vertically and producing the latter in all directions. He suggested covering the mercury reservoir and isolating the air above the mercury from the outside atmosphere, pointing out that in this case the mercury column could not be said to be maintained by the weight of the atmosphere, which would be borne by the cover. He also mentioned the fact that great difficulty was experienced in withdrawing the plunger of a syringe, no matter how the instrument was held. Further, a body immersed in a fluid opposed itself to an equal volume of the fluid, whereas in the case of the mercury column it was presumed to balance the total weight of the atmospheric column. He excused himself for offering these objections, which, being removed, he would become as strong in defending his explanation as he already was in admiring his discoveries.

Toricelli's Reply to Ricci's Objections.

I think it superfluous to reply to your three objections concerning my fancies as to the apparent resistance to making a vacuum, for I hope the solution will have been found by you since the letter was written. As to the first, I answer that when you have placed a cover over the mercury which is in the vessel, the mercury in the tube will remain elevated in the tube as at first, not because the aerial sphere presses on it, but because that in the basin will not be able to give way. If then you use this cover so that it encloses some air, I demand that this air shut up inside may be condensed to the same degree as the external air, and in the same degree the mercury will sustain itself as at first according to the example with wool I shall give presently. But if the air which your excellency shall enclose be more rarefied than the external (air) then the elevated metal will descend somewhat. If it could be infinitely rarefied, *i. e.*, a vacuum, then the metal would fall entirely, provided the space enclosed could hold it."

Here Torricelli shows that we may imagine a stiff plate thrust sideways through a cylinder of air, or wool, under compression, without lessening the pressure on the base of the cylinder. But we cannot say that the base supports the weight which, placed on the upper end of the cylinder, has produced the compression.

Your excellency must take care that I do not weary you. As to the second (objection). There was once a philosopher who seeing a little pipe put into a cask by a servant, challenged him, saying that the wine would never come (out), for the reason that nature (worked) by weight and pressure downwards, and not

horizontally and sideways; but the servant replied that if liquids did gravitate downwards by nature when pressed in any way, and gushed in all directions, yet [they moved] upwards provided they found any place to go to, *i. e.*, places such that the resistance offered was less than that of the liquid itself. Finally, your excellency, a decanter being placed entirely in water with the mouth downwards, and then the bottom pierced so that the air can escape, you will see with what force the water moves from below upwards to fill the bottle.

Take care your excellency that this does not weary you.

The third objection does not seem to me superfluous, it is certainly less valid than the others, though being taken from geometry appears to be stronger than the others. It is true that a body immersed in water opposes only so much as is equal to its own bulk; but the metal sustained in the tube does not seem to me, if one can say so, either immersed in water, air, glass, or *in vacuo*; one can simply say that it is a fluid body, free to move, having a surface confined by a vacuum or *quasi* vacuum, which weighs nothing; the other surface being confined by air exerting pressure by means of so many particles of air heaped together, and therefore the surface not pressed ascends, being driven up by the other, and rises so much until the weight of metal raised comes to equalize the weight of the air pressing on the other part.

Toricelli then describes a J tube, the shorter limb of which is expanded towards its open end. Mercury being poured into the tube, the levels in the two limbs are the same; and if the short and wide limb be immersed in water to a certain depth, the mercury in the longer limb will rise one-fourteenth part of this depth of immersion. The additional mercury raised in the long limb does not oppose all the water above the widened short limb,

And in this case your excellency knows that it does not consider the width and bulk, but only the perpendicular height and the weight in kind—not the absolute weight.

But perchance I have said too much. If I could talk to you of these things perhaps you would have been better pleased. . . .

June 28th, 1644.

III.—PASCAL.—Pascal's experiments on the pressure of the atmosphere are described in a small book published at Paris in 1663, having for title "Treatise on the equilibrium of fluids and of the weight of the air, containing the explanation of the causes of divers effects of a kind which had not been at all well known until now, and particularly of those which had been attributed to the horror of a vacuum." In the preface we are told that this book forms the surviving portions of a large treatise which Pascal had written some years before his death, but had not published.

The news of Torricelli's experimental results reached France in a letter written by Ricci to Mersenne, but the account was so vague that the matter did not seem to Pascal to be settled. The difficulty of getting glass tubing prevented the repetition of Torricelli's experiment until 1646, when Pascal and Petit performed it at Rouen.

The portion of this rare little book with which we are now concerned has a title page arranged thus :

RECIT
DE LA GRANDE

EXPERIENCE DE L'EQUILIBRE
DES LIQUEURS.

PROJECTÉE PAR LE SIEUR B. PASCAL,
*pour l'accomplissement du Traité
qu'il a promis dans son abrégé
touchant le vuide.*

Et faite par le Sieur F. P. en une des
plus hautes Montagnes d'Auver-
gne, appelée vulgairement le Puy
de Domme.

When I composed my "abrégé" under the title, "New Experiments concerning the Vacuum," where I had employed the maxim of the Horror of the Vacuum, because it was universally received, and that I had no convincing proofs as yet to the contrary, there were some difficulties which made me doubt the truth of this maxim, to enlighten which I began to consider the experiment described here, which gave me a clear understanding of what I should believe.

I have called it the great experiment on the equilibrium of liquids, because it is the clearest of all which could be made on the subject in this that it exhibits the equilibrium of air with mercury, the one the lightest and the other the heaviest of all known liquids.

But because it was impossible to carry it out in this city of Paris, that there are very few places in France suitable for the purpose, and that the town of Clermont in Auvergne is one of the most convenient, I asked Monsieur Périer, Councillor in the "Cour des Aydes d'Auvergne," my brother-in-law, to do it there for me. My difficulties and the nature of the experiment will be seen from my letter which I wrote to him at that time.

PASCAL TO PÉRIER.—Apologising for troubling him, Pascal goes on to describe the current views concerning the vacuum :

Some maintain that Nature simply abhors a vacuum, others that she cannot tolerate it. I have laboured in my Treatise on the Vacuum to destroy this opinion, and I think that the experiments I have described there suffice to show clearly that Nature can allow (a vacuum) and permits indeed a space as large as we please void of all materials as well of those known to ourselves and those distinguished by our senses. I am now examining the truth of the first (hypothesis), to understand that Nature abhors a vacuum, and seeking for experiments which show

whether the effects attributed to this horror may be truthfully attributed to it or whether they should be (attributed) to the weight and pressure of the air; for to speak freely, I find it difficult to believe that Nature, which is in no way alive or sensible, can be susceptible to horror, since the passions presuppose a soul capable of feeling; and I incline much more to ascribe all these effects to the weight and pressure of the air, for I consider them simply as particular cases of a universal proposition of the equilibrium of fluids which must constitute the greatest part of the Treatise which I have promised; this is not to say that I did not have these ideas when I wrote my "abrégé," and yet wanted decisive experiments. I did not venture then, nor do I now, to depart from the maxim of the horror of a vacuum, and I have even employed it in my "abrégé" having no other intention but to combat the opinion of those who maintain that a vacuum is an impossibility and that Nature would rather suffer destruction than the smallest vacuum. In fact I think that we should not depart lightly from maxims received from ancient times unless obliged to do so by undoubted and irresistible proofs; but in this case I hold that it would be extremely weak to make the least scruple about it, and that we should have more veneration for evident truth than obstinacy in favour of received opinions.

Pascal then refers to an experiment in which one Torricellian tube was placed inside another, and says that this clearly shows the pressure of the air to be the true cause of the result obtained.

But because the supposed horror of a vacuum also explains the experiment "assez probablement," he still keeps to the ancient maxim and looks for a more decisive experiment.

I have thought of one which shall suffice by itself to afford us the light for which we are looking, if it can be carried out accurately.

C'est de faire l'expérience ordinaire du Vuide plusieurs fois en mesme jour, dans un mesme tuyau avec le mesme vif argent, tantost au bas, et tantost au sommet d'une montagne élevée pour le moins de cinq ou six cent toises—to see if the height of the mercury suspended in the tube should be found the same or different in the two situations. You already see doubtless that this experiment is decisive of the question, and if it happens that the height of the mercury is less at the top than at the bottom of the mountain (as I have many reasons for believing, although all those who have considered the matter are contrary in their belief) it will follow necessarily that the weight and pressure of the air is the sole cause of this suspension of the mercury, and not the horror of a vacuum, since it is quite certain that there is much more air pressing on the foot of the mountain than on the summit, rather than one should say that Nature abhors a vacuum more at the foot of the mountain than at its summit. . . .

I only beg that it may be done as soon as possible

and that you will excuse the liberty I am taking, to which I am urged by my impatience to hear of its success without which I am neither able to put the finishing touches to the Treatise promised to the public nor to satisfy the many persons who await it and who will be infinitely obliged to you for it. . . .

November 15th, 1647.

Périer to Pascal.

Monsieur,

Enfin j'ay fait l'experience que vous avez si long-temps souhaitée. . . . Saturday last, the 19th of this month, was very unsettled, nevertheless the weather at 5 o'clock in the morning seemed fine enough, and the summit of the Puy de Domme being clear, I resolved to go there to carry out the experiment. . . .

Two tubes of equal bore were filled with mercury, and being fastened together the height in each was found to be the same. This experiment was repeated twice with the same result. One tube was left at the foot of the mountain with instructions that the height of the mercury should be observed from time to time throughout the day.

The other tube was carried to the summit of the mountain about 4800 feet high, and the height of the mercury column was less by "trois poulces une ligne et demie" (about 3 inches).

This filled us all with delight and astonishment, and surprised us so that for our own satisfaction we wished to repeat it; this is why I did it again five times at different points of the summit of the mountain, now under cover in the little Chapel which is there, again in the open, then in shelter, exposed to the wind, in fine weather, during rain and mists which sometimes appeared, having on each occasion very carefully removed the air from the tube and the same difference in the height of the mercury was found in all these experiments . . . which satisfied us fully.

An experiment was made part way down the mountain, and at the base the original tube was found to have remained unchanged throughout the day. This tube was placed in the care of

"le R. Père Chastin, l'un des Religieux de la Maison, homme aussi pieux que capable, et qui raisonne très bien en ces matières."

September 22nd, 1648.

Pascal's Conclusions.

From this experiment many conclusions may be drawn.

The means of knowing whether two places are on the same level, that is to say, equally distant from the centre of the earth, or which of the two is the more elevated, however distant they may be from one another, even should they be on opposite sides of the earth, an impossibility by any other means.

That the thermometer¹ possesses a small degree of accuracy for indicating the degree of heat (contrary to ordinary notions) in that its water sometimes rises when the heat increases, and, on the contrary, falls sometimes when the heat diminishes, although the thermometer remains in the same place.

The inequality in the pressure of the air which, at the same degree of heat, is always more compressed in the lowest places.

All these consequences will be explained at length in the Treatise of the Vacuum, together with many others equally useful as interesting. . . .

Pascal calculated the total weight of the atmosphere, supposing it replaced by water in the form of prisms of a height of some thirty feet, one on each square foot of the earth's surface. "Je scay bien que ce ne seroient pas des prismes, mais des secteurs de Sphère; et je néglige exprés cette précision." The result is given as

8,283,889,440,000,000 livres.

Boyle's opinion of Pascal's experiment is shown by the passage taken from the "Defence of the Doctrine touching the Spring and Weight of the Air," chap. iii.:

And such an *experimentum crucis* (to speak with our illustrious Verulam) is afforded us by that noble observation of Monsieur *Pascal*. . . .

THE LOWESTOFT CONFERENCE OF THE NATIONAL UNION OF TEACHERS.

ONE of the most interesting features of the annual conference, held this year during Easter week at Lowestoft, has been the accession to the presidential chair of a secondary schoolmaster in the person of Mr. W. B. Steer of the Municipal Secondary School, Derby. Mr. Steer is the first secondary schoolmaster to achieve this distinction. His election offers a signal proof of the growth of the solidarity of educational forces which the best friends of education are seeking to produce. Another outstanding feature has been the wonderful weather. A bright sun by day, and almost all day, a moon not much past its full, a temperature above the normal, and an absence of unpleasant wind, have combined to make the outside conditions ideal enough to merit fresh encomiums upon the month of April if only there were a Chaucer to sing them.

Where skies were propitious men, represented in this case by women, marred the scene. The conference service on Sunday, where the Lord Bishop of Norwich, who will be

¹ An air thermometer.

remembered as a former Headmaster of Wellington College, preached the sermon, was interrupted by suffragettes.

On Monday the President delivered the inaugural address. He took no sectional view of his profession. His subject was "The Status of the Teacher." He argued that the relation of the teacher to the community, the fundamental necessity and value of his work, the desirability of getting the best men and women to do this work all demand more consideration, higher pay, and more opportunities of a career, if a proper supply is to be forthcoming. He goes so far as to suggest that the teacher's status suffers from "a denial to him of a share of the control of education." As education is not, in the narrow sense, a profit-making department of public work we need not label the President a Syndicalist on account of this utterance. Indeed, we may hold that education would be more useful if the opinions of teachers were more consulted in curriculum and subject values. Mr. Steer pitched his claims for status high, but not too high, and it would be well if administrators and the general public could be induced to take the same high view of the teacher's work as is held by the President. If in claiming so much on behalf of the teacher he omitted to indicate the return which the teacher is prepared to make to the community, it may be supposed that it appeared self-evident to him and that he credited his hearers with the ideas which were in his own mind. On the whole, the address was an excellent statement of the position which the teacher ought to hold in the community and if his preparation can be lifted to the level which the President desiderates we may hope that in time much of what he claims may be conceded.

A new standing order was adopted providing for the removal of anyone guilty of a gross violation of order, and, if necessary, for suspension or exclusion from the Union. No such unseemly suffragette scenes as those in the Church on Sunday marred the Conference room. This may show that those who caused the disturbance were, as Miss Cleghorn suggested, not members of the conference. But it has been more than ever a woman's conference. The two main questions have been teachers' salaries and sympathy with women teachers in their votelessness. The former question was debated at great length both privately and in the public sessions. In the end a scale for assistant teachers was adopted, but the suggestions for a head teachers' scale were deferred for further discussion. The subject is to be dealt with next year after submission to the local associations.

The question of woman's franchise was brought up by Miss Cleghorn in a studiously moderate speech. Her motion was "That this Conference expresses its sympathy with those members of the N.U.T. who desire to possess and exercise the Parliamentary franchise, but because they are women, and for that reason alone, are by law debarred from it." This was seconded by Mr. H. Smith of the Executive in an eloquent, rousing, and closely-reasoned speech which, though it gained the admiration of his opponents, failed to convince them. The opposition was led by Mr. A. E. Cook, who came into collision with the President, for reasons which were not clear to some of the audience. Mr. Cook's amendment was carried by a very large majority, but the ladies by their tactics were able, under the rules of the conference, to avoid a decision on the main question, which has now occupied a large part of three annual conferences and is likely to occupy a large part of a fourth.

But the more striking way in which the conference was a woman's conference was the ratio which the women bore to the men and the remarkable rise in the debating powers of the former. Some years ago the women were markedly inferior in numbers and in powers of public speaking. But that is all changed. They now form a large part of the gathering, and some of their speakers show the effects of a training in public speaking. Their arguments are marshalled with clearness, and expressed with conciseness and elocutionary power which put many of the men to the blush. It is scarcely surprising to find that, in a body consisting preponderantly of women, the women are determined to claim a larger share in the discussion of Union matters, and with so many eloquent speakers among them we may expect to hear more of them.

Except in the sectional meetings there were few questions relating directly to secondary education. There was a fair attendance at a meeting of teachers in secondary schools, which was held in the Beaconsfield Hall. Mr. G. Sharples, chairman of the secondary schools committee presided. The question of super-annuation stood first upon the agenda paper and was the subject of much discussion. The executive was urged to redouble its efforts to secure from the Government a satisfactory scheme with the least possible delay. In one quarter local schemes complementary to the expected Government scheme were deprecated, unless an equitable scheme of transfer or compensation can be secured for a beneficiaire who moves from the service of one authority to that of another. The general feeling, however, was in favour of local auxiliary schemes, and

the Union was asked to urge upon the Government that the scheme is long overdue and, if necessary, to ask the Chancellor of the Exchequer to receive a further deputation on the subject. Other secondary bodies are to be asked to cooperate, and it is much to be hoped that the subject may receive some impetus from this action.

The President, in addressing the meeting, expressed his pride in being the first secondary schoolmaster to become Head of the National Union of Teachers. He hoped for a closer connection between the primary and the secondary school both for pupils and teachers, and referred to the fact that more than 2,500 secondary-school teachers already belong to a Union which is in the main composed of teachers in primary schools. He emphasised the determination of the Union to do its best for any of its members, from secondary as well as primary schools, and hoped that more of the former would join.

A long discussion ensued upon the constitution of the committee. There was a strong feeling that those members who represent geographical areas should be elected directly by the votes of the secondary-school teachers—members of the Union—resident in those areas, and the executive was asked to give immediate attention to this desire. The executive was asked by the Bradford Association to keep a close watch on attempts to introduce vocational training into secondary day schools, and to resist it so far as possible.

Another resolution urged that local authorities should be asked to adopt the Union scale of salaries for secondary-school assistants, except for the Metropolitan area which is considered to be entitled to better conditions. The meeting was unanimous in its welcome of the new Teachers' Register and in urging all members of the Union to enrol themselves upon it in the furtherance of professional solidarity.

In another interesting sectional meeting the question of the alleged deterioration of elementary education was discussed. The general opinion seemed to be that if there had been a change in the level of achievement in any particular point, there was on the whole no decline of efficiency, though there is undoubtedly a change in the aspect which school work and ideals now wear. In the main conference a strong opinion was obtained against employment of children under fourteen years of age, and in favour of the establishment of day continuation schools for students between fourteen and eighteen years of age.

The conference is to be held at Blackpool next year.

THE STATUS OF THE TEACHER.¹

CLOSELY interwoven with the question of the status of the teacher is his remuneration. In some respects this is the effect, but it, in turn, becomes the cause, for it is one of our national failings that we esteem a man according to the price rather than according to the value of his services. What, then, are the facts concerning the remuneration of the teacher? There is one headmaster who receives more than £500 per annum; but there are two who receive less than £50. There are 103 headmasters who receive more than £400 a year; but there are 501 who receive less than £100. There are 227 headmasters who receive more than £350 a year; but there are 2,153 who receive less than £120. Similarly, while there are 79 headmistresses who receive between £300 and £350 per annum, there are three who receive less than £50, and 1,162 who receive less than £80. There are 275 headmistresses who receive more than £250 per annum; but there are 2,876 who receive less than £90. These are all head-teachers, men and women who have been chosen to control the work of others, as well as to teach themselves, and it cannot be urged to any great extent that the lowness of their pay is due to the fact that they are but at the beginning of their professional careers. Many of them have received these unsatisfactory salaries for a long period of years, and their appeals for an increment have fallen upon deaf ears or have been met with the most evasive excuses.

If to the numbers which I have quoted I should add the 4,496 certificated class-masters who receive less than £100 a year, and the 5,127 certificated class-mistresses who receive less than £70 a year, it will be obvious to the most rigid economist in our land that there are at least 14,650 fully qualified teachers serving to-day in the nation's schools who cannot be said to be earning a living wage.

The National Union of Teachers is not the body to apportion the responsibility. Its duty is to declare the inadequacy of the remuneration; but if I may be its voice for two short minutes, I would say that while these figures remain as the record of facts, there cannot be an adequate supply of the teachers required for the great work of teaching in the nation's schools, and that, as the nation looks to the Board of Education to secure the successful working of its schools, it is the Board of Education which must apportion the blame and discover the way out of the difficulty. It is the duty of the Board of Education to see that the obstacle of inadequate remuneration shall no longer be allowed to stand in the way of the proper organisation of our educational system. I do not hesitate to say that the low salaries which I have quoted are the main obstacles to the securing of a constant supply of efficient teachers; that they have a most depressing influence on the teaching profession; and that they do seriously diminish the relative attractiveness of that profession to potential recruits.

The average salary of £146 3s. which the nation

¹ From the presidential address by Mr. W. B. Steer, Municipal Secondary School, Derby, at the annual conference of the National Union of Teachers at Lowestoft, April 13th, 1914.

pays its certificated masters is absolutely and relatively inadequate—absolutely because it compels the teacher to live a narrower life both socially and mentally than is good for the influence which he is required to wield, and relatively because, with equal capacity, a man can secure a better remuneration in other professions. And the same thing must be said of the average salary of £101 which the nation pays its certificated mistresses. From a patriotic point of view the claim of the National Union of Teachers is entirely wise, for the potential recruits will not enter the teaching profession until the nation can assure an eventual salary of at least £200 a year to every man and £160 to every woman who responds to the call, with higher remuneration still should their industry and success, and the smiling face of Fortune, lead to promotion to the head-teachership of a school.

It would be a comparatively easy task for me to write a long jeremiad concerning the causes which have produced the existing unpopularity of the teaching profession. I refrain in order that I may come more quickly to a constructive policy; but I may, with advantage, enumerate the chief causes, and leave the spaces between the lines to be filled in afterwards. They seem to me to be:—

(1) The fact that the qualities which the country demands from its teachers it does not hold in real esteem; (2) the belittling of the teacher's certificate by the Board of Education itself, and by education authorities generally; (3) the lack of consistency in the character of the certificate from year to year; (4) the employment of unqualified teachers; (5) the absence of a register of qualified teachers; (6) the denial to teachers of a share of the control of education; (7) the control of education by men who have had little or no experience of the work, and frequently the poorest ideas of the aim of the school and the possible scope of the curriculum; (8) the consequent adoption of impracticable and even false standards by which teaching may be judged—standards not based upon generally accepted pedagogical principles, but upon the mere intuitions, whims, and caprices of the reigning Sphinx in office; (9) the closing of the legitimate avenues of promotion to the teacher; (10) an inordinate worship of university training as the sole qualification for administrative and inspectorial posts; (11) the division of the profession of education into watertight compartments.

We teachers naturally fall into the error of accepting the existing order of things when we speak of the teaching profession, instead of recognising that the profession to which we belong is the profession of education, and that teaching is but one of its branches—the essential branch, it is true, but still no more than a branch. Teaching, educational administration, and the inspectorate are essential and interdependent parts of the same profession, a principle adopted in most Continental countries, the United States, and in our own colonies.

In the interests of education, and apart altogether from mere professional ambitions, I urge that the pathway to all the higher educational posts should be through the school, and through the school alone. If it be not regarded as vaulting ambition for the newly called

barrister to aspire to the Woolsack; if the recently diploma'd doctor may reasonably hope for an establishment in Harley Street; if every curate is a potential Archbishop of Canterbury; if Napoleon's dictum were sensible that every private soldier should carry a marshal's bâton in his knapsack, then it should not be deemed presumptuous for the newly certificated teacher to dream that he may one day become Chief Inspector of England or Wales, or, maybe, Permanent Secretary of the Board of Education.

That the teaching profession could at the present time provide men and women worthy of the highest positions in the educational world, no one who knows the facts will deny. It has found men in the past who have made their mark as legislators, administrators, and, within prescribed limits, as inspectors, and it can continue to do so when all limits are destroyed. It is probably not too much to claim that those teachers who have been appointed as education directors under certain authorities have shown more than average ability for the work, and it is quite certain that they are the men who are to-day making educational history by the care and the zeal with which they are forging out rational schemes of educational administration.

To prove our incapability for the higher work would be merely to prove the failure of the nation to attract the right men and women into the service of the schools. The widening of the outlook of the teacher is necessary in order that the best men and women may be attracted to the work, and if university training be essential for the higher service, that but proves that the Government ought, long ere this, to have arranged that a university career shall be provided for every new entrant into the profession.

Primarily, we who are teachers must learn to glorify our office. Whatever be our status, whatever be our salary, it is our first duty to ourselves and to our colleagues to merit more. We must reverence our work and refuse to allow anyone to belittle it. The teacher who performs his work in a perfunctory way, the class-teacher who speaks slightly of the head-teacher's work, the head-teacher who despises class-teachership, all alike are traitors to their profession. So, too, is he who, though the circumstances may extenuate his fault, yet relinquishes his ideals and forfeits professional respect. Self-reverence and mutual esteem are universally held among us as essential, and I need not therefore dwell upon the matter. Without them we do not deserve the higher status which we claim.

Outside the school we must press for fuller recognition of our right to act in an advisory capacity to our education authorities in everything which affects the actual working of our schools. Those authorities which have co-opted representative teachers to assist them in their deliberations, or which have established consultative committees of teachers in order to secure expert advice, are unanimous in their praise of the plan. There are, however, many authorities which refuse the right, and it is for us to work steadily and persistently to obtain the recognition of our natural advisory powers.

It is neither for pecuniary gain nor for easier work

that the teacher desires a place in the counsels of his authority. The National Union of Teachers, at any rate, advocates co-option for the sole reason that expert guidance is becoming more and more desirable for the successful working of the schools.

Then, as a body of organised teachers, we must continue to combat the prevalent notion that anyone can teach. The presence in our schools of some sixty thousand teachers of partial qualification or of no qualification for their work is in itself a proof of the poor esteem in which our work is really held. There are two essentials for every teacher—knowledge to impart and aptitude to impart it. Neither one nor the other is universally demanded.

The conditions of registration are both educationally and professionally sound and incontrovertible, and all of us who have real pride in our work must ardently long for the time when admission to the register will be regarded as the *sine quâ non* of permanent service in State-aided schools. Yet what do we find? A Board of Education which continues to approve teachers who are not required to give a single guarantee of academic fitness for their work, and education committees which continue to employ them because they are cheap. If the Registration Council has been wise in its decisions, and of that there can be no doubt whatever, it is incumbent upon the Board of Education to bring its policy into line with that of the council. It must, at the earliest possible moment, cease to grant its certificate to teachers who have not been through a course of institutional training, and it must also declare that the services of all unqualified teachers are essentially of a temporary character and contingent upon real effort to secure definite qualification and upon acknowledged aptitude for the work.

I sincerely hope that the Registration Council will go further in its effort to raise the status of the teacher, and will eventually take over the work of controlling all entries into the teaching profession. The time has long since passed when the Government should have substituted for its own certificate, a university degree with education as a compulsory subject. Instead of developing in that direction, it has held tenaciously to its self-assumed function of certifying the teacher from an academic point of view; it has modelled its syllabus according to its own particular ideas; it has been a spoke in the wheel of those training college principals who have desired to substitute degree courses in their own colleges; it has discouraged the students who have chosen to study for a degree by making failure unduly difficult to remedy; and then it has detracted from the value of its own certificate by appointing to its inspectorate only those who have chosen the better path of a university training.

If the Board of Education really desires to make the inspectorate a legitimate prospect for the teachers of the country, if it desires to raise the status of the teacher by widening his outlook, it must regard teaching as an essential part of an educationist's life work, and not introduce an age limit which shall disqualify the man who has the longer experience in the actual work of the school. If after twenty-five years of ser-

vice as a class-teacher a man should secure the coveted promotion to a head-teachership, it is not good for education that the ambition of his remaining twenty years should have no further goal. I do not say that the services of an inspector are more valuable to the country than those of the head-teacher or the class-teacher. I do not think they are; but the position of inspector is the guerdon of honour which the country can award to its earnest, successful teachers, and its award would raise the whole tone of those left behind in the actual ranks. To withhold the honour is to diminish the relative attractiveness of the teaching profession to potential recruits, and that, according to the Board of Education, is reprehensible. Viscount Haldane declares that the status of the teacher must be improved. The reply of the teachers is that the Board of Education might do much in this direction, and thus set an example to local education authorities by making the teaching profession the natural recruiting ground for its own inspectorate.

The claim which I make on behalf of teachers to the inspectorate, I make also to all posts of educational administration, whether local or national. The principle underlying the claim is the same, and need not be reiterated. Throughout the land at the present time there are many hundreds of ex-teachers serving in official capacities, and the character of their service is undoubtedly of the highest value. The truth or the untruth of the gibes of a famous circular has nothing to do with my contention. Whenever a local education authority goes into its schools to find its education adviser, it not only has a wide choice from which a man of high type and of the highest enthusiasm may be selected, but it sends a thrill of hope through every teacher in its service, and thereby gives an added impetus to earnest work within the school. Hope is life's best tonic, and, since the teacher's work and the teacher's personality are of such far-reaching importance, it should be withheld from him last of all. The adoption of the principle which I am advocating would eventually secure the highest type of man for the wider profession thus created.

And now a final word as to the condition which would make my claim unassailable. It is that every teacher shall have a university career. There is little in the way. The training colleges are reaching out eagerly to the university recognition of their work. They have already shown their capacity for the high academic service which the change would render necessary. The call to higher heights can receive an almost immediate response, and there seems no insuperable obstacle in the way of this ideal being realised, that every training college shall enter into the most intimate connection with some existing university. Englishmen have ever shown their capability of rising to any demand which their loved nation has made upon them, and if the country were to call upon its future teachers to attain to that standard of intellectual capacity which is connoted by a university degree, they would be found equal to the demand. They, as a body, aspire, as they have ever aspired, in that direction, and it is only because the Board

of Education has persistently side-tracked them from the main path that this appeal of mine remains necessary.

I haste to a conclusion. No high-sounding peroration is at all necessary. It shall be as practical as I can make it. The status of the teacher is unsatisfactory; better remuneration is the fundamental remedy; but mere £ s. d. will fail of its purpose, unless, by opening every possible avenue of promotion to the teacher, the country gives to the teaching profession that meed of esteem which from the value of its services, both now and in the greater future, it really deserves.

HISTORY AND CURRENT EVENTS.

Is it not strange that a citizen of Canada, if he be not home-born, becomes an alien again whenever he goes to Australia or Great Britain? The strangeness of this anomaly has struck some of our statesmen, and a Bill is now passing through the usual Parliamentary stages to make Imperial naturalisation uniform throughout the Empire. So in the third century, Rome extended her Imperial citizenship uniformly to all her various subjects, and henceforth no one could make Roman citizenship a private boast, as the Apostle Paul had done in the first century. But we notice an important difference between Roman and British methods of effecting the change. The British official in charge of the Bill we have mentioned told the House of Lords that it was the result of agreements between the Home Government and the Governments of the oversea Dominions. Did the Emperor Caracalla consult the provincial authorities before issuing his decree? We trow not.

WE are still face to face with the difficulties that have arisen in connection with the attempt to satisfy the aspirations of the inhabitants of Ireland. The descendants of those whom England and Scotland sent to Ulster some three centuries ago are objecting, naturally enough, to the ending of the long experiment of governing Ireland according to British and Protestant ideas. Have any of our readers realised the parallel to this state of things which has existed now for at least a century in Hungary? We have all heard of the Magyar struggle against Austrian methods, and the name of Kossuth is not yet forgotten among us. But do we know that the Magyars are but the predominant race in Hungary, that they are surrounded and intermixed with members of half a dozen other races and churches, and that if the Magyars have Home Rule it is at the cost of Slavs and others? The Rumanians of Rumania are complaining of the way in which the Rumanians of Transylvania are being treated by Magyars. The confusion in Ireland is as nothing compared with that over which Francis Joseph presides.

It has been known for a long time now that there is some connection between rats and the epidemic disease which is known *par excellence* as the plague, and quite recently there has been a further advance in knowledge as to the methods of nature in the propagation of the scourge. We do not propose to

detail the results of this investigation beyond saying that fleas and a rise in the temperature are links in the chain. But as we read the account in our newspapers of these discoveries, we were reminded of the all but contemporary account of an outbreak of plague among the Philistines, who had migrated from Crete or Cyprus and waged long wars with the Hebrews for the possession of Canaan. The ancient Hebrew text from which our translation of this ancient work is derived has become defective, but the Septuagint translation from the Hebrew made about 250 B.C. has preserved for us certain passages which show that rats (or mice) "abounded in the land" during the pestilence which drove the Philistines to restore the Ark of JHVH to the land of which He was the Baai.

A NONCONFORMIST minister has recently preached a sermon in the chapel of a Cambridge college, and the newspaper from which we draw this information says that this is the first time since the days of "the Commonwealth" that such a thing has happened. The incident is but one of many outward and visible signs of a movement that has slowly been advancing since university privileges were almost entirely thrown open to Nonconformists by Gladstone in the seventies of last century. Another that might be quoted is the recent appointment of a Nonconformist to a divinity examinership at Oxford. But, to be pedantically correct for a moment, is it true that "Nonconformist" ministers preached in college chapels during the Commonwealth? During that brief period of partial chaos in English ecclesiastical affairs, did not the sovereign authority of the time, Presbyterian Long Parliament or "Sectarian" Protectorate parliaments, make episcopacy illegal, and substitute for it in the State Church, Presbyterianism, Congregationalism, or other varieties of ultra-Protestantism? If so, they were not Nonconformist. It was the episcopalians who were then "dissenters," as they are now in Scotland.

ITEMS OF INTEREST.

GENERAL.

IN view of the present indications of a development in the interest which is being taken in the study of Scripture, especially among teachers, it may be useful to direct attention to the certificate in religious knowledge awarded by the University of London. The examination for this certificate, which is open to men and women alike, was instituted by the University primarily for the benefit of school teachers who are called upon to give instruction in Scripture, but it was also intended for others who might wish to have their theological study guided and tested. The next examination will begin on June 8th, and full particulars can be obtained from Mr. John Lea, University Extension Registrar, University of London, S.W.

THE Yorkshire Summer School of Geography will be held at Whitby on August 3rd-22nd. The summer school was instituted last year by the Universities of Leeds and Sheffield, in cooperation with Armstrong College, Newcastle-on-Tyne, and with the help of the

education committees of the County Councils of the East, North and West Ridings, and of certain county boroughs in Yorkshire. The object of the school is to provide theoretical and practical instruction in the methods of geography and to furnish opportunities for the discussion of problems connected with the teaching of the subject. The course will consist of lectures, laboratory work, map classes, field work, and demonstrations, and there will be excursions in connection with the field work. Methods applicable to school work will be adopted. The special subject this year will be the British Isles, which will be treated as a whole, dealing with the land forms and structure, the meteorology and economic geography, and in two alternative courses at the choice of each candidate: (i) on the agriculture, rocks, and soils, and (ii) on the oceanography, rivers, and river development, and the evolution of transport and communication. Prof. Kendall, professor of geology in the University of Leeds, will be the director of the school. Inquiries should be addressed to the secretary, Yorkshire Summer School of Geography, the University, Leeds.

THERE has been a notable development of interest in the teaching of scientific geography in Lancashire and the West Riding of Yorkshire within recent years. Many schools have submitted schemes of practical work, including outdoor work, which have received the sanction of the inspectors of the Board of Education. In a great number of schools, teachers have constructed relief models of their own immediate districts. One such relief model, made by two of the masters in the Accrington schools, is a remarkably thorough piece of work, and it has been purchased for the Free Library of the town, where it is now on view. Another interesting feature has been a number of courses of lectures for teachers. Dr. A. Wilmore, headmaster of the Colne Secondary and Technical Schools, concluded on April 3rd a series of six lectures to the teachers of Blackpool and district, which were attended by about 200 teachers from elementary and secondary schools. The course was on the teaching of geography in schools, and was arranged by the Blackpool Education Committee, with the approval and support of the inspectors of the Board of Education.

THE Education Committee of the West Riding County Council proposes to hold a vacation course for teachers in secondary, technical, elementary, and other schools. The course will be held at the Training College, Bingley, beginning on August 4th, and will extend over a fortnight or three weeks. The aim of the course is to stimulate teachers and to give them opportunities of studying new methods of teaching the various subjects rather than to give specific instruction in the subjects themselves. A general course will comprise lectures by Prof. Adams and lectures on the teaching of practical mathematics, reading and spelling, English, music, and other subjects, and there will be special courses on handwork, nature-study, needlecraft, and physical instruction. The committee's handbook, containing further particulars of the course and of the conditions and regulations

under which grants will be made, may be obtained from Mr. J. H. Hallam, County Hall, Wakefield.

A SUMMER School in Geography will be held on August 4th-22nd, at the University College of Wales, Aberystwyth. Prof. H. J. Fleure will give ten lectures on a regional survey of Europe, and eight on England and Wales. Mr. W. E. Whitehouse will deliver eight lectures on the teaching of geography by modern methods, five on the climate of the British Isles, and five on mathematical geography. In addition to the lecture courses, practical work will be taken daily. Field classes will be held for practice in the use of simple survey instruments, while excursions will be made to places of interest in the vicinity of Aberystwyth. Correspondence should be addressed to Prof. Fleure, University College of Wales, Aberystwyth.

A REVISED edition of the Board of Education Circular 384, containing suggestions for the teaching of geography has just been issued; the price is one penny, but its value for all teachers of geography is out of all proportion to the price. There is little need to note more than one or two points, since most teachers will obtain the Circular, but we are struck with the reasonableness of the views suggested by the Board. For example, teachers are not to provide definitions, they are to supply illustrations copiously; the keynote of the climate, for instance, is to be substituted for a formal presentation. "An extreme climate can be presented as one where the sunshine is bright and often continuous from dawn to sunset in winter and summer alike, where rain and snow are almost unknown except at the change of these two seasons." "Breadth of treatment is essential; it is only the most clearly marked physical and climatic features, the most important vegetable and mineral products and the chief effects of these things upon the lives and occupations of the inhabitants of each region that the children need remember."

IN reference to the borderland between history and geography, the Circular points out that sometimes the historical element predominates, sometimes the geographical, and sometimes the two elements are of relatively equal importance. Models should be made by the children from the actual maps; and areas chosen for such models should be either familiar to the children or be typical of land forms which do not occur in the neighbourhood of the school. It is deplored that the *learning of maps* has gone out of fashion; the Board will have the hearty support of most examiners in geography in this plaint. The Board might have laid down more precisely the requirements of a good atlas; we look in vain for the criticism that the majority of maps supplied in school atlases are too detailed: clear, simple maps which arrest the attention of the child, coupled with a good index, are, perhaps, the most important, and at the same time the most needed apparatus in the teaching of geography.

SPEAKING on desirable amendments in the Education Act of 1902 at the National Union of Teachers' Conference at Lowestoft, Mr. W. A. Brockington, director of education for Leicestershire, gave an optimistic

estimate of educational progress during the last decade. "A large body of recent educational criticism is nugatory," he said, "mainly because it has reference to a state of things which existed prior to 1902, and ignores one of the most important decades in our educational history. We have been favoured with many descriptions of the school as it is, which merely describe the school as it was. We may have lost in mechanical accuracy; let the new generation judge whether we have not gained enormously in general intelligence. At any rate, let us rest assured that we are nearer than many critics would have us suppose to the school as it *might be*. By the frank recognition of the capacity of children to educate themselves, we have changed the function of the teacher, who becomes a guide, a philosopher, and friend, and no longer a pedagogue filling the heads of his pupils as he would stuff the crops of prize poultry. To this recognition we are indebted in our teaching of science for the cultivation of the habit of original investigation, and in our teaching of the arts for the cultivation of the habit (even in children) of the æsthetic appreciation of literature. To this modern ideal, so different from the medieval ideal of 'education as a discipline,' we are indebted for reformed methods of language teaching, and for the great development which has taken place within recent years in the teaching of arithmetic, drawing, and the manual arts. To this also we are especially indebted for real developments in rural education, where, by the introduction of nature-study, practical gardening, and rural handicraft, the more theoretical parts of the curriculum are brought into actual relation with the everyday experience of the scholars and into harmony with their natural proclivities."

SOME time ago we noticed in these columns a report of the Carnegie Foundation for the Advancement of Teaching. Our readers may recollect that the primary object of that foundation is to provide pensions for teachers who have served their generation upon salaries which make provision for old age almost impossible. But the trustees have also devoted a small proportion of the income to the promotion of selected educational studies, of which the latest is a study of education in the State of Vermont. The legislature of that State, in doubt as to whether the money spent on education was yielding an adequate return, appointed a commission of inquiry. This commission in turn invited the Carnegie Foundation to undertake an expert study of the school system, the results of which study have just been published. The report reminds us of similar investigations in certain English counties, undertaken after the Act of 1902 came into force, except that the Vermont investigation excels in completeness and thoroughness. The recommendations as to secondary schools include a plea for the more careful classification of schools, a higher standard of qualification for teachers, and improved conditions of service. All this sounds very familiar to English ears. Perhaps the most striking thing in the report is the emphasis laid upon the desirability of adapting the curriculum to the pupil's needs, if the schools are to be made attractive, and

if secondary-school life is to be lengthened. For this purpose there must be a more generous supply of instruction "in such subjects as demand an active concrete motor response or application, as compared with a solely abstract, passively absorptive, verbal reaction." This is a kind of reform that is also required in places nearer home than Vermont.

THE *Poetry Review* for April (6d.) continues its work, which appears to be expanding rapidly. The editor's article on the hatred of Demos by poets is all too short; and why is Swinburne with his hymn of man omitted? The most noteworthy item to us is the curious paper, entitled "The Beautiful Words of Logan Wilshire." This is arresting, and one would like to know more of the circumstances surrounding the production of a "Message to Jove" and other fantasies by a child of seven. Meanwhile perhaps the editor of the *Perse* playbooks may direct his attention to this paper. All over England child-genius (one cannot call it anything else) abounds; but schools lay on it their heavy weight.

SCOTTISH.

THE leaving certificate examinations of the Scotch Education Department, which dominate the scholastic course of almost every pupil above twelve years of age in Scotland, have come and gone. After the "fitful fever" of the past few months the pupils who have been up for examination should now sleep well. No unfortunate incident such as last year's mishap to the French paper marred the progress of the examinations, but there have been lesser blunders which should be impossible in any well-conducted tests. In the geography paper the scale for English miles and for kilometres was transposed; in history the date chart was most misleading, pupils being asked to place given events in centuries 500 to 1800. The grammar of several questions was not above suspicion, and spelling, too, does not seem to be a strong point with the examiners. The papers set maintained on the whole the high standard of recent years. While odd questions in the various papers might be objected to as being beyond the capacity of the pupils for whom they were intended, this could in no case be said of any single paper as a whole. The algebra and the arithmetic of the lower grade required a great deal of working, and offered endless opportunities for slips, and probably the examiners will require to lower the standard of pass in these subjects. The question on income tax in the latter subject was distinctly unfair as it necessitated a long and wordy explanation that few pupils in the stress of an examination could, or should, be expected to grasp. Still, when all faults are set down, one must gratefully recognise that the tests are framed on sound educational lines, and are, from the teachers' point of view, far in advance of those of any other examining body.

THE new Code of Regulations for Day Schools in Scotland shows two or three changes of importance. The grants for defective pupils, which were reduced last year on the initiative of the Auditor-General, have now by consent of the Treasury been increased to £11 10s. a year on the average attendance of defective

pupils in residential institutions, and to £5 10s. for such pupils at approved day schools or classes. The prefatory note to the regulations states that the gratifying development in supplementary courses and in the number of pupils continuing in attendance for a full three years' course have called for reconsideration of the grants paid in respect of them. Accordingly, while the grants for courses of fewer than three years will remain as in last year's code, grants equal to those now being paid to higher grade schools will be paid for pupils who attend recognised supplementary courses of at least three years' duration. Before such courses are approved managers will require to submit full particulars of staff and curriculum, as in the case of higher grade schools. The Department still feels itself unable to put into operation its own minute of March, 1911, reducing the size of classes for each teacher. In the prefatory note it again refers to the subject, and states that managers are in many instances voluntarily reducing the size of their classes, and it hopes that it will not be necessary to delay much longer what is generally admitted to be a wise advance. In this matter, however, the Department is at the mercy of the politicians, and so long as the Government is dependent on Irish votes there is small chance of the long-delayed reform becoming operative, as the voluntary schools are opposed to it root and branch.

HUTCHESONS' Grammar Schools for Boys and Girls have played a notable part in the educational history of Glasgow, and it was fitting that on the transference of the girls' school to a new building, memorial busts of the large-hearted founders should be set up in the new school. Lord Strathclyde, who performed the unveiling ceremony, paid a fine tribute to the generosity and public spirit of these noble brothers. Like George Heriot in Edinburgh, whose contemporaries they were, they had made for themselves in the schools which would ever be associated with their names, a lasting memorial. In the course of 270 years the £4,017 they had left had grown to be £600,000. Wise and foreseeing as these brothers were, he doubted if they ever dreamt what countless thousands of the youth of their native city would benefit from their generous gift. But whether they foresaw all this or not, they had built up for themselves an imperishable monument in the hearts and affections of the people of Glasgow.

NEW regulations for registering attendances in secondary schools have just been issued by the Education Department. These, unfortunately, will mean a considerable addition to the clerical work of the teachers concerned. In each class at the beginning of each period a record of attendance has to be made in a register to be known as the "Record of First Instance." This record may be made the final register, and the daily attendances on which grants are paid will be obtained by dividing the total attendances by the number of periods in the school day. This, however, is too cumbrous a method to be workable, and it is safe to say that the great majority of teachers will transfer daily the attendances in the "Record of First Instance" (divided by the number of school periods) to a daily attendance register. We

feel assured that there will be no keen competition among the members of the various school staffs for the privilege of entering up the final attendances after comparison with the "first instance records." It is only fair to recognise that this scheme has been forced upon the Department by the irregularities that they found to exist in regard to the registration of attendances in certain schools.

MR. RAMSAY MACDONALD, M.P., has agreed to give the opening address at the Secondary Education Congress in Glasgow on May 23rd.

IRISH.

MR. BIRRELL introduced into the House of Commons just before Easter his promised Bill for the grant of an additional £40,000 a year to Intermediate education. If anyone expected to find in it the details of the scheme which would solve the difficulties which occurred in 1912 and 1913, he was disappointed. The Bill is on general lines, and the rules for applying the money are to be left to the Lord Lieutenant, and this is certainly the proper course to pursue, as to incorporate them in the Bill would be to commit the Intermediate Board to hard and fast lines which would probably, and one may almost say, certainly, be found by experience to require modification only to be made by another Act of Parliament. In fact, Intermediate education has suffered too much in Ireland from being fettered by Acts of Parliament. It is difficult to see what ground of opposition there can be to the Bill in its present form, which opens out possibilities of great improvement and progress in Irish Intermediate education.

THE Bill is in three clauses. The first clause proposes the formation of a Registration Council for the purpose of framing a register of Intermediate school teachers in Ireland. The council is to consist of representatives of the teaching profession, the Intermediate Board, the Department, and such universities and other bodies interested in education as ought, in the opinion of the Lord Lieutenant, to be represented on it, and the register is to be kept by the Intermediate Education Board. The second clause enacts the payment to the Board of a sum not exceeding £40,000, to be called the Teachers' Salaries Grant, and to be applied in accordance with rules laid down by the Lord Lieutenant. Clause three gives the Lord Lieutenant power to make rules to carry out the Act, which is to be called the Intermediate Education (Ireland) Act of 1914, such rules to be laid before Parliament within twenty-one days after they have been made, and to be subject to revision by either House of Parliament for forty days.

DURING the past month the Intermediate Education Board for Ireland has published the reports of its examiners for 1913. Examiners, like ordinary individuals, differ in their standards, and as each examiner takes his own this pamphlet does not offer a uniform opinion on the work of the Intermediate schools, some judgments being more favourable than others. Most of the examiners, besides giving some general views, discuss the answering of the questions in some detail, and for this reference should be made to the pamphlet

itself. This discussion of the questions is really the most interesting thing in it for teachers and pupils, but is too technical to reproduce here, where we can only give a general impression of the whole field of examination.

IN Latin "the percentages of honours and passes were not quite so high as last year, but they were above recent averages, and cannot be considered unsatisfactory," and in the senior grade honours there was a considerable increase. The examiner complains of bad handwriting and bad English spelling in the majority of senior grade pass candidates. Middle grade honour candidates had many bad mistakes in accident, such as *coegundi, euns, cedi, omnia* or *omna spes, pacem factum esse*, and a serious weakness in knowledge of quantity showing the want of reading aloud. In the junior grade honours a large number of candidates showed want of preparation. There was a general failure over the Latin date, but the weakest points were writing and spelling.

THE French examiner says: "It is my agreeable duty to report that in all grades, both honours and pass, the answering was much better than last year, especially in composition"; the schools are making a very considerable effort to teach French as a living language, and "their task is being facilitated by the type of papers set, and especially perhaps by the attempt to introduce a certain amount of free composition." The only really adverse criticism is on the knowledge of phonetics among senior grade students and on the ignorance of the literature.

THERE is something wrong with English essay writing. The programme does not seem to have led to improvement. In the middle and senior grades the level was mediocre, and in the junior "the essays with some exceptions (notably those of girls) were bad." The examiner speaks of clumsiness of structure, remembered scraps of the prescribed texts strung together by conjunctions or distributed among various paragraphs without regard for sequence of thought. "The prepared essay was very much in evidence, more particularly in the case of girls." "A batch of papers from one centre began uniformly with this curious sentence: 'It is nowadays the custom for mediocrity to attempt a relative importance.'"

The teaching of history in the schools is not regarded as satisfactory by the examiner. The main defect was that it appears to be taught merely as an exercise for the memory. Facts and dates and whole pages of the history book are learnt without understanding the words and phrases dealt with. "A large body seemed to be completely bewildered when they were confronted with anything that required a little exercise of the understanding." The examiner offers several suggestions on the teaching of this subject: (1) insist on important points; (2) train the critical faculties by noting cause and effect; (3) don't accept everything in the history book as true; (4) be absolutely accurate; (5) use maps; (6) have more written work; (7) pay more attention to Irish history.

IN arithmetic there was a decided improvement in two respects: (1) in transcribing the questions, and

(2) in the use of logarithms. Otherwise there was little or no improvement, and in the junior grade "a fairly large number of candidates were quite unprepared." The examiner comes to the conclusion that this subject is neglected in the schools. The metric system was a stumbling-block in all the grades, and mistakes occurred with great frequency in ordinary tables, e.g., in the number of lbs. in a cwt. and of days in a year. Candidates should employ rough checks and see that they have answered the question asked. The examiner in algebra finds that the mistakes of previous years are repeated. Cancelling was unnecessary and unintelligible. Mistakes are made regardless of considerations of symmetry and dimensions. Graphs were not understood. The theory of indices was almost entirely unknown. The answering of the girls was considerably inferior to that of the boys. By way of contrast to the arithmetic and algebra, the results in geometry were considered as good and satisfactory. The examiner's chief complaints are of errors in spelling and reference, and of omissions of important steps in the proofs. Students should have more practice in written work.

WELSH.

PROBABLY the most generous gift in the history of Welsh Education is the one announced by Colonel Bruce Vaughan in a letter to Lord Merthyr. Sir William James Thomas, of Ynshir, had already promised £10,000 to the University College of South Wales and Monmouthshire for the purposes of a medical school, and had increased this amount to £30,000 as the result of a visit of inspection to University College, London. An anonymous donor has now offered to provide a full suite of laboratories for bacteriological and pathological research, together with any other buildings required for a complete medical school which may not be already provided by Sir W. J. Thomas's gift. The University College is to provide the site, and conditions are laid down requiring the utilisation of certain Treasury and other grants for the building and equipment of the school. It is hoped that this splendid gift will secure also a grant of £3,000 yearly from the Welsh Health Insurance Commissioners, who are empowered to spend 1d. per insured person in Wales for research purposes.

IN a memorandum drawn up by Lord Sheffield, chairman of the Anglesey Education Committee, and adopted by that committee as its reply to a request from the certificated teachers of the county for an improvement in the salary scale, occur the following words:—"If we consider the salaries we are invited to pay and compare them with incomes, say of the ministers of the various congregations—educated men who have no State training colleges where they are boarded and taught free—or if we consider the incomes of the farmers, who pay most of the rates, and whose incomes are estimated for income tax at one-third of their rent, or if we consider whence our teachers are recruited and what their prospects would have been had they followed the occupations of their parents, we cannot invite the county of Anglesey to reopen the present scale."

THESE expressions have caused much irritation amongst the teachers, whose request was that their salaries should rise to a maximum of £110 for men and £95 for women, and by annual increments of £5 instead of £2 10s., as at present. The salaries of teachers, both elementary and secondary, in Wales are very unsatisfactory, and the discontent resulting from this fact is being voiced with increasing insistence since the enhanced cost of living presses most heavily on the recipients of small fixed or slowly increasing salaries.

DENBIGHSHIRE has just refused a scale to its teachers, and the matter will probably not be allowed to rest here; at a recent meeting the following resolution was unanimously passed:—"That this meeting of the Wrexham and District Trades Council, representing the great mass of organised workers in the district, being convinced that the demands of the teachers of the county for a scale of salaries is just and reasonable, calls upon the education authority to grant the same. It further promises its utmost support to the teachers in any steps they may think it necessary to take to obtain more satisfactory conditions of service."

GLAMORGAN Education Committee informed a deputation of the secondary-school teachers of the county, bearing the request that the County Council would enforce and provide for the establishment of an adequate scale, that "they are not concerned with the salaries of teachers in the Intermediate schools."

THE Carmarthen Education Committee has instituted a new scale, which is far from meeting with the approval of the teachers interested. At the meeting to which this was reported, reference was made to the meagre response made to advertisements for teachers, and a letter was read from the Board of Education asking whether the committee considered the salaries offered as sufficient to attract applicants.

It is, of course, well known that many, if not most, of the authorities are fully in sympathy with the requests of the teachers, but are unable to grant them for lack of funds; and it is quite plain that no more money can be obtained from local sources; the aim of the teachers is to get the local authorities to press for increased grants from the Treasury for this purpose.

THE examinations of the Central Welsh Board are at present four in number: the junior and senior correspond in general with the same stages of the Oxford and Cambridge Locals, the senior being, under certain conditions as to included subjects, equivalent to the matriculation examination of the Welsh University, and accepted also in lieu of most professional preliminary examinations. Above these are the higher and honours stages, of which the former may be reckoned as being of a standard between those of pass and honours in University Intermediate examinations, while the latter is approximately of the standard of pass finals; indeed, the chief difference between these examinations and those of the universities is in the number of subjects taken. The difference between the close teaching and supervision of a secondary school and the tutorial and lecture methods of the university

brings it about that those students who enter the university trained almost to Intermediate level have the best chance of distinguishing themselves in their degree course. It is sometimes objected that such students "mark time" for a year; but there is no need for this if the college authorities recognise the amount of progress they have made, and if in their last year at school a judicious advance has been made towards university methods and the cultivation of habits of independent reading.

THERE are at the present time two difficulties in the way of pupils and teachers: in the first place the one-year course leading up to the higher examination does not form in all cases a suitable first-year part of the two-year course required for honours; so that it is necessary to decide at once either for higher or for honours work; secondly, these educationally valuable examinations receive little material recognition, and therefore attract fewer of the best pupils than they ought to do; they are ignored by the universities, and are not allowed to exempt those who pass them from any part of the degree work; and although they furnish evidence of considerable ability and culture, they are unknown outside scholastic circles. The chief use made of them is that on their results are awarded county scholarships and exhibitions tenable at the universities. Even these were up to the present year confined to honours students; now they are available at the lower stage also. A movement is on foot to replace both these stages by a single examination, to be recognised as counting in part towards a degree; this would be either a pass examination with the possibility of distinctions, or a pass examination with additional papers for those who aspire to distinction.

IN the Welsh matriculation examinations of 1914 geography becomes for the first time a fully recognised subject. In addition to its inclusion in the matriculation examination proper, it is accepted in the examinations—e.g., Central Board senior stage—which are taken as equivalent to Welsh matriculation, and also for the professional and other examinations in lieu of which the Welsh matriculation certificate is accepted, so that it is now in the same position as Greek or as any other specified science subject.

THE PEACE OF ARISTOPHANES.

The Peace of Aristophanes. With a translation and notes by B. B. Rogers. xlv+223 pp. (Bell.) 4s. 6d.

WE know now what to expect from Mr. Rogers: notes really illustrative, and with a spark of humour even in textual criticism; an introduction showing independent judgment; and a brilliant translation which it is a pleasure to read. We get all these once more, and regret that Aristophanes did not leave another score of comedies for him to edit. This book has been printed before, and Mr. Rogers finds something new to say, but not very much, in the years (nearly fifty) that have elapsed. He is very confident that the chorus does not represent the various states of Greece, because each state in turn is upbraided for not helping; but this does not seem to us so certain, and the slackness complained of can easily be represented by the chorus in turn. An emendation

pp. 390-1, μηδ' ἔχε παλιγκότως ἀντιβολίας ἐμαίσι, proposed in the former edition, has now been accepted into the text; and it is true nothing better has been suggested, although this, like some other of Mr. Rogers's proposals is not altogether convincing. With his caustic remarks on Cobet and Meinecke and the professional emenders (p. 177) we are in cordial agreement. Amongst the excellent notes we may mention those on τὸ δαίνα 268, and πολλοστός 599. That on diminutives, however (382) is not clear. What form makes the distinction?

It is the translation, of course, which is the distinctive mark of Mr. Rogers's work. Here he has not the same scope as in the *Birds* or the *Clouds*; the lyrics of the *Peace* are not of the same quality. But the version is full of life, and has a rollicking rhythm which seems to sing. It is almost as rich in rhymes as the "Ingoldsby Legends." Perhaps a better effect might have been got for the "pulling" song if the old sailors' chants had been imitated. These, it will be found, always have words for the intervals between the pulls, so that "Pull, pull, pull, pull," is not only inferior to *ὦ, εἶα, εἶα, εἶα*, but is not in keeping with the genius of our own language. Nor are the hexameters a happy experiment; if English hexameters are ever to please, they must be made on the same principle of accent and quantity as the Latin, not of this type; *poste recumbite vestraque pectora pellite tonsis*.

PLAYS FOR VILLAGERS AND OTHERS.

By FANNY JOHNSON.

THE propagandist play we have now always with us. Advocates of temperance, of liberalism, of conservatism, of woman's suffrage, and other controversial topics have acquired the habit of putting their views into dramatic form, not always to the improvement either of the idea or the drama. One of the plays before us, prepared for, and presented by, villagers, is too obviously inspired by the Navy League. The five episodes which show the development of "The Sea Power of England" (a play for a village audience, by Amabel Strachey, with a chorus by Mrs. St. Loe Strachey; Curtis, Guildford, 2s. 6d. net) are constructed so as to emphasise the warning, "Lest we forget," and lest we allow our sea-power to decline. Apart from this propaganda with which, as here set forth, few could find much fault, the episodes are admirably planned. The language is excellent, and shows both learning and literary taste. The scenes represent Alfred hearing of the defeat of the Danes off the Isle of Wight, the Battle of Sluys, founded upon the account in Froissart, the Armada, the Dutch invasion under Charles II., and the death of Nelson. Each episode is phrased appropriately to indicate the period, and a bright, lively air is given to the whole by incidents of comedy, by dance and song, and—in the "Alfred" episode—by the recitation of Alfred's sagaman.

The play has stood the test of actual performance, an account of which, with admirable hints as to costume, etc., is given in a note by Mr. G. F. Metcalfe, the producer, whose clever suggestions make the mouth of an ambitious stage-manager water. No one could go far wrong by following the full instructions here given. The history is unimpeachable, and the treatment of episode V. has something of the quality of Mr. Hardy's "Dynasts." The force of praise can no further go.

Miss Amice Macdonell is on different ground in her first published play for "grown-ups," "The Way of the Heart" (George Allen, 6d.). It is a charming

love story of the "Auld Robin Gray" type, founded (the author says) on "several north-country stories woven together," and contained, we believe, in ballads. The *motif* of the piece is the honour of the family, which is redeemed by the heroine's marriage with the wrong man. Miss Macdonell's dialogue is simple, and well adapted both to her theme and to the capacities of village players, for whom the play seems to be designed. Being of an unambitious character, both as regards costume and staging, it may be recommended confidently to any amateurs in search of new and attractive material. Indeed, it has quite sufficient merit to succeed on the ordinary stage, given actors rightly disposed, of the type, for example, of the Irish players. No doubt, we shall ere long evolve just such a company of English players, who might well travel from village to village, keeping alive the torch of the best dramatic traditions.

Three little books of historical playlets (Macdougall's "Little Dramas of History," Books I. and II., 6d. each, Book III., 8d.), will serve a useful purpose in primary schools. They are simple, but carefully selected, and graded to the capacity of various standards, on the concentric principle. It seems unfair not to give the name of the author. Though in such work there can scarcely be much room for originality, there is room for research, for intelligence, and for industry, not to mention the skill that controls the natural desire of a writer to shine as a literary character, in favour of the simple style which is required by the children for whom his work is intended. So much splendid and obscure work of all kinds is done by teachers, that the credit of such ability should be given where it is due.

SCHOOL INSTRUCTION IN HOUSE-CRAFT.

- (1) *A Textbook of Domestic Science for High Schools*. By Matilda G. Campbell. viii+219 pp. (New York: The Macmillan Co.) 4s. net.
- (2) *Foods and Household Management*. By Helen Kinne and Anna M. Cooley. xvi+401 pp. (New York: The Macmillan Co.) 5s. net.
- (3) *Shelter and Clothing*. By Helen Kinne and Anna M. Cooley. xvi+377 pp. (New York: The Macmillan Co.) 5s. net.
- (4) *Pitman's Housecraft Series*. By Helen Head. Book I., Junior. 75 pp. 6d. Book II., Intermediate. 71 pp. 6d. Book III., Senior. 102 pp. 8d. (Pitman.)
- (5) *Demonstrations on Infant Care*. By Mrs. Kate Truelove. 54 pp. (Bell.) 8d.
- (6) *Personal Hygiene for Girls*. By Mary Humphreys. xii+148 pp. (Cassell.) 1s. 6d.
- (7) *The Principles of Health and Temperance*. By Mrs. Ellis H. Chadwick. 180 pp. (Pitman.) 1s. 3d.
- (8) *London County Council Handbook for Classes in First Aid, Home Nursing, Health, and Infant Care*. 78 pp. (Westminster: P. S. King and Son.) 2d.

THE dry bones of the school subject of domestic economy are being clothed with flesh. Theoretical lessons on physiology and the chemistry of food are giving place more and more to practical instruction in household management. The dreary manuals of last generation, with their diagrams of drains and tables of vital statistics, are being ousted by books which, by displaying something of the real fascination and dignity there is in the efficient running of a house, will make girls eager to practise a craft so evidently and eminently worth while. At the same time, practical classes enable the pupils to "learn by

doing," under skilled supervision, the duties of what is tardily recognised as the most responsible and important of avocations. "Everything in life that matters begins in the home," says Miss Humphreys (6), and the statement is scarcely an exaggeration.

In the teaching of housecraft the point of view has shifted more than once. Rule-of-thumb methods, handed down from mother to daughter in home instruction, naturally die hard, even when they are absurd, as they occasionally are. The attempt to teach domestic science in schools by treating household processes as special illustrations of chemical and physical laws rarely had much effect on the time-honoured traditions of the home, though it was a step in the right direction. It remained for the most part an affair of the school laboratory, not of the kitchen or the nursery. Now, however, it is recognised that although scientific principle must necessarily underlie every lesson in housecraft, the domestic rather than the scientific aspect of the subject is to be emphasised. The interest must be focussed on the home itself; the work must be actually a training in a craft. It is more important that a girl shall be able to plan, cook, and serve a meal well, to wash a woollen garment without shrinking it, and know how to "turn out" a room and bandage a cut, than that she shall understand the action of the various ferments in pancreatic juice, or be able to explain the action of baking powder by a chemical equation; more important that she shall realise the dangers of dust than that she shall know the physics involved in the working of a vacuum cleaner.

The first of the books noticed here illustrates excellently the desirable balance between theory and practice. Confined largely to the subjects of food and nutrition, and the application of heat to foods, it is essentially a textbook of practical cookery, but cookery handled in a simply scientific and explanatory manner which is in refreshing contrast to the empirical dogmata of the ordinary cookery book. Each chapter opens with a few carefully selected experiments, which throw light on the methods to be practised in the lesson. The book contains hundreds of useful recipes—not arranged alphabetically as usual (with "turkey" next to "turnips"), but grouped naturally. For high-school girls nothing could be better.

"Foods and Household Management" (2) and "Shelter and Clothing" (3) together provide a comprehensive and attractive course of reading on domestic matters, suitable for girls of college age. The greater part of the first of these two books is concerned with cookery and the nature of various foods, but the food question is considered throughout in relation to other departments of domestic economy. Other subjects dealt with are the household budget, shopping methods, laundering and dry cleaning, and housewifery generally. The volume on "Shelter and Clothing" includes, among other things, sections on the furnishing and decorating of the home, the nature of textile materials, embroidery, sewing and garment making, and millinery. The chapter on "Costume Design" is somewhat novel, and will be found of absorbing interest to every feminine reader. Both volumes are excellently printed and illustrated.

Pitman's Housecraft Series (4) is of modest appearance and get-up, but is thoroughly workmanlike and almost severely practical. Books I. and II. are each divided into three parts, dealing respectively with cookery, laundry work, and household management. In Book III. these subjects are supplemented by sections on sick nursing, the care of infants, simple upholstery, millinery and dressmaking, and the laws of health. The three little books may be cordially recommended.

The crowning aim of all household management is obviously to secure the health and well-being of the individual members of the family. This personal aspect is well dealt with in Miss Humphreys's book (6), which supplies all the information necessary for the avoidance of serious errors in respect of diet, fresh air, clothing, exercise and rest, and in a manner which most girls will find attractive and convincing. Here and there the book is perhaps a little over-sententious in tone, but that is a slight fault among an abundance of excellencies. The volume is well got up.

School instruction in the care of babies is quite recent, but it has evidently come to stay. In several cities schools for mothers have been established with conspicuous success, and in a very large number of towns women sanitary inspectors and health visitors are regularly engaged in dispelling the appalling ignorance of the subject which prevails in the majority of working-class homes. But this is not enough, and fortunately most of the required training in infant care is of such a nature that it can be given with the best results to quite young girls. Mrs. Truelove's simple demonstrations (5) are carried out on large washable dolls, and the girls thus gain practical experience of correct methods of washing, dressing, and feeding infants. The numerous reproductions from photographs and explanatory paragraphs of the book give convincing evidence that such preliminary training is on right lines.

Mrs. Chadwick's book (7) covers a wide field, and would serve well as a class reader. It includes chapters on household management as well as on the laws of health. Nearly one-quarter of the book is concerned with the evils of alcoholism.

The syllabuses contained in the Handbook of the London County Council (8) provide notes of lessons which teachers of classes in the subjects mentioned will find invaluable.

RECENT SCHOOL BOOKS AND APPARATUS.

Classics.

The Elements of New Testament Greek. By H. P. V. Nunn. x+204 pp. (Cambridge University Press.) 3s. net.—This book is meant for those who take up Greek late in life, or at least after leaving school, and wish to read the Greek Testament. Grammar and vocabulary are given by instalments, as in most beginners' books, with exercises; this differs chiefly in the vocabulary, which is that of the New Testament. Here lies the chief difference between this book and others, and it suggests the question at once, whether such be indeed the best way of learning Greek. It is clear that there may be some little saving of time at first, but seeing how familiar is the English Testament, the gain is not very great, and there is the loss that a very narrow idea is given of the Greek language. And although the G.T. syntax is simpler than the classical, its peculiarities (such as $\delta\epsilon$ $\acute{\epsilon}\alpha\nu$ and $\acute{\iota}\nu\alpha$) are best understood after a study of the classical practice. For these reasons, we are inclined to think that an ordinary manual is a better beginning; it is quite easy to use the G.T. as a reader along with one such, and to begin it almost at the very first. However, in theological colleges, where time is limited, and no thorough education can be given anyhow, this book may well prove to be more suitable; we should then ask whether the system of such colleges is wise. Thus much premised, we find in the book a treatment on the whole sufficient, but capable of improvement. Apart from details (such as giving the diphthong of

they as the real sound of η) we find that the arrangement does not quite follow the lines of the preface. There the order is said to be determined by frequency of occurrence; yet ὁ ἦ τό does not come until lesson viii., and εἰμί in lesson x., the verbs in -μι coming at the end.

The Year's Work in Classical Studies, 1913. Edited by Cyril Bailey. xvi+216 pp. (Murray.) 2s. 6d. net.—This book is now indispensable to the student, but its contents are so close packed and so full of useful knowledge that to review it is impossible. We can only direct attention to a few novelties. One is the discovery at Thermon of houses shaped like an ellipse with one end cut off, and apparently of an elliptical temple, from about 1500 B.C. Kephallonia, it appears, is now a candidate for the honours of Homer's Ithaca; old-fashioned people may be glad to know that excavations have had a "negative result." It is good also to see the progress made with the study of Roman Britain. The splendid find of coins from Corbridge is now in the British Museum, and will be kept apart. We wish the section on Greek inscriptions might print some of the most important, as is done for the Roman. One of these gives a good picture of the ideal Roman wife, who always rose first and went to bed last, said little, and never left her work out of her hands. Among the papyri is a long passage of Menander, as it appears, and a fragment of Sappho. The Washington MS. of the Greek Gospels (vellum, fifth century), now published, is of first-rate importance, and a collection of laws from Egypt. Specially valuable is the paper on modern Greek, of which England knows too little. The editor's part has been well done; there is some repetition, which is difficult to avoid, but not much.

The Agricola of Tacitus. vi+92 pp. *Sallust's Catilina*. x+98 pp. (Bell's Simplified Latin Classics.) 1s. 6d. each.—These books deserve mention, as likely to be useful in schools where little time is available for Latin. The text is simplified, and the sentences are presented each in a paragraph, to help the youthful mind and save it from confusion. There are questions for answer in Latin, English sentences for translation, a vocabulary, and pictures. The editor thus does frankly for the boy much that at a later stage he ought to do for himself, doubtless in order to make the books possible at an early stage. In the same way, the editor does for the master what the master should do for himself, by asking the questions. Of course, these are much better put on the spur of the moment, from the text, but his guidance will help those who are not used to that way of dealing with a text. Thus, although these are books of transition, they will be useful for some time to come.

A History of Greece to the Death of Alexander the Great. By J. B. Bury. xxvi+910 pp. With maps and plans, and many illustrations. (Macmillan.) 8s. 6d.—This is a new edition of Prof. Bury's history, now well known and widely used. It differs from the earlier edition chiefly in chapter i., which has been rewritten in the light of the Cretan discoveries. The story is abreast of present knowledge, and it is well and clearly told, although not without some of the fancifulness of the discoverer, which will probably leave its mark on writers for a long time to come. It would have been well to include a few more illustrations of this phase, such as the frescoes with houses and shrines, the cupbearer, the warrior vase. But the volume is packed full of good pictures, well reproduced considering its cheapness; this also excuses the crowding of the page, which has scarcely any margin, but still leaves the reader regretful.

English.

English Literature for Schools. Edited by Arthur Burrell. 124 pp. (Dent.) 6d.—Enough of these little books have now been published to estimate their scope and their usefulness. Of the first twenty-five volumes ten are given to poetry, two to history, three to biography, two to romance, and the others include Bible stories, Gulliver, the Christmas Carol, and selections from Borrow and Washington Irving. Ex-Principal Burrell, we are glad to find, is a believer in the plain text; all he adds by way of critical apparatus or help is a pleasant and sensible introductory letter to his young readers dealing with the life and work of his author. For Middle Forms nothing could be better, especially as the works selected will appeal to them on every ground. They will appeal, too, to teachers who wish to present to these young pupils a course of reading which shall be at once interesting in itself and fit in with a progressive view of literature. There is nothing pretentious in the selections, but they have been made with great judgment and skill. The "Tennyson" illustrates this as well as any of the booklets. There we find, as in a selection for the present purpose we should hope to find, "The Lady of Shalott," "Ænone," "A Dream of Fair Women," "Sir Galahad," "Ulysses," "Ode on the Duke," and "The Charge of the Light Brigade"; and we also find excellently suitable excerpts from "The Princess," "Enoch Arden," "In Memoriam," and "The Idylls." When we add that the print and paper are excellent, and the binding dainty and strong, it will be seen that Messrs. Dent are supplying a series which teachers of English are sure to appreciate.

Bohn's Popular Library. Vols. 41-60. (Bell.) 1s. net each.—Messrs. Bell's enterprise in making the books in Bohn's wonderful collection available at the price of one shilling a volume should meet with well-merited reward. To be able to obtain these masterpieces of the world's literature, clearly printed, neatly bound, convenient in size, and at a price within the reach of almost everyone, should give satisfaction to all who work for the cultivation of good taste in reading. Sensational periodicals and superficial magazines have had a debasing influence upon the products of compulsory education, but there are signs that something more substantial is now demanded by a large section of the reading public; and the popular issue of Bohn's libraries should do much to meet it. The score of new books just issued includes Lane's "Arabian Nights' Entertainments," Manzoni's "Betrothed," which first appeared in 1825, and has attained a universal reputation, Poushkin's "Prose Tales," and "Select Works of Plotinus"—all these volumes being translations. Another translation is Goethe's "Faust," edited with introduction, by Prof. K. Breul. We have also the "Sacred Poems" of Henry Vaughan, Emerson's poems, and the poetical works of William Blake, with W. M. Rossetti's preface memoir. There are four of Trollope's Barse-shire novels (six volumes in all), and Trelawny's "Adventures of a Younger Son" among the novels; and, in addition, five biographical essays by Macaulay, belonging to the last period of his literary work, and Hooper's "Campaign of Sedan." For all these books we are grateful; and we trust that the encouragement which the publishers have received justifies anticipation of further favours to come.

Representative English Comedies. Edited (under) Prof. C. M. Gayley. 586 pp. (New York: The Macmillan Company.) 8s. 6d.—This handsome volume is the second of three the purpose of which is to indicate the development of English comedy. Five

plays are printed, and each has a learned introduction; the plays are well known (to students), and we have them in their original form. Notwithstanding the attempts of the "Mermaid" and the "Belles Lettres" series, the comedies and even the tragedies of Elizabethan days are caviare to the general; but, as the editors remark, popular acceptance is by no means the only criterion of worth. There is an aristocracy of appreciation, and it may well be that the "Alchemist" is as poetical a play as the "Tempest." Yet, until we read the "Alchemist" in schools, and no one proposes this, the "Alchemist" will remain unknown. There are signs that our ultra-idolatrous treatment of Shakespeare is being succeeded by something more rational; and then perhaps a new Bowdler will be found to edit the fine work of Shakespeare's contemporaries. But the man of Stratford has a very long start; and perhaps the general cleanness of his great comedies will, apart from their genius, prevent any competitor from coming near them. We are quite aware that this book is not for schools; the more is the pity.

History.

Wall Atlas of Modern History. Edited by Ramsay Muir and George Philip. Eight maps, 45×36 in. (Philip.) 5s. net each.—In July, 1910, an article in THE SCHOOL WORLD complained of the "deplorable want" of historical wall-maps which existed at that time in England. "They simply cannot be obtained," it said. During the four years that have elapsed since then several praiseworthy attempts have been made to supply the want. It is safe to say, however, that for the periods of which they treat no English series published up to the present can rival the eight maps of the "Wall Atlas" before us, in fulness and utility. Four of the eight depict Europe at different stages of its political development, viz., 800, 1100, 1500, 1810 A.D. The remaining four are concerned primarily with England; the first gives side by side Roman Britain and Anglo-Saxon England; the second medieval England, Wales, Scotland, and France; the third north-western Europe at the time of Louis XIV.; the last England before and after the Industrial Revolution. The maps are clearly printed and coloured in a manner that makes the great political divisions prominent. Their accuracy is vouched for by the fact that Prof. Ramsay Muir has edited them. The only serious criticism to be made is that, except in the case of the map of Roman Britain, physical features are generally ignored. It would have been of great value if in one at least of the series the leading physical characteristics of the European continent had been represented. There can be no doubt, however, that the eight maps will be of great service to the history teaching in schools and colleges, and it is to be hoped that the publishers will be encouraged by the demand to produce a supplementary series at no distant date.

The French Revolution. By H. P. Adams. viii+250 pp. (Methuen.) 3s. 6d. net.—The general reader who knows that his "Carlyle" is now discredited as an account of the inner working of the history of France in the years 1789-95, but has not time or means to read the large books on the subject, much less even to begin the study of the periodical literature constantly being published in France, will welcome this book. As Mr. Adams says in his preface, "this is an elementary book; it aims, above all, at making the history clear," and this is especially desirable, for, of course, there was not one French Revolution in those crowded years, but several. The actors whose names are so familiar were not united in their aims, they had various ideals, which they attempted, generally with little success, to carry out during the brief

periods they controlled matters before going to the guillotine. The story is like a cinematograph show, events tread on one another's heels and one wants a simple setting forth of the various phases. This is what Mr. Adams gives us in thirty-two short chapters from the "antecedents of the revolution" to the Thermidorean reaction and the "results" of the whole tragedy. There are added an account of the States-General and of the Revolutionary calendar, as well as an index and a map of Paris.

Surveys of History. By C. H. Russell. vii+45 pp. (Bell.) 4s. 6d.—This is a wonderful book. In forty-five quarto pages, the history of the world is summarised. One page is given to "ancient empires," six to Greece, ten to Rome, eight to "movements of nations" and rise of modern States, eight to England, six to France, four to Israel and the Jews, and two to chronological tables. We wonder at the disproportion. Germany has only a portion of one page, while France and England have six and eight pages respectively; a page each is given to the literature of Greece, Rome, England, and France, while other literatures are apparently not represented. It is impossible, of course, to criticise in detail such a mass of information; we have noticed one or two small errors possibly due to misprints, but to a student incapable of making his own notes, this book will be useful.

The Threshold of History. By H. R. Hall. 159 pp. (Harrap.) 1s.—Whether because folk are beginning to think that youngsters would be interested in primitive life, or because there has lately been an increase in our knowledge of prehistoric man, there have been many books written lately for boys and girls telling them of the doings or possible doings of their far-distant ancestors. This is one of the best of such. The author creates a young hero called Bran, and having described, under the guise of his experiences, the life of the people to whom he belonged, he (or she) sends him on adventures among other folk, some less, some more, advanced than his own folk. We think the youngsters will suspect the powder in the jam, but the reading of this book, with its good pictures, both authentic and imaginative, will certainly give them information in a very pleasant way.

Geography.

Commercial Geography of the British Empire. By Frederick Mort. 235 pp. (Oliver and Boyd.) 1s. 6d.—This book is divided into two parts, one dealing with geographical factors that influence commerce and commodities that enter largely into commerce, and the other dealing with the commercial geography of the British Empire. In the first part of the book the author not only presents his facts in an interesting way, but he succeeds in showing the connection between cause and effect, and why certain industries have developed in certain places. The descriptions of the various commodities and of the processes they have undergone to prepare them as articles of commerce are sufficiently clear and detailed. In the second part the author is not so successful; he has crowded too much into the space at his disposal; apparently he has been anxious to include as many facts as possible, and his pages are filled with statements that have little relation to each other. Many pages in this part of the book are devoted entirely to tabular statements, e.g., a long list of imports and exports is given for various British seaports (pp. 108-111). It is difficult to see what educational value there is in these tables; for purposes of reference they are of little value; they would probably confuse rather

than help a candidate reading for an examination. In most of the statistical tables the value of the various articles is given for the year 1911 only. From year to year values vary considerably, and hence average values (such as those given in a few cases) should be given throughout. The book is illustrated with maps and diagrams, and, with a few exceptions, the illustrations are clear and instructive. In Fig. 16 the wheat belt of North America should not be bounded by a political frontier; the Canadian portion of the belt should be shown on the same map.

Principles and Methods of Teaching Geography. By F. L. Holtz. 359 pp. (New York: The Macmillan Co.) 5s. net.—This is an American book, written for American teachers. Judging from the amount of information which is included either as illustrative of teaching methods, or as being likely to help the teacher towards an improved presentation of the subject-matter of geography, the American teacher is in greater need than the English teacher of assistance in the selection of his facts and in the treatment of the facts which he teaches. From the amount of such apparently additional matter one is forced to the judgment that this book is not a treatise upon one aspect of pedagogy, but a teacher's guide. One rather striking feature of the course of teaching suggested is the apparent neglect of the great vegetation regions of the world in relation to their climatic controls and to their economic products. From this fact it is surmised that in American geographical teaching the scientific concept of the world as the geographical unit does not find favour in American school practice. This conclusion is enforced by the statement in the first chapter, which deals with the aims of geography: "The study of foreign regions is but a complement of home geography. As citizens of the United States we should be acquainted with the geographical conditions of the countries with which we have commercial dealings, or historical and political association. Many useful lessons for home application may be learned from the study of foreign countries." This is a somewhat parochial view of the matter, and detracts rather from any claim which may be made for the inclusion of geography as a scientific study. Yet, the book is thoughtful and suggestive, and has many good points; we note an important warning that the causal principle may be pushed too far in connection with geographical explanation. Mr. Holtz confines his notion of the causal principle to what English geographers would call the control due to the physical portions of the environment; and his caution amounts to the recognition that the human element of the environment is at times much more important than the mere physical control. The final chapters deal with the evolution of geographical knowledge, the history of the science of geography, and the history of its pedagogy, and with some American text-books of geography.

"Visual Instruction Committee Handbooks." No. 5. *South Africa.* Seven lectures prepared by A. J. Sargent. 120 pp. Illustrations. (Philip.) Cloth 1s.; paper 8d.—These lectures are prepared to supplement the use of more than 400 lantern slides, which have been made from specially selected photographs to illustrate the main features of the British Dominion in South Africa. The work owes much to the generosity of the Rhodes Trustees. The total cost of the slides is £33, or £22 5s., but they may be purchased in batches of not fewer than two dozen, and the lecture sets may be hired from Messrs. Newton at a fee of 10s. per set.

A Geography of the British Empire. By W. L. Bunting and H. L. Collen. 159 pp. Maps, photo-

graphs and diagrams. (Cambridge University Press.) 3s. 6d.—This book for the higher classes of preparatory and the lower classes of public schools follows the lines laid down in the syllabus adopted by the Headmasters' Conference in 1910. It deals first with generalities, then the Mother Country, and finally the constituent parts of the Empire in turn. The photographs are good, the diagrammatic and other maps clear; the facts stated are suitably few in number, and duly related to each other. There are many questions and exercises which are well designed.

Mathematics.

The Groundwork of Arithmetic. By M. Punnett. xii+234 pp. (Longmans.) 3s. 6d. Exercises. Book I., 58 pp. 4d. Book II., 106 pp. 6d. Book III., 84 pp. 6d.—This book, by a writer who has devoted much attention both to the theoretical and practical aspects of teaching, will be welcomed by those who have to deal with young children. The aim of the writer has not been to discuss the problem of teaching arithmetic from all possible points of view, but having carefully studied the subject, to set forth her conclusions in the form of a course which is intended to cover the work of the first five years of school life. To each year corresponds a section divided into two parts, one dealing with the idea of number in relation to discrete objects, and the other dealing with the measurement of continuous magnitude. The operations of addition and subtraction appear in sections I. and II., multiplication in III., and division in IV. The course is also graduated with respect to the magnitude of the numbers involved. The treatment of details is indicated in a series of examples which suggest the methods to be employed in dealing with the most important and typical parts of the subject-matter. These examples, indeed, form the groundwork of the book, and from their nature will be found of value, even apart from their position in the general scheme. The writer has evidently bestowed much thought upon the difficulties which children experience in learning the subject, and her acquaintance with the psychological aspects of the problems involved gives weight to the solutions she offers.

A First Book of Practical Mathematics. 183 pp. 1s. 6d. *Practical Mathematics for Technical Students.* Part i. 370 pp. 3s. 6d. By T. S. Usherwood and C. J. A. Trimble. (Macmillan.)—One of the authors of these books being a Whitworth exhibitor and the other a late scholar of Trinity College, Cambridge, we have *a priori* reason to expect a judicious combination of the practical and the academic. Nor is the expectation disappointed. If an engineer is to use mathematics at all, it is worth his while submitting himself to a course of drill in performing the fundamental operations, in the course of which he may be called upon to work a number of examples the practical value of which may not be immediately obvious. The teacher whose training is purely academic may fail to give him the right sort of examples, while the purely practical man may not be acquainted with the best methods of performing the calculations. But the student who uses these text-books may do so with full confidence that he is in the hands of guides who will lead him by safe and certain paths to his goal.

The first volume deals with elementary algebra and mensuration. The second is a continuation and expansion of the first, and introduces the reader to trigonometry, solid geometry, and the ideas underlying the calculus. The number of examples is large,

and sets of examination papers set by various bodies are included. We heartily commend these books to all teachers of practical mathematics.

Science and Technology.

Chemistry and its Relations to Daily Life. By L. Kahlenberg and E. B. Hart. 393 pp. (New York: The Macmillan Co.) 5s. 6d. net.—Prof. Kahlenberg and Hart have written an interesting and instructive manual primarily intended for those students who will be entering an agricultural college or pursuing a course of home economics. They have aimed at incorporating a large number of useful facts whilst relegating pure chemical theory to the background. Formulae, for instance, are only introduced as a convenient method of representing the various compounds. The authors, however, have not sacrificed in any degree the accuracy which should distinguish all scientific text-books, and, in point of fact, their treatment is precise and luminous. The scope of the book is very wide; most of the commoner elements are mentioned briefly, and in particular such of their compounds as are likely to be met with on the farm. In the chapter on water the student meets with such topics as surface drainage and pollution of wells; filters and antiseptics; water softening and rain-water storage. Ammonia and nitrates are discussed from the point of view of manuring; chlorine is introduced as the essential component of bleaching powder; arsenic is brought forward as a useful germicide and fungicide in the form of sprays; whilst boron is mentioned in connection with borax and boric acid. These few examples will serve to show the eminently useful nature of the book; scarcely a substance that the farmer handles but forms the text for a chemical sermon. The book is excellently illustrated, although reproductions of a carboy of muriatic acid and of the commoner farmyard animals seem superfluous. Whilst admirably fulfilling its more immediate purpose there should be room for such a book on this side of the Atlantic.

The Age of Machinery. By Alexander R. Horne. 208 pp. (Blackie.) 2s. 6d.—In this little book will be found clear and interesting descriptions, accompanied by good illustrations, of many mechanical appliances in common use. Sections are included explanatory of fuels, iron, steel, and other metals and alloys; these are followed by descriptions of the working of steam, gas, and oil engines, the use of water power and compressed air, refrigerating machinery, locomotives, flying machines, electrical appliances, and ships of war and other vessels. The book is readable, and will be much appreciated by any boy studying physics and chemistry who has a mechanical inclination. While many of the illustrations are merely "pictures," the author is to be commended in giving sections and outline drawings in many cases where the explanations require such drawings.

Art.

Architecture Shown to the Children. Illustrated by numerous drawings. By Gladys Wynne. xvi + 132 pp. (Jack.) 2s. 6d. net. The "Shown to the Children" Series, edited by Louey Chisholm.—It may be doubted whether young children will care to learn the parts of the Ionic order, or the plan of Pisa Cathedral. Those of the middle age, from fifteen to seventeen, would often welcome such a book, and they will find what they want here, if they can forgive the author her sentimentality. The jaunty style (e.g., of pp. 31, 85), and the puns are out of place. On p. 14 Caryatides is said to be a good name, because they "carry a considerable weight"; but the reader is likely to retort

that it is a bad name, because whatever they carry, they do not carry 'ats. The allegorical interpretation of the egg and dart moulding (p. 6) is very funny to those who know what it may represent. The plates are many and good.

History and Methods of Ancient and Modern Painting. By James Ward. 250 pp. Illustrated. (Chapman and Hall.) 7s. 6d. net.—Painting is associated popularly with the use of some more or less fluid pigment and a brush. In the sense in which Mr. Ward employs the word it includes all representation in colour in whatever medium, and embraces in its scope mosaics, embroidery, and any form of coloured decoration. This comprehensive treatment of the subject opens up a tremendous field of study, and the history of painting becomes virtually a history of nations: their growth, art, architecture, religion, and domestic life. The result of Mr. Ward's researches is a most fascinating and informative volume, which should make its appeal to every grade of art student, art worker, or art connoisseur. Dealing with painting in this broad and general sense, Mr. Ward outlines the history and methods of painting from the earliest Egyptian times to the beginning of the Italian Renaissance, and concludes with some extremely practical chapters on the nature and composition of pigments, varnishes, and other media employed in modern painting. The book is extremely well illustrated, and forms an admirable complement to the same author's well-known treatise on historic ornament.

The Meaning of Art. By Paul Gaultier. Translated by H. and E. Baldwin. 220 pp. Illustrated. (Allen.) 5s. net.—In view of the clash of modern controversy on matters artistic, it would be too much to say that the theories advanced in this book on the "meaning of art," will find universal acceptance. For the layman who seeks initiation into the mysteries of art appreciation the present volume may, however, be recommended as a sound and stimulating means of introduction. Premising that "art, properly so-called, is the realisation of beauty," and that "beauty is æsthetic emotion made objective," M. Gaultier considers his subject from the strictly emotional point of view, that being the only one that signifies when we take account of the pleasure and profit which are derived from the contemplation of works of art.

Miscellaneous.

The Bible Story and its Teaching for Children. By Baroness Freda de Knoop. 392 pp. (Dent.) 6s. net.—It is to be hoped that this welcome book will not pay the penalty of its title and be regarded as a book only for children. For though written for children, there is much in it that a child unaided will be far from understanding. Furthermore, there is much in it—indeed, to the whole of it this remark might apply—that will prove of great value to a Bible teacher in preparing lessons for young people. From the nature of the subject, there is little that is new in the book, but the old is presented with a grace and freshness that are very alluring. The illustrations are unique. There are forty in all, and each one is a full-page reproduction in colour of some great religious masterpiece, from one or other of the Italian galleries. They are remarkably well done, and the wisdom of the choice may be gauged from the fact that "The Adoration" included is that of Ghirlandajo, and "The Last Supper" that of Veronese. One omission is rather surprising; there is no copy in the book of any masterpiece of the "Sacrifice of Isaac," surely a characteristic subject of Italian religious art.

The Layman's Old Testament. Arranged and edited by Canon Glazebrook. 870 pp. (Oxford Uni-

versity Press.) 4s. 6d.—This book is a notable contribution to the revival of interest in the actual text of the Old Testament. It has for long been fashionable to read literature on the literature of Holy Writ. This compilation presents an attractive temptation to Old Testament reading itself. The volume is in two parts, the historical books, and the prophets, psalms, and wisdom books. It comprises the greater part of the Old Testament, with selections from the Apocrypha essential to the completion of Hebrew history so far as we have it in scriptural writings, and to an adequate idea of the wisdom literature. The text used is that of the Revised Version, but the editor has improved it by including all marginal renderings that are now generally admitted to be correct. The plentiful footnotes—"merely answers to obvious questions which many readers are sure to ask"—are a valuable addition. A series of eleven specially prepared and thoroughly practical and usable maps, with an informing "note" on their use, is included. It would have been well to have had them numbered, however, to correspond with the index references. The headings of chapters and sections, brief connecting summaries, the admirable general arrangement, and the type of varied size used throughout the book, all add considerably to its beauty, utility, and great value. At the risk of appearing to cavil, we just wonder whether it would not have been still further improved by the entire omission of the verse numberings from the body of the text in the prose portions.

The Boys' Prayer Book Compiled by Alex. Devine. 224 pp. (Methuen.) 1s. 6d. net.—In his introduction to this book, Mr. Devine writes: "I found it necessary to supplement the Prayers of the Church with others more particularly suited to the needs of boys. . . . As will be seen, the Prayers have been drawn from the Liturgies of every section of the Christian Church. They are, of course, primarily designed for school use, but I hope they may be found suitable to the requirements of all kinds of boy communities, to boy scouts, to boys' brigades, and to boys' clubs and institutes." The compiler has been faced with a widespread necessity, and he has provided a supplement with conspicuous success. This is the best book of its type we have yet seen, for unlike the prayers in most similar collections, these included herein are, with scarcely an exception, suitable, appropriate, and dignified. The classified table of contents is a sensible feature in a valuable book.

A New School Hymnal. Edited by E. M. Palser. 288 pp. (Harrap.) 1s. net.—While believing, because of all the circumstances of the case, that the ideal hymnal to suit all needs is impossible of compilation, and that to approach the ideal for practical purposes a school hymn-book must be accompanied by its own tunes, we hasten to say that this is the most nearly perfect collection of hymns for young people that we have yet seen. Mr. Palser has performed his difficult task with conspicuous success. The book contains 224 of the best of hymns for school use, twenty-five psalms, canticles, and other passages from Scripture for chanting, remarkably well pointed, a collection of "Graces," English and Latin, a number of blank pages for the inclusion of additional hymns, and a bountiful index of tunes, the references being to no fewer than twenty standard tune-books. After exhaustive examination we have to say that there is not a single hymn in the book that had been better omitted. We are gratified to note that Mr. Palser has included the best of Kipling and Newbolt; every item will appeal strongly to the best in young people. We welcome this excellent collection, and with confidence recommend it.

EDUCATIONAL BOOKS PUBLISHED DURING MARCH, 1914.

(Compiled from information provided by the Publishers.)

Modern Languages.

"Junior French Reader: A Collection of Short Stories in Simple French, Employing Current Phraseology and Idioms." By E. Renault. 120+viii pp. (Edward Arnold.) 1s. 6d.

Heinrich von Kleist: "Prinz Friedrich von Homburg." Edited by G. F. Bridge. (Siepmann's German Series.) 100 pp. 2s. 6d. Word and Phrasebook to same. 24 pp. 6d. Key to Appendices of same. 52 pp. 2s. 6d. net. (Macmillan.)

"A 'Middle Method' German Course, Reading Book and Grammar, with Direct Method and Re-translation Exercises." By F. W. M. Draper. (Murray.) 2s. 6d.

English: Grammar, Composition, Literature.

Arnold's Literary Reading Books—"Masterfolk: A Reading Book for Junior and Middle Forms, containing Scenes from the Lives of Famous Men, Described by Great Writers. 256 pp. Illustrated. 1s. 6d." "Far Afield: A Reading Book for Junior and Middle Forms, containing True Stories of Travel, Sport, and Adventure in Many Lands." 256 pp. Illustrated. 1s. 6d. (Edward Arnold.)

Arnold: "The Forsaken Merchant and the Sick King in Bokhara." With Introduction and Notes by Edith Fry. (Blackie's Smaller English Classics.) 32 pp. (Blackie.) 2d. paper; 3d. cloth.

"Blackie's New Systematic English Readers." Book III. 176 pp. (Blackie.) 1s. 2d.

"Blackie's Practical Phonic Primers and Infant Readers." First Primer. 24 pp. 1d. Second Primer. 40 pp. 1½d. First Infant Reader. 48 pp. 2d. Second Infant Reader. 64 pp. 3d. (Blackie.)

New Supplementary Readers—"Next Door House." By Mrs. Molesworth. 160 pp. 8d. "Masterman Ready." By Captain Marryat. 392 pp. 8d. net. "A Hero of the Indian Mutiny." By Escott Lynn. 256 pp. 1s. (Chambers.)

"Chambers's Effective Reader." Book V. 272 pp. (Chambers.) 1s. 6d.

Chaucer: "Parlement of Foules." With Introduction, Notes, and Glossary. Edited by C. M. Drennan. 94 pp. (W. B. Clive.) 2s. 6d.

Scott: "Lay of the Last Minstrel." Edited by T. T. Jeffrey. 142 pp. 2s. 6d. Separately, Cantos I.-III. 77 pp. 8d. (W. B. Clive.)

"The Practice of English." By J. W. Adamson and A. A. Cock. (Mother Tongue Series, Book II. of the English edition.) 363 pp. (Ginn.) 2s. 6d.

Perse Playbooks--No. 4, "First-Fruits of the Play Method in Prose." By the Boys at the Perse School, Cambridge. With an Essay by H. Caldwell Cook. 183 pp. (Heffer.) 3s. net.

"Elizabethan Drama and its Mad-Folk: The Harness Prize Essay for 1913." By E. A. Peers. 189 pp. (Heffer.) 3s. 6d. net.

"A First Book of English Literature." By George Saintsbury. 300 pp. (Macmillan.) 1s. 6d.

"Notes on the Teaching of English." Part ii. By W. J. Batchelder. 188 pp. (Macmillan.) 1s. 6d.

"Sertum: A Garland of Prose Narratives." Book II., Nineteenth Century. Selected and edited by J. H. Fowler and H. W. M. Parr. 122 pp. (Macmillan.) 1s.

"Intensive Studies in American Literature." By A. Blount. 356 pp. (Macmillan.) 5s. net.

Lockhart: "Life of Scott." Abridged and edited by O. Leon Reid. (Pocket Series of English Classics.) 274 pp. (Macmillan.) 1s. net.

"The Golden Treasury." Selected and arranged by F. T. Palgrave, with Additional Poems and with Notes by C. B. Wheeler. 768 pp. 2s. 6d. Notes only. 253 pp. 1s. 6d. net. (Oxford University Press.)

History.

"Problems and Exercises in British History." Vol. iii., Book C. "Renaissance and Reformation, 1509-1688." By J. S. Lindsey. 446 pp. 4s. net. Ditto, interleaved, 5s. (Heffer.)

"Problems and Exercises in British History." Special part. "From Bosworth to Utrecht, 1485-1714." By J. S. Lindsey. 446 pp. (Heffer.) 4s. 6d.

Geography.

"Japanese Empire, including Korea and Formosa: A Guide-book for Travellers." By T. P. Terry. (Constable.) 21s.

"The Preliminary Geography." By A. J. Herbertson. (The Oxford Geographies.) Third edition, with revised text and diagrams. 160 pp. (Clarendon Press.) 1s. 6d.

Mathematics.

"An Introduction to the Study of Integral Equations." By Dr. Maxime Bôcher. (Cambridge Tracts in Mathematics and Mathematical Physics, No. 10.) viii+72 pp. (Cambridge University Press.) 2s. 6d. net.

"Chamber's Practical Concentric Arithmetic." Book V. By a Head Teacher. Edited by W. Woodburn. 72 pp. 4d. Teachers' Book to accompany above. 152 pp. 1s. 3d. net. (Chambers.)

"A Child's Book of Arithmetic." By Herbert McKay. viii+92 pp. (Methuen.) 10d.

Science and Technology.

"Manual of Needlework and Cutting Out." By Agnes Walker. New edition, revised and augmented by Jane A. Strachan. Fully illustrated. 336 pp. (Blackie.) 6s.

"Photo-Electricity." By Arthur Llewelyn Hughes. viii+144 pp. (Cambridge University Press.) 6s. net.

"Wild Flowers as They Grow." Vol. vi. By Mrs. G. Clarke Nuttall and H. Essenhigh Corke. 208 pp. (Cassell.) 5s. net.

"Railway Wonders of the World." Vol. ii. By F. A. Talbot. (Cassell.) 10s. 6d. net.

"The Amateur Mechanic." Vol. i. Edited by Bernard E. Jones. (Cassell.) 9s. net.

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CORRESPONDENCE.

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Inaccuracy in Arithmetic.

I HAVE read with very great interest and profit the discussion that has arisen out of my problem of the inaccurate clever boy. I have also to thank one or two correspondents who have sent me the sheets of exercises they use in testing for arithmetical bad habits. My own trouble has indeed been quite cleared up. But arising out of it may I still further trespass on your space to say a word upon two points. The first is the suggestion of Mr. Wyke Bayliss that all originating minds are inaccurate, and that accurate minds are stable, solid minds that do not invade and attack. Is not that too simple a classification? I

admit a kind of accurate mind that is inactive, that takes in facts and "retains its gorge" undigested, but is there not also a type of accurate mind that digests and operates upon its facts, rearranges them with precision, and is kinetic and originaive? There is surely the accuracy of the clear thinker as well as the accuracy of the rote learner. And is not the accurate clear thinker just the man who detects the difference, the exceptional phenomenon, that leads to inquiry and discovery? Surely all the great originators in scientific research have been primarily accurate men.

The second point to which I would like to direct your readers' attention is the probable share of trifling optical defects in arithmetical inaccuracy. Figures in columns get out of alignment, plus is mistaken for minus in rapid work, and so on. And careless and crooked figure making is also associated with this. In many cases I suggest that a visit to the oculist is indicated.

H. G. WELLS.

Little Easton Rectory, Dunmow.

Determination of the Acceleration Due to Gravity.

No satisfactory "falling body" methods have been yet devised for the accurate determination of the acceleration due to gravity. Atwood machines, blackened cylinders falling past vibrating tuning-forks, and the like, all introduce friction somewhere, and therefore give far from good results for *g*. The following "falling body" method is one that requires only the simplest apparatus, and the resistance to the falling body is merely that offered by the air. Moreover, the body records its position at equal intervals of time on a vertical strip of paper.

The apparatus consists of two parallel vertical wires *w, w* (Fig. 1) about 3 metres long and about 7 cm. apart, each connected to the secondary terminals of an

induction coil. A strip of paper is pinned over each wire, and a metal body having a flange *r* is suspended so that the flange clears the strips of paper by one or two millimetres. The current through the primary

of the induction coil is made and broken at definite intervals of time regulated by means of a pendulum, making a mercury contact at each half vibration, or if small intervals of time are necessary, the contacts may be made with a smooth-

running motor. At each make and break a spark passes from one wire to the flange *r* and back to the other wire, making a small hole in each strip of paper. These pairs of holes give definitely the position of the falling body at each interval of time.

In determining *g* a simple device suggested by Mr. John Talbot was used to make and break the primary current in the induction coil. It consisted of a spring *m* (Fig. 2) clamped at one end, and to the underside of the other end a pin was screwed. To make contact with the mercury cup *c*, a cork *K*, having a projection *p* on its circumference, was fixed

tightly on to the spindle of an electric motor. Contact occurred at each revolution. The motor could be timed accurately with a speed indicator attached to the spindle by means of rubber tubing. The period of the spring must, of course, be less than that of the motor. This device makes an excellent substitute for an electrically maintained tuning-fork, and has a big range of period.

The connections for an experiment are shown in Fig. 3. To make a determination the motor is set going and timed. The falling body is then released by burning the suspending thread and the motor timed again. If the timings agree the strips of paper should be examined for the spark holes, and the distances between them measured. A typical set of readings is given.

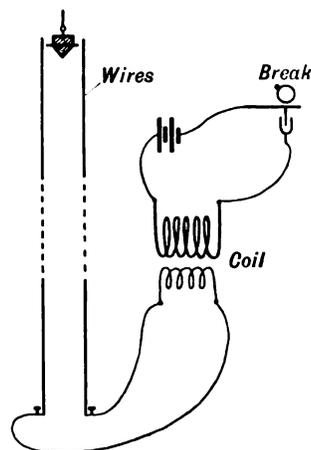


FIG. 3.

Distances between Consecutive Spark Holes.

Left strip	9.8	15.8	20.5	26.1	32.9
Right strip	9.7	15.0	21.0	27.2	32.4

Differences between Consecutive Spark-hole Distances.

Left strip	6.0	4.7	5.6	6.8
Right strip	5.3	6.0	6.2	5.2

Mean difference = 5.72 cm.

Time of motor.—100 revs. in (1) 7.6 sec., (2) 7.6 sec., (3) 7.8 sec.

mean time of one rev. = 0.0767 sec.

From the usual formulæ the differences

$$s_2 - s_1 = s_3 - s_2 = s_4 - s_3 = \dots = gt^2.$$

$$\therefore g = \frac{\text{av. diffe.}}{t^2} = 972 \text{ cms./sec.}^2.$$

It will be noticed that the sparks do not always go the shortest path between the wires and the falling body. This is probably due to irregularities in the wires and to the state of ionisation of the air at the instant of the spark's passage. The errors, however, caused by these go both ways, and therefore cancel out when averages are taken. With a smaller clearance between wires and falling body the numbers would be more consistent.

Similar apparatus does extremely well for verifying the formula for the acceleration of bodies rolling down an inclined plane, viz. —

$$f = \frac{g \sin \theta}{1 + \frac{K^2}{a^2}}$$

Some experiments were tried with a cylinder rolling down two parallel rods of metal, a sheet of paper resting between the cylinder and the rods. Results for *g* were lower, of course, on account of friction, but they were much better than can be obtained with a stop-watch and cylinders or spheres on plate-glass planes. A pendulum contact is best for these experiments.

The method is an excellent one, easy to understand, and should prove a valuable addition to the laboratories of public schools and universities.

GEORGE W. TODD.

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Simple Apparatus for Experiments in Heat.

Determination of the Coefficient of Expansion of Air.—The apparatus (Fig. 1), which is easily constructed from ordinary laboratory materials, will be found capable of giving very fair results with boys of ordinary ability doing elementary practical heat.

A is a lamp-glass fitted at B and C with india-rubber stoppers. The stopper at B is fitted with an elbow tube, whilst that at C has two holes through which pass respectively an elbow tube and a short straight piece of capillary tubing. The latter is fitted with a rubber stopper which fits into a moderately sized test tube E. The other end of the capillary tube is fitted with a short piece of rubber tubing and pinch-cock. A burette fitted with a piece of rubber tubing terminating in a short piece of capillary tubing, is also required to act as a measuring vessel.

In order to use the apparatus, proceed as follows:—Find the volume of the test tube, making allowance for the portion of the mouth occupied by the stopper.

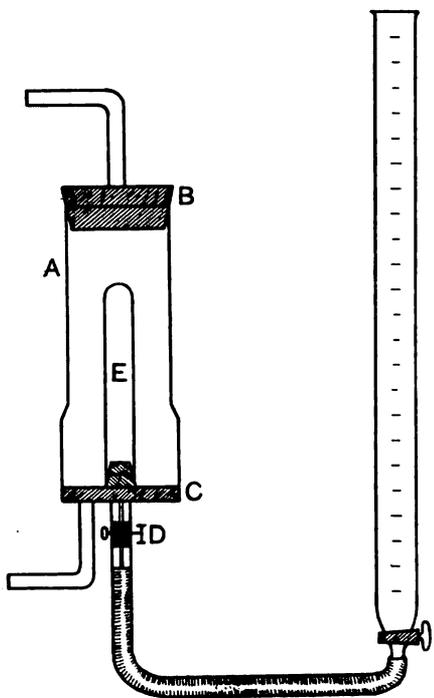


FIG. 1.

This can be done once for all, the volume being recorded on a piece of gummed paper, which can be stuck on the lamp-glass. See that the test tube and stopper are perfectly dry before setting up in position. Remove the pinch-cock at D (the burette not yet being connected up), connect the elbow tube at B to a steam supply, and allow steam to pass through the lamp-glass for some time. The expanded air from the test tube escapes through the rubber tubing at D. Now turn on the tap of the burette so as completely to fill the rubber tubing and short piece of capillary tubing with water. Turn off the tap and take the reading of the burette. Fit the piece of capillary tubing into the short piece of rubber tubing at D. Stop the supply of steam, remove the stopper at B, and turn on tap of burette. Then pour cold water (water at 0° C. will simplify the calculation) into the lamp-glass, so that the tube E is immersed completely for a little while. Take the temperature of the water. Water will now be seen to have entered the tube E. Raise or lower the burette until the levels of the water in the burette and the tube are the same. Turn off the tap of the burette, and take the reading of the level of the water. The difference in the two readings gives the volume of water which has entered the tube E.

Example.—Volume of test tube = 40 c.c.; reading of burette after = 25.00 c.c.; reading of burette before = 16.00 c.c.

\therefore Volume of water which enters tube E = 9.00 c.c.

Volume of air remaining in tube E = $40 - 9 = 31$ c.c.; temperature of cold water = 15° C.; temperature of steam = 100° C.

31 c.c. of air would expand 9 c.c. if heated through 85° C., \therefore 31 c.c. of air would expand $9/85$ c.c. if heated through 1° C. = 0.106 c.c.

Hence 31 c.c. of air at 15° C. would become $31 - (0.106 \times 15) = 29.41$ c.c. at 0° C.

Then 29.41 c.c. of air expand 0.106 c.c. when heated through 1° C.; \therefore 1 c.c. of air expands $0.106/29.41$ c.c. when heated through 1° C. = 0.0036.

I have already described two other methods of determining the coefficient of expansion of air (see THE SCHOOL WORLD, June, 1907, and June, 1910), but I find that time is not lost by allowing a pupil to carry out an experiment by two or three methods, especially in the case of experiments involving a fair amount of calculation.

For showing the equality in Expansion of Gases.—

A medium sized lamp-glass is fitted with a cork through which three holes are bored. A fourth hole may be bored. In this case an elbow tube, fitted with a piece of india-rubber tubing and pinch-cock, can be run the water out of the lamp-glass. Three pieces of glass tubing (each about 20 cm. long) are cut off from the same length of tubing, and each piece closed at one end. The three tubes are then fitted through the holes in the cork, the latter being then fitted tightly in the lamp-glass.

Fill the tubes completely with coloured water (ink and water) and invert in some coloured water contained in a small glass bowl or a mortar. By means of a small delivery tube (shown at side of apparatus in diagram)—made by drawing out some glass tubing in the blowpipe flame—the tubes are each filled to the same extent with, say air, coal-gas, and carbon dioxide respectively. On pouring hot water into the lamp-glass, the coloured water in each tube is seen to be depressed to the same extent, thus showing the equality in expansion of gases. On drawing off the hot water and filling the lamp-glass with cold water, the gases are seen to contract equally, by the fact that the coloured water in each tube rises up an equal amount.

FIG. 2.

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SIXPENCE.

ORAL EXPRESSION AS A PREPARATION FOR WRITTEN COMPOSITION.

By NORMAN L. FRAZER, M.A.

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IT is no longer necessary to insist that a training in oral expression is the best preparation for success in writing. But although we have all persuaded ourselves that this is so, many of us still find difficulty in conducting our oral lessons. Some of us are content to hammer out a theme on the black-board on precisely the same lines as we should hammer out the same theme on paper, blissfully unconscious that we are all the time training our pupils to express their ideas just as we ourselves should in writing, without providing the necessary groundwork. We draw up schemes in logical order, give instruction in the correct use of paragraphs, incidentally correct faulty grammar, recast sentences and carry out all the rules of the game.

As an introduction to written composition this is, of course, necessary and excellent, but it leaves out many important aspects of training in the art of expression and it is only in a very limited sense that the result can be called oral composition at all. Others, again, think that to let a child tell a story in his own way, and to throw in or to throw out a few criticisms or suggestions, will result somehow or other in the required sequence and lucidity. And, undoubtedly, given an exceptional tact and personality in the teacher, this method has been known to lead to very happy results. But with most of us the results would not be happy at all and would not lead to any conspicuous success in written composition.

It would seem then that we require something more plastic than the first method and something less haphazard than the second—although both may very well have their place either as occasional exercises or, preferably, at a definite stage in the training. That stage comes, as a matter of fact, late in the process,

for although it need scarcely be said that a child must only be asked to express what is, within his own experience, worth expressing, yet in order to give him guidance to worthy expression, a great deal of preliminary work is needed.

It will be generally admitted that reading aloud is a prime test of good literature; and it may be further argued that for that very reason so critical a test has no application to the teaching of the rudiments of expression. But an ordinarily-gifted child will readily see that the pleasure he has obtained from listening to the passage read to him depends upon a few essentials, and the reading will serve to direct his attention and his enthusiasm to mastering, or at any rate studying, these important aids to expression.

Of course, several of these essentials will be best treated when the pupil comes to express himself in writing; but at any rate two of them, sequence and selection, can be inculcated with advantage in the first oral lessons. It is not enough, however, merely to recast the pupil's own work; we must provide him with exercises in the special feature we wish to emphasise. We may, for instance, take a well-constructed narrative and rearrange its sentences out of their proper sequence; and not only one such narrative but several. The work of recasting is novel and interesting to the young mind, and the comparison with the original is an additional stimulus. A similar device may be used for correct paragraphing. On the other hand, the art of selection may best be taught by analysis of the pupil's own work—not in its complete form, but in the rough jumble of ideas which his first impulse sends out.

To judge from recent examination reports, there is one weakness in our pupils' written composition, which all our efforts so far seem unable to remedy; it is the use of slang and colloquialisms. The reiterated warnings of the teacher and the capitals of the text-books do

not seem to have effected much, and philosphic disquisitions on origins have no doubt effected still less. The only thing likely to do good—for the mass of young children in secondary schools do not read an overwhelming amount of good literature or move in particularly cultured spheres—is a systematic and varied study of words. Exercises in seeking for the apt and appropriate word will inevitably help in discarding the vulgar and trivial. Poetry may be pressed into use at first and a start made by supplying missing rhymes. Then missing words may be replaced in prose sentences, and not merely replaced, but alternatives may be suggested and reasons asked for preferences. The reasons given will open up a great field of appreciation, for the dullest child will have several conflicting claims in his mind; and when once he has formulated three of them—meaning, aptness and sound, he will have invented for himself a new and satisfying standard of taste.

A step further brings us to the study of sentences; and the proper study of sentences is the real counter-stroke to the use of colloquialisms. To suggest a satisfactory end or beginning to a well-written sentence requires thought and judgment, and the most illiterate will instinctively hesitate to use colloquialisms. Even more important will be the making of single sentences to express definite facts or emotions. Words and phrases which might be hazarded in a continuous composition will be more carefully weighed in a single sentence; and if they are not, correction is far more easy owing to the defined and limited nature of the exercise, which is, besides, being tackled at the same time by the whole class.

But, of course, all such exercises are merely preliminaries. When some proficiency has been attained in them the composition of a continuous narrative must be treated as a whole. When that stage is reached, it is best to give the class an opportunity of getting together their ideas by announcing the subject beforehand. It may be objected that if we do this we run the risk of missing spontaneity; but at this stage it is a risk well worth running if we secure some background upon which to work. In the training of immature minds spontaneity of expression may be found, in practice, to be something nearly akin to inconsequence. What is of more importance is to show our pupils how to express themselves clearly, consecutively and vividly. Here, it must be remembered, we are particularly concerned with oral expression as a preparation for written composition and we therefore assume that oral practice is continually being given in lessons other than those assigned especially to English.

How then are we to give the training in vividness, which after all is one of the most distinctive marks of good writing? Surely, at the beginning, by drawing upon the actual sense images of our pupils. Things seen and heard can, as it were, be actually visualised and so create a standard of comparison. As first stated, even by a participant or first-hand witness, the expression of them is almost certain to lack something of the actuality of the reality. Then they must be stated again, with the definite aim of making the hearer or the reader realise the scene as vividly as may be, and to bring it before him as pictorially as possible. This definite purpose will work wonders too in securing clearness and sequence.

Another useful method in securing vivid expression is to dramatise notable scenes from the English texts being read in class. It is a practice more common in America than here and has much to commend it—notably the ease with which it disposes of stilted and artificial language, and overcomes the shyness of the timid child. Of course, in America too—where, according to a small boy, “elocution” is a thing they kill folks with—oral expression is fostered for many other purposes than as a basis for written composition, and the teachers there have evolved a truly wonderful technique. It is only fair to say that they regard it as a point of view rather than as a particular subject.

The seriousness with which they pursue this side of language training has led them to concentrate on sustained effort in speech, with remarkable results. But as we are discussing the matter from a much more limited point of view, we merely throw out the suggestion that readers who wish to emulate their achievements in this direction should consult a few of the innumerable American text-books on the subject. They will find much thoughtful work and a certain lack of humour. The English books confine themselves, for the most part, to highly-edifying generalities and rarely descend to details. An exception is Mr. Nesfield's “Oral Exercises in English Composition.”

So far nothing has been said of the necessary training in sincerity, concreteness and simplicity; but they seldom come by the light of nature and can be encouraged and fostered better orally than in any other way. Here again the starting point should be good models and comparative criticism, followed by easy exercises on the special points. It is surprising how insincere young children can be; they seem to think that it is expected of them. To correct insincerity in a written theme is extraordinarily difficult, but so long as it lasts

good writing is impossible. On the other hand, the criticism of a room full of classmates is singularly effective; and if the exercises suggested are written—for there comes a transition stage when oral expression and written composition overlap—it is far easier to correct one specific point in isolation than to direct attention to it when it is intermingled with a dozen different matters that call for comment.

Practice in concreteness can be given by the obvious method of substitution, and any ordinary book will supply abundant examples, while simplicity will best be attained by keeping for a long time to topics of immediate interest to the speaker.

How far then oral expression may be utilised as a basis for written composition—and that is the only point of view considered in this article—seems to depend upon a recognition of certain definite points as essential to good writing and upon a determination to tackle these points orally, one at a time, systematically and thoroughly by means of good literary models and an abundance of exercises. But it must not be forgotten that, however valuable oral expression may continue to be for other purposes throughout the school course, its use for that which we are now considering, will largely cease when reasonable facility is acquired in written composition.

THE CERTIFICATE IN RELIGIOUS KNOWLEDGE IN THE LONDON UNIVERSITY.

By Miss H. L. POWELL,

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NO one who values religious teaching can fail to feel satisfaction at the evidence which goes to show that there is at present a stir in the circle of those who control the teaching in secondary schools as to the standard attained or aimed at in the teaching of Holy Scripture in these schools. The question has arisen, probably partly as a consequence of the debate as to "tests for teachers" in grant-aided elementary schools; and those who have protested that a teacher in such a school should not be allowed to give religious teaching—or perhaps it would be fairer to say, "to teach the Bible"—unless he can give some guarantee of his fitness to do so, now begin to ask whether the qualification for such teaching is possessed by all who undertake it in the higher schools, and to consider what security the public has as to the value of the religious teaching given there.

It is scarcely open to question that in many schools the Scripture teaching is not only far below the standard of what such teaching

should be, but is very inferior to the teaching in other subjects. It is sometimes lightly undertaken by those who would justify themselves by the argument that any decently educated person can "get up" a book, and would not feel bound to refuse a good post because he was required to read with his form some English classic, such, for instance, as Milton's "Areopagitica," of which he had not made any profound study, or even if he had had no previous acquaintance with it. Such a line of argument is, of course, vitiated by the fact that the Bible is not "a book," but a library of books, of many different literary forms, and widely varying dates; and, moreover, that the question is not simply that of "getting up" a book or books, but of teaching a subject, "Religious Knowledge" or "Divinity," which is a matter going far beyond the mere literary or historical or textual study of the books.

The consciousness of this fact is slowly awakening, at least in some quarters, and a demand has been made for some definite line of preparation for the teaching of Holy Scripture, and some test of its thoroughness; and the demand has been met on the women's side by the institution of the Archbishop's diploma, carrying with it the title of student of theology, which is now held by a small number of women who offer themselves to teach divinity. The standard of this examination is that of an honours degree in a university, and the time of study in preparation for it varies from two to three years, according to the previous knowledge of the candidates.

But, desirable as it is that all the teaching in schools should be given by persons who have reached this standard of proficiency, there are very practical difficulties in the way of such advanced study by the greater number of those who are required to give the religious teaching in schools. Few, except the very large schools, can employ the whole time of a "specialist" in this subject, since, as a rule, two, or at most three, lessons are given weekly in each form; and, moreover, those heads who are most in earnest as to the quality of the Scripture teaching in their schools are just those who would wish to keep it as much as possible in their own hands and would be unwilling to give up to a younger colleague, however highly qualified, the whole teaching of that subject through which they touch the deepest life of their pupils. On the other hand, such a specialist is not likely to be able to fill up his time by getting work in several schools, since this is a subject which one would be most unwilling to give to a "visiting teacher," rather than to one whose whole life was spent in close contact with the children.

Hence it is most desirable that a teacher

should be able to offer Scripture together with some other subject, and to give a guarantee of his qualification for teaching it; and this need has been met by the University of London in the institution, six years ago, of the certificate in religious knowledge.

It was the object of the framers of this certificate to plan a course of study suited to those who wish to be able to add it to their degrees in other subjects. With this in view they drew up a syllabus for an examination which can be taken—in London or in the provinces—in one or two parts (after one or two years' study), the range of which should be such as to qualify for the teaching of the young, and should therefore lie along the lines not of minute scholarship or detailed criticism, but primarily of Biblical knowledge, in which width is secured by the requirement of general outlines, and depth by the study of a portion or subject in greater detail. In both Old and New Testaments candidates are required to have a general knowledge of the contents of the narrative portions, and the historical circumstances in which the several books of each Testament were composed, with (for 1915) in the Old Testament the general features of the teaching of Isaiah (Chapters 40-60), and as a special subject the books of Samuel in fuller detail than the rest of the narrative; and in the New Testament the Epistle to the Hebrews and the Epistle to St. James for fuller study; and the Times, Life, and Teaching of Our Lord as the special subject.

These are the material of the four compulsory papers; and it is clear that anyone who had made a genuine study of this amount of subject-matter would bring to the teaching of any one part of the Scriptures to a class of children not only a conception of the given subject, but a sense of proportion, of the relation of the part to the whole which is essential in all teaching, and gives to the teacher a power of selection, of placing a subject in its right perspective. This must vitalise his treatment of any given point, and would help to make the Scripture lesson not merely a bit of instruction in certain points of the Biblical narrative, but a means of religious education. It is expressly stated in the syllabus that "candidates will be expected to have a general knowledge of the different opinions held in the more important subjects," and thus the teacher, though, if he is wise, he will avoid controversy, will be prepared to meet the difficulties of the elder pupils and guide them through the perplexities which face them as the "clash of many voices" come to their ears.

Besides these compulsory, the candidate for the certificate has to choose two out of seven optional subjects:—

- (1) The Greek Testament: introduction; exegesis; translation and grammar.
- (2) A period of Church history.
- (3) The history of Christian doctrine (for 1915 the doctrine of the Incarnation to the Council of Chalcedon).
- (4) The history of Christian worship (the Book of Common Prayer).
- (5) Christian ethics.
- (6) The philosophy of religion.
- (7) The comparative study of religions (for 1914 Islam).

These subjects point the student to the wider interpretation of the term "religious knowledge" than that of strict Bible study, and would have the effect of making the Bible lessons in school luminous with the light which is reflected back from thought which has its spring in the hidden depths of the sacred oracles.

Obviously no examination can be a test of *religion* as such, but only of religious knowledge, and it is therefore expressly enacted that "no question shall be so put as to require an expression of religious belief on the part of the candidate," and that "no answer or translation given by any candidate shall be objected to on the ground of its expressing any peculiarity of religious views."

It was thought by its originators that this syllabus was so framed as to help intending teachers to qualify themselves, and give proofs of their qualification, for teaching divinity, and there is no doubt that the Board would be prepared to consider any suggestion for modifications of the scheme which would better adapt it to fulfil that end. But the result has been distinctly disappointing. So few candidates have offered themselves (forty-seven in six years) that the question becomes pressing as to whether the examination shall not be discontinued. No examination can pay its expenses unless a fair number of candidates present themselves; and no university can be expected to go on working an examination at a loss.

One naturally seeks the cause of this lack of response. Certainly teachers would offer themselves for this certificate if such a test of fitness were demanded by the schools; and doubtless heads of schools would demand it if the parents were insistent in requiring satisfactory evidence that their children were receiving religious instruction from those qualified to give it. It does look as if the general public were not yet sufficiently in earnest as to the religious teaching of their children.

The "layman's conscience" is much in evidence just now, demanding, rightly or wrongly, that control should be exerted to restrain the clergy from "advanced" teaching.

The burden of proof lies upon the great body of the laity to show that such a demand is an earnest contention for "the faith once delivered to the Saints," and not a desire to retain conventional religious beliefs without troubling to make sure of their foundations. But those who are really desirous of preserving the purity of the faith will surely see the supreme importance of securing sound Biblical teaching for their children.

So long as parents content themselves with stringent inquiry into the purity of the French accent, and the up-to-date methods of teaching languages and natural sciences, and pass over altogether the question of what the scope of religious instruction is, and by whom it is given, it will be difficult to convince the governing bodies of schools that there is any urgent necessity to supply teaching in religious knowledge which shall be of the same quality, and as clearly guaranteed, as that of the other subjects of the school curriculum. For those who do desire such security, the Certificate in Religious Knowledge of the London University is admirably fitted to supply the requisite test.

THE TRAINING OF ELEMENTARY TEACHERS: A RETROSPECT.

By T. RAYMONT, M.A.

IN recent years the Board of Education's report has included, besides the inevitable array of facts and figures relating to the period under review, a historical survey of some selected portion of the field of national education. The report for 1910-11 dealt in this way with the elementary school curriculum; and the report for 1912-3, which has just been issued, deals similarly with the training of elementary teachers. For obvious reasons this latest choice of subject is timely, and the survey should be of interest to all who are concerned with the supply and the training of elementary teachers, whether at the preliminary or at the collegiate stage. Here, as elsewhere, it is impossible to understand the peculiarities of the present position without understanding the genesis of that position.

That a historical survey appearing in a Blue-book should include a careful and accurate summary of the facts is, of course, to be expected. One is glad to note, however, that in this case the facts are clothed with a good deal of comment that is of real human interest. Yet it is hard to escape the conclusion that the writer has laboured under a sense of official restraint which has caused him here and there to become less of a historian than a chronicler. We give one important case in

point. In 1839 the Committee of Council on Education (known later as the Education Department) was formed, and its first act was to adopt a scheme for a "State Normal School," which was to be a model training college. The scheme provided, among other things, for "general" religious instruction to be given by the staff of the college, and "special" religious instruction, to be given by an appointed clergyman, or by a licensed dissenting minister. Immediately a furious storm broke over the unfortunate Committee, nearly causing it to suffer shipwreck. B. H. Kennedy, then the young headmaster of Shrewsbury, discerned "the Socinian heaven" in "that impious distinction of religious instruction into 'general' and 'special,'" and denounced an advocate of the scheme, "who, from the fusion of all religious colours in education hopes to produce everywhere the muddy complexion of his own creed." In a calmer spirit, F. D. Maurice, as yet unknown to theological fame, contended that the clergyman, and not the teacher, is "the real schoolmaster of the parish," and that "the principle of State Education can never be applicable to any age." The Government bent to the controversial storm. No State Normal School was established, but the available funds were divided between the National Society and the British and Foreign School Society, for the purpose of erecting normal schools. Thus were the foundations laid of an almost purely denominational system of training, and the country waited for fifty years before that system was modified. Practically no progress was made between 1860 and 1890. Owing to the operation of the Act of 1870 (which let training colleges severely alone), there were *five times* as many children in inspected schools in 1890 as there were in 1860, and yet the number of training colleges increased during that period from 34 only to 43, 35 out of the 43 being strictly denominational.

The Board's historical survey, perhaps partly for brevity's sake, dismisses with a few formal phrases the pretty episode of the State Normal School—and indeed we have no space here for doing full justice to that episode.

The Royal Commission of 1886-8, largely futile because of its sharp divisions of opinion, resulted at any rate in one immediate practical reform—the establishment of day training colleges, the earliest of which were founded in 1890. In one respect these colleges were from the outset obviously inferior to the older institutions. They did not offer the advantages of residence. But under the system of hostels, which it is to be hoped will soon become universal in connection with non-residential colleges, this disability is gradually being

removed. In other respects it is not too much to say that the day colleges have effected a beneficent revolution. They have raised the standard of instruction, and have indirectly destroyed a system under which a college might be staffed by ex-students, with a clerical head whose remuneration often exceeded that of all the lecturers put together. They have done more. Though the Board's summary makes no mention of this particular matter, the day colleges have been instrumental in placing on a new and scientific basis the study which constitutes the *raison d'être* of a training college as such—the study of education. That study now commonly takes rank as an appropriate field of systematic investigation, entirely worthy of university recognition. And the old examination papers in "school management," with their curious hotch-potch of utterly uncoordinated material, are now largely a thing of the past.

Since the Act of 1902 was passed, still another type of training institution has come into existence—the municipal training colleges founded by the new local authorities; and the advent of these colleges, together with other collateral changes, has enormously increased the number of places available for candidates, irrespective of their religious faith. In 1880 the number of such places was 500; in 1890 it was 839; it is now 10,657. But the change has been in quality as well as in quantity. As the Board testifies, "the municipal colleges have done much to forward the new ideals, because they were able to begin unhampered by the traditions of a more conventional age." "The colleges have become less like boarding schools, and have approached more nearly to the true ideal of a college. The conviction has steadily gained ground that their students are not children to be guided and governed by rules and regulations, but young men and women who have to learn freedom and responsibility." Moreover—though the Board is silent on this point—the newer institutions have proved what was formerly assumed to be impossible, that under proper management young men and women can be trained in the same college to their mutual advantage. We have travelled far from the days when a men's training college sometimes bore too close a resemblance to a barracks, and a women's college too close a resemblance to a nunnery. The descriptive sketches of some of these places, written by old students and printed as an appendix to the Board's historical survey, throw a vivid light upon the absurd restrictions and conventions which, amid much that was entirely excellent, characterised the training colleges of the past.

In the above remarks no attempt has been

made at a mere epitome of the Board's survey of the development of training colleges. Indeed, the document itself, compressing as it does a mass of material into a few pages, is obviously only an epitome of what the writer might have said, and probably would like to have said. It is to be hoped that the chapter will be widely read by persons interested, whether as teachers or as administrators, in the problem of maintaining the elementary teaching profession on a sound and lasting basis.

THE ROYAL COMMISSION ON THE CIVIL SERVICE.

THE report of the Royal Commissioners on the Civil Service has now been issued. The Commission was appointed:

To inquire into and report on the methods of making appointments to and promotion 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 improvements in that system which may appear advisable; and 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 report deals with all these points except the diplomatic and consular services, and the legal departments. The Commissioners have excluded from their inquiry those classes of labour peculiar to the General Post Office, as a Select Committee of the House of Commons has been set up to inquire into the conditions of employment of Post Office servants.

The first chapter of the report is a historical sketch of the growth of the Civil Service. The next is a description of the methods of appointment at present practised. These fall mainly into two groups: competitive, open and limited, and nomination. The Commissioners are of opinion that, in future, limited competition should be abolished, and that one or other of two methods should be adopted. They are strongly in favour of open competition, and recommend its extension to all appointments to which competition by examination can be applied, and have placed the maximum limit of examinable age at twenty-seven. Appointments that cannot be filled by competitive examination, they suggest should be filled by a procedure including the following steps:—

(a) The issue beforehand of a public notification of the vacancy.

(b) The submission of all applications from candidates to a Departmental Committee on which the Civil Service Commissioners shall be represented.

(c) The selection by such Committee of two or three most eligible candidates, and the submission of their names in order of merit, with a statement of the reason for the selection, to the Minister in charge of the department.

(d) The scrutiny of the persons so selected by the Civil Service Commissioners with respect to age, health, character, knowledge, and ability.

That part of the Civil Service dealt with in the report comprises about sixty thousand officers, who may be divided from the point of view of their duties into an Administrative and Clerical group, an Executive group, a Professional group, and a Subordinate group, and the recruitment of these groups is considered by the Commissioners.

The duties of the Administrative and Clerical group "require general or undifferentiated capacity, as distinguished from that specialised or differentiated capacity which is supplied by the professional, technical, and scientific branches of the service." In other words, this branch of the service requires the trained mind and character that form the chief aim of education.

But there are various types and standards of education, and the particular standard required will be necessarily determined by the duties to be performed. The fundamental principle, therefore, of the Civil Service organisation should be division of labour.

The Administrative and Clerical duties may be roughly distinguished as Administrative, Clerical, and Routine, and the Commissioners find that there are stages of education which roughly agree with these divisions.

These stages, in the reverse order, are the intermediate stage of secondary education which is reached at about sixteen years of age; complete secondary education which lasts until eighteen years of age or thereabout; and the education of university standard, which lasts until twenty-two, twenty-three, or twenty-four, as the case may be.

But before proceeding to discuss in any detail the schemes of examination by which we propose that those tests should be carried out, we desire to emphasise our opinion that an examination scheme is only part, and not the most important part of the machinery by which the State should aim at the selection of suitable candidates for its service.

Unless the general educational system of the country is efficient, the natural powers of those who would make the best candidates will neither be discovered nor trained.

We have received much interesting evidence indicating the degree to which the present educational systems of the United Kingdom (for England, Ireland, Scotland, and Wales has each a system of its own) are, in that sense, efficient.

Since we do not propose that the State should aim at recruiting for its clerical and administrative service

directly from the elementary schools, we are here chiefly concerned with the question whether adequate machinery exists by which children of the intellectual type which we desire to find in the service, are selected in the elementary schools at the right age, are given opportunities to receive a suitable secondary education; and, in the case of those who are fit to go further, are offered a complete university course. For this purpose not only must every grade of education be efficient in itself, but the passage from one grade to another must be open to suitable students in every locality, without either restriction of social class, or unnecessary complexity of administrative machinery.

We are told that in Scotland, although in some districts an additional supply of secondary schools is desired, the passage from primary to secondary education, and thence to the universities, is made smooth, both for girls and boys, by a system of fee-exemption and bursaries which, though insufficient in counties where the population is scattered and the schools are small, is yet more complete than anything that is to be found in other parts of the United Kingdom. This system is to some extent reinforced by the munificent Carnegie Fund.

The division, in Scotland, of the secondary school course into two parts, one part terminating after a three-years' course with the "intermediate certificate," and the other part, after a further course of two years, ending with the "leaving certificate," controls and verifies the education given. The arrangement which makes the "leaving certificate" serve as a substitute for the university matriculation examination, joins up the secondary to the university course, and reduces the burden of examinations.

The general result is, to the community, a supply of boys and girls completing at sixteen years of age an intermediate course, and at eighteen years a complete course of secondary education, and to the universities a supply of students capable of benefiting from advanced teaching.

Above all, there is, we are told, throughout Scotland an atmosphere of sympathy with educational work. "A promising boy," says the secretary of the Scotch Education Department, "is looked upon with interest by all the people of his locality."

In England the organised relation between primary and secondary education, and between secondary education and the universities, seems to be less satisfactory, and the supply of educational facilities above the elementary schools less sufficient and less equally distributed. In London, and the West Riding of Yorkshire, the supply of secondary schools and centres of university instruction, and the provision of scholarships, and fee-exemptions passing suitable students both to the secondary school and to the universities are, we are informed, being steadily and generously developed. On the other hand, in some, for instance, of the eastern counties, in the East Riding of Yorkshire, and in Devonshire, both the educational supply and the means of proceeding from one grade of education to the next are said to be seriously deficient.

It must, however, be remembered that in England the Universities of Oxford and Cambridge, the University of London, and many of the endowed secondary

schools, are wholly or partially "non-local," in the sense that they serve rather the whole kingdom than any particular district; and that this "non-local" educational supply constitutes an extremely important element in the general educational system.

We have received from the Board of Education a report of the "Consultative Committee on Examinations in Secondary Schools," which shows the difficulties in educational coordination which result from the multiplicity and incoherence of the examinations now taken in English secondary schools. We are informed that endeavours are being made to obviate those difficulties.

In Ireland there is, we are informed, no coordination between the "national" (or primary) and the secondary (or, as they are called in Ireland, "intermediate") schools; and, with negligible exceptions, no system of fee-exemptions or bursaries, facilitating a pupil's transit from one school to another, or to the universities; while we were also told that the examination system by which the funds of the Intermediate Board are distributed does not, in fact, subservise the best interests of the secondary education. At the same time we received evidence from the University of Dublin, from the Queen's University, Belfast, and from the university colleges of Dublin and Cork, which form part of the national university, showing that students whose material resources would often be considered insufficient in England are working with enthusiasm and success.

In Wales, we are informed by the vice-chancellor of the university, both primary and secondary schools are well attended, and there exists a "fairly perfectly organised system" of scholarships leading from the primary schools to the secondary schools, and from the secondary schools to the universities.

On the whole, it appears to us that much has been done of late years to extend the province and improve the coordination of the educational systems of the country. Sufficient numbers of well-equipped candidates present themselves annually for the Civil Service competitions, but much still remains to be done—in England and Ireland, more than in Scotland, or, perhaps in Wales—before the State can attain to the ideal position that, while the necessary intellectual standard of its service is maintained, that service is equally open to fit candidates from every class and every locality.

In the attainment of that ideal, we believe that the State as employer and examiner should cooperate more closely than it has apparently done hitherto with the State as educator, and that the Civil Service Commissioners and the Treasury ought in future to consult regularly with the departments of Education in Great Britain and Ireland in framing their schemes of competition. We also desire to recommend that these departments and the local education authorities should realise that free access to the service of the State, though it is only one of the many objects of an efficient educational system, requires that that system shall be well knit and well distributed.

After this appreciation of education, the Commissioners proceed to consider the exist-

ing classes of officers, and to make definite recommendations with regard to them. Boy clerks have hitherto been recruited at the age of fifteen, an age that represents no ordinary stopping place in our scheme of education. Their temporary employment is "blind-alley employment," and further, it has been alleged against them that they leave the service of the Government unfitted for the employment of private firms.

The Second Division, which contains about four thousand clerks in sixty departments, is now recruited between the ages of seventeen and twenty, on a syllabus that has often been criticised in that it is below the standard which should be attained by a pupil of that age. Boys preparing for this examination have marked time from the age of about sixteen and a half, spending the whole of their time in making perfect the work that they have already done. This has resulted in classifying them by the accuracy in detail of their work, rather than by the ability they possess and the standard of education that they have attained. The recruitment of Boy and Second Division clerks, it is recommended, should cease; and, of course, with them will go the assistant clerk or abstractor. In their place it is suggested that the junior clerical class should be recruited about the age of sixteen, by an examination suited to the attainment of the ordinary schoolboy who leaves the secondary school at that age.

The "intermediate" class, that originated in the junior appointments for the supply and accounting departments of the Admiralty, was recruited between eighteen and nineteen and a half by an examination well adapted to the attainments of the pupils at secondary schools. It has been a growing class, and has been admitted to an increasing number of offices. It is now suggested that this class should be replaced by a senior clerical class, recruited at about eighteen by an examination that should test ability and should be adapted to the standard of education of the secondary schools of the country, and should not contain any uneducational and technical subjects.

In the discussion of these changes, the opinion is expressed that the Government should require a school-leaving certificate as a condition of candidature for these examinations, but in the summary of recommendations this condition does not appear, unless the phrase "should have completed the stage of secondary education" can be interpreted to mean the requiring of such a certificate.

Reference is made from time to time to the report of the consultative committee on examinations; it will be seen that there is a close resemblance between the recommendations of

the two bodies. The Commissioners insist on the necessity of the working of the Civil Service Commissioners and the Board of Education in close combination with one another.

The Administrative class corresponds with the present Class I., and the changes recommended in its recruitment are small. The Commissioners recognise the claims of the Celtic languages spoken in the United Kingdom to a place in the Civil Service examinations, especially the highest; and also of the recognition of the Officers' Training Corps.

The recommendation with regard to the former is that—

The Celtic languages and literatures of the United Kingdom should be included in the syllabus of Class I. examination as an optional subject if it is treated by the universities as a subject of serious academic study, and pursued by a substantial body of students.

With regard to the latter, the recommendation is that—

A concession of one year in respect of the age limits fixed for examination should be allowed to those candidates who have taken the full course of training in the Officers' Training Corps; and the special subjects of study followed by that corps should, in regard to the higher examinations, be treated on the same principle as that recommended in the case of the Celtic languages.

It is suggested also that a Committee composed of specially qualified persons should be invited to examine the suitability of the syllabus, and the methods of these examinations.

The Commissioners inquired very carefully into the employment of women in the Civil Service. They heard evidence from representatives of women in the service, from representatives of the Association of Headmistresses, and of the Council of Women's Employment in the Civil Service, as well as from representatives of Somerville College and Newnham College.

At the present time the General Post Office is of all the departments of the Government the largest employer of female labour. Among its clerks are some three thousand women, who are recruited either as girl clerks between the ages of sixteen and eighteen, or as women clerks between the ages of eighteen and twenty. They are accommodated separately from the male staff, and work in self-contained divisions. In other departments the numbers are comparatively small.

The conclusions of the Commissioners are—

The principle governing the employment of women should be to secure the advantage of the services of women whenever those services will best promote the public interest.

The existing rule requiring the termination of established service on marriage should remain intact.

In so far as the character and conditions of the work

performed by women approximate to those of the work performed by men, the pay of the women should be approximate to that of the men, and in so far as the efficiency of men is higher the salaries of men should remain higher.

Women should be eligible for employment in the museums and libraries subject to the above conditions.

Specially qualified women should be eligible for appointment to particular administrative situations in certain departments, and should be selected by the method used for the recruitment of professional officers. They should not be admitted to the Class I. examination.

An inquiry should be held by the Treasury to ascertain the clerical, inspectorial, and administrative positions which should be filled by women, and the salaries they should receive.

Female clerks should, where employed, be accommodated separately from male clerks, and work under female supervision.

The educational tests used for selecting female clerks should be restricted to women only, and coordinated with the actual conditions of female education, and "cramming" should be discouraged.

The age limits for female typists should be eighteen to twenty-eight; the tests should comprise tests both of education and manipulative skill, a high standard in the latter being a condition of success. The examination should be competitive.

Female shorthand-typists should be recruited from the typist class.

There remain two other points which are of considerable interest to educationists. The Commission recommends the appointment of a third Civil Service Commissioner, and that scholastic experience should be represented on the Commission. "The Civil Service Commissioners should possess wide experience both of school and university education, and should work under the chairmanship of a man of affairs possessing official experience as well as that of academic study."

At the present time

academic experience is well represented, but there is no such representation of scholastic experience as we contemplate. . . . We desire to insist on the appointment of a chairman possessing the qualifications which we have mentioned, because we consider that a combination of these qualifications with those we have suggested as requisite in his colleagues is essential for the effective discharge of the enlarged functions which we have proposed for the Commission.

The examiners of the Board of Education perform those functions of administration which in other important departments are performed by the officers of the administrative class, a class which is not represented in the Board of Education. They are appointed by a system of patronage, and are not subjected (save as to the medical test) to any form of examination, competitive or qualifying. . . .

This system of appointment is one of the last survivals from the days when the principle of patronage had not yet given place to open competition, and we

made careful inquiry into the reasons for its continuance.

We were informed that the circumstances of the department are peculiar; that its work demands to a peculiar degree qualities of tact, initiative, judgment, and a knowledge of men and of affairs; that the difficulties of administering the department are exceptional because much of its subject-matter is highly controversial and is open in a peculiar degree to acrimonious criticism; that the constant negotiation required with local educational authorities, and the complexity and difficulty of administering recent legislative enactments, require, in addition to high academic distinction, considerable specialised knowledge and experience of affairs, and that accordingly it is desirable, and, indeed, necessary, to secure the services of men who have spent some years in other professions, especially that of teaching or of the municipal service, and who are prepared to enter the service of the board at an age more mature than that suitable for other departments.

After listening carefully to the arguments which were submitted to us in favour of this exceptional method of recruitment, we are unanimously of opinion that its continuance cannot be justified, and that the method of filling the administrative appointments in this department should be assimilated to that which has been adopted in all the other important departments of State.

The Commissioners therefore recommend that, in the Board of Education, the patronage method of appointing examiners should be discontinued. Situations requiring special experience should be filled by the method for recruiting professional officers or by transfer from the inspectorate. The rest of the administrative staff should be recruited by the Class I. examination; and that the inspector should be appointed by the method for recruiting professional officers.

THE TREATMENT OF FRENCH LITERATURE IN CLASS.¹

By HARDRESS O'GRADY.

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II.

THE lecture notes of my former student, taken at the Sorbonne, are full of interest. Indeed, it is largely upon them that my own work was based. The notes refer, then, to the method of studying a piece of prose or verse.

1. Lecture à haute voix—correcte, expressive, intelligente. *Nécessité de préparer la lecture.* (My italics.—H. M. O'G.)

2. La situation du passage : dans une pièce, dans un discours, dans un roman, dans une œuvre dialectique.

La situation de l'œuvre même (quand on ne peut la supposer connue) dans l'ensemble de l'œuvre de l'auteur et dans l'époque.

3. Le fond. Idée ou sentiment dominant. Le dégager, l'exprimer, idées particulières, sentiments secondaires. La valeur de vérité : vérité humaine, vérité du temps, vérité personnelle.

4. L'ordre. Quasi impossibilité de séparer l'ordre du fond.

5. L'expression. Qualités intellectuelles—la clarté.
 „ d'imagination — images et symboles.
 „ sensibles—la couleur, la musique.
 „ oratoires—l'ordre, le mouvement.

6. Commentaire spécial de la métrique et de la prosodie.

La forme extérieure du vers.

Les groupements.

L'harmonie intérieure et l'expression du vers.

7. Les conclusions. Résumer la valeur. Faire ressortir les traits caractéristiques.

(Dans le commentaire écrit, supprime le numéro 1.)

INTENTION OF THE ABOVE NOTES.—The intention of the notes is to make the student examine each piece point by point for himself, and finally to write a coherent, logical, careful critique which summarises his conclusions, based upon the discoveries he has made.

COMMENT ON THE NOTES.—My student's note is interesting. He says, "I don't know what you will think of the above. I find it difficult to follow in practice; in fact, almost every piece seems to require a particular treatment."

I have directed attention to (1) *Lecture à haute voix. Nécessité de préparer la lecture.* No teacher will need to be told that pupils must not be directed merely to prepare the piece for reading aloud, but must be taught how to do so. (See below.) The *situation du passage* is extremely important. It is part of the study of the form, especially in an extract from a short piece. The *situation de l'œuvre* I consider rather beyond our possibilities in school. This applies to the question of *époque*, although here the teacher may well help the pupil to give a notion of the more general aspect. I do not comment here on (3) as my paper treats this fairly fully. So with (5). (6) demands that some study should have been made of French prosody. This is, of course, best done by a choice of poems to be studied directly in class, so far as the *forme extérieure du vers* is concerned. I do not know what is meant by *les groupements*. *L'harmonie intérieure* I take below (remarks on the pause and stress).

The notes seem difficult at first and need considerable amplification. This is best done

¹The first article appeared in THE SCHOOL WORLD, May, 1914, p. 166.

by direct treatment of texts, and I proceed at once to this.

READING ALOUD FOR LITERARY APPRECIATION.—*Preparation for Reading Aloud.*—Several lessons are devoted to the preparation of pieces to read aloud. The teacher himself exemplifies the method by taking short stories, short complete extracts (very difficult to find or to make), or short poems. I should have liked to give a number of these here, but space forbids. We can, however, take several poems. I will later refer to stories that are easily accessible in collections or cheap reprints.

I.

Cher petit oreiller, doux et chaud sous ma tête,
Plein de plume choisie, et blanc! et fait pour moi!
Quand on a peur du vent, des loups, de la tempête,
Cher petit oreiller, que je dors bien sur toi!

Beaucoup, beaucoup d'enfants pauvres et nus, sans mère,
Sans maison, n'ont jamais d'oreiller pour dormir;
Ils ont toujours sommeil. O destinée amère!
Maman! douce maman! cela me fait gémir.

Et quand j'ai prié Dieu pour tous ces petits anges
Qui n'ont pas d'oreiller, moi, j'embrasse le mien.
Seule, dans mon doux nid qu'à tes pieds tu m'arranges,
Je te bénis, ma mère, et je touche le tien.

Je ne m'éveillerai qu'à la lueur première
De l'aube; au rideau bleu c'est si gai de la voir!
Je vais dire tout bas ma plus tendre prière:
Donne encore un baiser, douce maman! Bonsoir!

Dieu des enfants! le cœur d'une petite fille,
Plein de prière (écoute), est ici sous mes mains.
On me parle toujours d'orphelins sans famille:
Dans l'avenir, mon Dieu, ne fais plus d'orphelins!

Laisse descendre au soir un ange qui pardonne,
Pour répondre à des voix qu'on entend gémir.
Mets, sous l'enfant perdu que sa mère abandonne,
Un petit oreiller qui le fera dormir.

DESBORDES-VALMORE.

II.

Mimi Pinson est une blonde,
Une blonde que l'on connaît,
Elle n'a qu'une robe au monde,
Landerirette!

Et qu'un bonnet.
Le grand Turc en a davantage.
Dieu voulut de cette façon,
La rendre sage.

On ne peut pas la mettre en gage,
La robe de Mimi Pinson.

Mimi Pinson porte une rose,
Une rose blanche au côté,
Cette fleur dans son cœur éclore,
Landerirette!

C'est la gaité.

Quand un bon souper la réveille,
Elle fait sortir la chanson
De la bouteille.
Parfois il penche sur l'oreille,
Le bonnet de Mimi Pinson.

Mimi Pinson peut rester fille;
Si Dieu le veut, c'est dans son droit.
Elle aura toujours son aiguille,
Landerirette!
Au bout du doigt.
Pour entreprendre sa conquête,
Ce n'est pas tout qu'un beau garçon;
Faut être honnête.

Car il n'est pas loin de sa tête,
Le bonnet de Mimi Pinson.

D'un gros bouquet de fleurs d'orange
Si l'amour veut la couronner,
Elle a quelque chose en échange,
Landerirette!
A lui donner.

Ce n'est pas, on se l'imagine,
Un manteau sur un écusson
Fourré d'hermine;
C'est l'étui d'une perle fine,
La robe de Mimi Pinson.

MUSSET.

III.

Le ciel est, par-dessus le toit,
Si bleu, si calme!
Un arbre, par-dessus le toit,
Berce sa palme.

La cloche dans le ciel qu'on voit
Doucement tinte.
Un oiseau sur l'arbre qu'on voit
Chante sa plainte.

Mon Dieu, mon Dieu, la vie est là,
Simple et tranquille.
Cette paisible rumeur-là
Vient de la ville.

—Qu'as-tu fait, ô toi que voilà
Pleurant sans cesse,
Dis, qu'as-tu fait, toi que voilà,
De ta jeunesse?

VERLAINE.

IV.

Horloge! dieu sinistre, effrayant, impassible.
Dont le doigt nous menace et nous dit: "*Souviens-toi!*"

Les vibrantes Douleurs dans ton cœur plein d'effroi
Se planteront bientôt comme dans une cible;

Le plaisir vaporeux fuira vers l'horizon
Ainsi qu' une sylphide au fond de la coulisse;
Chaque instant te dévore un morceau du délice
A chaque homme accordé pour toute sa saison.

Trois mille six cents fois par heure, la Seconde
Chuchote: *Souviens-toi!*—Rapide avec sa voix
D'insecte! Maintenant dit: Je suis Autrefois,
Et j'ai pompé ta vie avec ma trompe immonde!

Remember! Souviens-toi! prodigue! Esto memor!
(Mon gosier de métal parle toutes les langues.)
Les minutes, mortel folâtre, sont des gangues
Qu'il ne faut pas lâcher sans en extraire l'or!

Souviens-toi que le Temps est un joueur avide
Qui gagne sans tricher, à tout coup! c'est la loi.
Le jour décroît; la nuit augmente; *souviens-toi!*
Le gouffre a toujours soif; la clepsydre se vide.

Tantôt sonnera l'heure où le divin Hasard,
Où l'auguste Vertu, ton épouse encore vierge,
Où le Repentir même (oh! la dernière auberge!)
Où tout te dira: "Meurs, vieux lâche! il est trop tard!"

BAUDELAIRE.

V.

La nuit, dans le silence en noir de nos demeures,
Béquilles et bâtons qui se cognent, là-bas;
Montant et dévalant les escaliers des heures,
Les horloges, avec leurs pas;

Emaux naïfs derrière un verre, emblèmes
Et fleurs d'antan, chiffres maigres et vieux;
Lunes des corridors vides et blêmes
Les horloges avec leurs yeux;

Sons morts, notes de plomb, marteaux et limes,
Boutique en bois de mots sournois
Et le babil des secondes minimes,
Les horloges avec leurs voix;

Gâines de chênes et bornes d'ombres,
Cercueils scellés dans le mur froid,
Vieux os du temps que grignote le nombre,
Les horloges et leur effroi;

Les horloges
Volontaires et vigilantes,
Pareilles au vieilles servantes
Boitant de leurs sabots ou glissant sur leurs bas,
Les horloges que j'interroge
Serrent ma peur en leur compas.

VERHAEREN.

We want to read these poems aloud so as to bring out their full meaning. Therefore, we must prepare them. Obviously, the first thing to do is to read each through several times. Difficult words must be explained, not only as words, but in their relation to the context. I should not hesitate to use English if it seemed necessary, but only just so much English as was necessary for that line, or that word, where a French explanation had failed. After that begins the work of preparation. Rapid examination of any number of poems, short prose pieces, complete in themselves, great speeches, will reveal the existence of a *dominant* feeling, emotion, passion, attitude towards life, or mood. Reference to Keats's "Nightingale," Wordsworth's "Daffodils," most of the poems in Stevenson's "Child's Garden," Milton's "Avenge, O Lord, . . ." Moore's "Minstrel Boy," in our own language, will at once

show this to be true. This dominant is the original emotion which inspired the writer to write; and, of course, it may be any one of the many emotions which disturb the mind of man. But the artist, being artist, desires to give to this emotion a form which will communicate to others just what he feels at the time. Sympathy is the very essence of art, the desire for sympathy (sym-path) the very nature of an artist. The beginning of this work of giving a form to an emotion consists in cutting off this emotion from all the trains of thought which surround and confuse our emotions in actual life. Here art comes in, and this cutting-off is, in fact, the beginning of the story, or poem, or speech (but not so much of the speech). With the ultimate intention of expressing the emotion or of causing the emotion (psychological reaction would be a better term), the writer proceeds on his task.

He has begun; now his thought is fixed ahead on the ultimate consummation of his purpose. With greater or less art he proceeds by more or less logical steps, sometimes expanding, sometimes condensing (Browning, Mallarmé) to the climax. Once this is reached, with greater or less art, he hastens to come down, to be done with it, to round off his work so that it is complete in itself, without trailings of other emotions or thoughts that might interfere with his purpose. I summarise. There are four processes. First, the flash of exceptional life which inspires. Secondly, there is the inception; next, the unfolding to a climax; lastly, the rounding-off.

But there is more. No two men have lived the same lives. No two individuals have the same stock of experiences, the same hereditary tendencies, the same physique. Each writer sees life through glasses coloured by his previous existence, by his prejudices, by his power to select one kind of physical or mental reactions rather than another. So we shall find by examination of the writing evidences of these prepossessions, of this experience. That is why I have given above the two poems on the "horloge." But this comes out rather in the "explication de textes" proper, not in reading aloud. In the latter it is form and emotion that we notice most.

But before we can study the form we must ask ourselves what is the atmosphere of the piece, the dominant of the piece. The question, then, is: *quel est le sentiment dominant ou l'idée dominante?* I will ask readers to apply this question for themselves to the five poems given above. But I will not supply my own answer yet. Next, we must try to get our voices to express throughout the reading of that particular piece the dominant tone of the piece. Whatever the minor changes of tone,

of pace, of force, whatever the pauses, we must make the listener feel the general atmosphere of the poem. And in order to emphasise this, will readers please read No. 1 as if it were a *rousing march*; No. 2 as if it were "*Drink to me only with thine eyes*"; No. 3 as if it were "*Drinking, drinking, drinking,*" and so on.

The next point to study is the development of the piece to the climax or central point or consummation of the author's intention. We shall find that well-known pieces fall naturally into two or three parts. There are generally two parts when a strong contrast is intended. This is often the case in the sonnet. The octave is in strong contrast to the sestet. Or the last two lines may form the contrast to the whole of the preceding lines. This is the case in many of Shakespeare's sonnets, and in those of Louise Labé. There are generally three parts when the cumulative force or effect of the verse or narrative is the object of the author. Edgar Allan Poe is an adept at this, and I think that Wordsworth brings out the whole intention of his nature poem "*Daffodils*" by the use he makes of the cumulative effect in the last two lines. Maupassant has achieved a new and strange effect by cutting off the last part of the three, and leaving the reader not unsatisfied but *pondering*. But two or three parts (with a suppressed third perhaps) are certain to be found on examination. And if they are not to be found, there is something defective in the construction of the piece which will mark its weakness so far as form is concerned. This, alas! is no place to discuss the relation of form to matter. *Passons*. The duty of the voice is to bring out (but not too much) the constructional parts of the poem by large alterations in the tone when the contrast or development to another stage comes. Question: *Quelles sont les parties principales de ce conte, de ce poème?* And will readers please ask themselves this question for the five pieces given. Are they pieces with contrast or with cumulative effect? How will they bring out this contrast or this development?

After this we study the pauses in the piece. The pause is essential (1) because it rounds off as a meaning-unit the words which belong to one another, giving them as complete concrete or abstract mental pictures; (2) because it enables the listener to reconstitute in his own mind the meaning-unit in its entirety without having to hustle his understanding on to another set; (3) because if this rule of pausing between units and of binding together the parts of that unit is observed, we do not get the tiresome reading in which each word is separated from the next, thus breaking up the associations; (4) because, especially in verse, the pause brings out the rhythm which we may

consider as a series of curves of varying lengths following one another more or less regularly, and in any case in such a way that they harmonise with some subtle sense in our brain. *Marquez les pauses. Pourquoi faut-il faire une pause après tel ou tel mot? En êtes-vous bien sûr? Et vous? Pourquoi? Pourquoi pas?* Note carefully and compare the pauses and the rhythm groups in the five pieces given above. Read them out, exaggerating the rhythms to compare them. Take some arbitrary length as a unit of rhythm-length and draw on a piece of paper the curves, following one another, suggested to you by the rhythms of the first piece, the second, and so on. How far do these rhythm-lengths coincide with the end of lines? What is the effect when they do not coincide? What is the effect of marked alteration in the regularity of the rhythms? What relation do the new rhythms bear to the regular?

Next, we study the stress. What words shall we stress in this rhythm group? In the next? Shall we give a heavy stress or a comparatively light stress? Why? And, finally, in addition to setting ourselves a dominant tone for the whole piece, and two or three slightly different tones to bring out the construction of the piece, let us study the small variations of *intonation*, the variations in *loudness*, the variations in *speed*. And when in answer to the question: *Comment faut-il dire cela?* after honest endeavour we can find no valid and certain reply, it will be because there is a lack of honesty or of sincerity or accuracy of diction or artistic perception in the author. *Voilà!* And if any doubt me let them closely compare the poem (4) by Baudelaire on the *Horloge*, and that (5) by Verhaeren on *Les Horloges*. Which is the more true?

It is only necessary to add that the reading aloud is a direct preparation for the *commentaire écrit*, of which we shall treat in the last article of this set.

The Flea. By H. Russell. 125 pp. (Cambridge University Press.) 1s.—The aim of the book, as stated in the preface, is to give in plain language some account of a small but noteworthy group of insects. This aim is fully realised, and in the process of reading the book the student will find any initial repugnance change to curiosity and scientific interest. In an introductory chapter the position of fleas in the phylum of arthropods is determined, an account of its life-history and metamorphosis is given, the various hosts infested are enumerated, and a simple classification is suggested. In subsequent chapters the structure of the flea is dealt with, and a more detailed account of the most common species is given. The study of this form of animal life has of late years received considerable impetus since it has proved to be of economic importance. These animals, through the instrumentality of their hosts, have been found to be the active agents in spreading plague.

ACCURACY AND THE DIRECT METHOD.

By E. CREAGH KITTSOON, B.A. B.-ès-L.

Lately Chief Master of the Modern Side, Whitgift Grammar School.

II.

WE come now to the bad work that is done under good conditions—to the bad work that is supposed to be due to oral methods of teaching where these methods are employed in the reasonably good circumstances indicated in my last article.¹ I should very much like to have some of the bad work in question before me, and I should like to know on what grounds it is attributed to oral methods. Not that I think it impossible to make a distinction; as a matter of fact, I believe a teacher of experience can generally trace any given mistake to its origin. Thus, it does not require much imaginative insight to see that the boy who translated "He had amassed enormous riches" by *Il avait amassé les richesses énormes* had never talked French, and was only making a vague attempt to apply some rather mysterious, remote, and dimly-comprehended "rules"; on the other hand, if a pupil writes *Je fait tous mes devoirs le soir à la maison avant de me couché; après m'être coucher, je m'endort toute suite*, we shall be pretty safe in attributing these mistakes to oral teaching, which as oral teaching may have been good enough, but was unsupported by proper grammatical instruction and a sufficiency of dictation exercises.

But while I am willing to admit the possibility of distinguishing—at any rate to a great extent—the work of pupils taught by oral methods from that of pupils taught by the old translation method, I am also aware that there are a good many people who are prejudiced against oral methods and are only too ready to attribute to them any bad work they may come across; therefore, it is only reasonable that those of us who believe in those methods, who are convinced that teaching a boy to speak a language is always by far the shortest road to teaching him to write it, should resent any accusations that are made until they are proved. The charges made also are too vague. To me the statement that the direct method leads to inaccuracy is one almost devoid of meaning; I am convinced, on the contrary, that it is the only method by which accuracy can be obtained.

Since I have no definite mistakes to deal with, I shall have to invent some. I apologise beforehand for the enormities I shall concoct. I assume, for the sake of argument, that pupils, ostensibly taught by the direct method, do

actually write such things as, *Il a fait des grandes fautes*, and *Je lui rendis la lettre, pour qu'il pourrait la montrer à son père*; that they confuse *Das Fenster war geöffnet* with *Das Fenster wurde geöffnet*, write *Das altes Haus, wo mein Grossvater hat gewohnt, ist verkauft zu sein*, and are quite unable to make in German such a simple statement as "He should have come earlier." If there are pupils taught by the direct method who make mistakes of this kind, then all I can say is, the direct method by which they have been taught must have been singularly lacking in directness.

Take the case of the pupil who writes *Il avait fait des grandes fautes*: it is quite evident that that pupil could never have used, ten thousand times over, phrases that crop up at every hand's turn in oral work, such as *de jolis livres, de beaux arbres, de grandes maisons, de petits enfants, de bonnes pommes*, etc.; had he done so, his lips would have grown so familiar with the collocation that they would have been unwilling to express it wrongly. And we must always bear in mind that what the pupil writes, he *says to himself*. To attribute such a mistake as this to oral teaching is utter nonsense; nothing can be more certain than that the cause of the mistake is the *lack of oral teaching*. But it may be objected that a knowledge of some very simple rules with regard to the use of the partitive article would have prevented the pupil from writing *des grandes fautes* instead of *de grandes fautes*. The answer is that rules unfortunately possess no such magic property. Those of us who in our time have religiously taught those rules know only too well that between the knowledge of them and their observance there is a great gulf fixed. The pupil who wrote *pour qu'il pourrait* instead of *pour qu'il pût* was not ignorant of the fact that *pour que* requires the subjunctive; he could quite probably have written a list of all conjunctions that take the subjunctive mood, with *pour que* at the head of them. During all the years that boys have been taught German in this country no pupil was ever for one moment in doubt about the fact that in a dependent sentence the verb must stand at the end. They all knew it. But that did not prevent them from making mistakes. What, then, will prevent pupils from making mistakes? Nothing but practice. The direct method does not *dispose* of the difficulty; it is merely a better method of dealing with it. It is a better method because, since it aims at making the foreign language the language of the class-room, it gives the pupils about twenty times as much practice in the use of it as they got under the old method—under which the pupils in many cases

¹ The first article appeared in the May issue p. 169.

never in any proper sense *used* the language at all; and secondly, because the language is learnt *orally*, which, from the nature of language and of the human faculties, is the proper way to learn it.

These remarks apply to every feature of the language. If a pupil writes *Je viendrai quand je peux*, or *Je le ferai, si je pourrai*, he does so simply because he has not been sufficiently accustomed to use the correct constructions. Now, constructions like these are of extremely common occurrence, it is scarcely possible to keep them out of conversation for five minutes; therefore, if we are told that the pupil who made the above mistakes was taught by the direct method, we shall want to know what he was doing with his five periods a week. We may assume, if we like, that he always said what was wrong in class and was never corrected, or that he was dumb and never said anything at all; but in such a case the fault does not lie with the method, but with the teacher.² Even in regard to features of the language of less common occurrence, it is the business of the teacher to see that they are brought into play sufficiently often; and this is not really difficult, for the ordinary routine of the class-room—orders, requests, reproofs, etc.—gives plenty of opportunity for making apparently difficult constructions quite familiar.

The direct method cannot make for inaccuracy. We want more, rather than less, oral teaching. But the oral teaching must not be lax; it must be rigorous and it must be systematic, and there must be stringent teaching of grammar.

"I think Mr. X's class is going on all right," some headmaster is reported to have remarked; "he talks German all the time now." One feels tempted to suggest maliciously that he might have let his pupils get a word in occasionally; but, apart from this consideration, "talking German all the time" is a very insufficient and a very misleading description of the direct method. The boy, referred to in my last article, who had spent a year in Germany with such unfortunate results, had talked German all the time, in the sense that he had spoken no English; but he must have invariably talked very bad German, and when he made mistakes apparently nobody ever corrected him; whatever teaching he got was not systematic.

The truth is that it is not at all difficult to acquire such a rough-and-ready acquaintance

with a foreign language as will get one over the chief difficulties of superficial intercourse, and it is not always necessary to speak correctly in order to be understood. A bad mistake here and there may lead to misunderstanding or awkwardness, but the unassuming mind is not supersensitive and will blunder along contentedly. I have known a lady who spent twelve years in Germany. She spoke German with great fluency, self-possession, and incorrectness. She seldom paused for a word, but she scarcely ever used a noun in its right gender. The general effect of her conversation was heightened by the fact that she was a person of very complacent demeanour. I have sat listening to her piling enormity on enormity, secretly wondering that the face of Nature should remain the same. A tithe of the mistakes she made in the course of a short conversation would have sufficed to change the atmosphere of most class-rooms from sunshine to clouds and thunder-weather. Yet she must have talked a great deal of German in the course of twelve years. Such instances as these show us the folly of supposing that any language can ever be learnt without hard, painstaking, conscientious work. The atmosphere of the modern language class-room may be pleasant; it ought to be pleasant. But that is not sufficient; it must also be such that a pupil will be heartily ashamed of making a grammatical mistake, and that a mispronunciation will be regarded with the same kind of horror with which a member of the Classical Sixth regards (or ought to regard) a false quantity.

Under the old translation method the pupil was not taught to *speak* French at all; now that oral methods have come into use, some of us are so pleased with our pupil's ability to chatter a little French, that we would seem to have lost sight for the moment of all higher ideals. In reality, as high standards of accuracy should prevail in the French or German class as in the mathematics or science class. The direct method is only in its infancy; the best indication of how far we have progressed in the application of it is afforded by the undoubted fact that *most teachers still regard a mistake in speech as a far less serious thing than a mistake in writing*. Properly speaking, of course, they are both the same thing; if a boy does not make any distinction between *würde* and *wurde* in speech, he will make none in writing. But the application of phonetics to language-teaching has given it a scientific basis; a pupil no longer looks on a word as a thing that he sees with his eye, but as a thing that he hears with his ear and pronounces with his vocal organs; he knows that it is composed of a definite number of sounds,

² There is something to be said also for the classification of pupils, and the elimination of those who are deficient in linguistic talent. This, however, is a refinement of educational practice from which we are, I fear, still far removed. We may arrive at it when we shall have properly organised the elementary teaching of English; a pupil's progress in his own language will then be a guide to what he may usefully attempt in the way of learning to speak another.—E. C. K.

with the exact nature and characteristics of each of which he is familiar. He knows the exact relationship that exists between the phonetic components of a word and its ordinary spelling. (Therefore, instead of calling on a boy to spell a word, it will often be much more to the point to ask him, *Wieviele Laute hat dieses Wort?*) There is thus established between the teacher and his class a perfectly exact medium of intercourse, as amenable in every respect to rigorous principles as written work; the teacher need never be in doubt as to what a boy says; it is no longer necessary for him to waste time asking whether *Mutter* has an *Umlaut* in the plural, for the pupil is trained to regard *Mutter* and *Mütter* as two words as utterly different in their nature as, say, the English words *pens* and *pans*. And in the same way the pupil's *intonation* will be an almost certain indication of the extent to which he has understood what he has read aloud.

It is strange indeed that anybody should accuse the direct method, as a method, of leading to inaccuracy, or of not being favourable to the cultivation of scholarly instincts, for it is in truth the only system of teaching languages which is strictly scientific. Further, if we would only bear in mind that all changes that have ever taken place in any language have first taken place *in speech*, we should realise that this kind of teaching is the best preparation for the study of philology and historical grammar. It is impossible, for instance, for a student who has never done any phonetics to arrive at any intelligent comprehension of the process by which the vowel of the German adjective *lang* became modified in the comparative degree. The result is that many university teachers have at present to spend a large part of their time teaching their students the elements of phonetics before they can attempt any advanced work with them. Not to dwell on the fact that the study of language as speech is the only possible preparation for appreciating the harmony of verse and the rhythm of fine prose.

While the teacher should use every means in his power to make his pupils fond of the language he is teaching, he must bear in mind, equally, that it is his duty to awaken in them what somebody has called "a grammatical conscience." I have not space to go into this matter fully; but it may be pointed out that grammar can be taught quite as stringently in the foreign language as in the mother tongue. When it becomes advisable to give the pupils a grammar, it should, of course, be one written in the foreign language. The best book of the kind that I know for German is Schelle's

Grammatik der Deutschen Sprache für Ausländer (Renger, Leipzig); it is rather a large book and costs four marks, but it is as well they should procure a good book at once. For French, Berthon's *Première Grammaire Française* (Dent) is an excellent book, clear and scientific; if M. Berthon would only write an advanced grammar on the same plan, he would put many teachers of French under an obligation to him.

It is not possible within the limits of a short article to deal with all the aspects of this question, or to deal with any of them fully; to do so would require a volume. But I hope I have done something towards showing that, in so far as bad work is at present the outcome of oral methods of teaching, where the teaching is carried on under conditions reasonably good, it is due to the fact that the oral work in question is not sufficiently rigorous, not sufficiently systematic, and not sufficiently real.

PERSONAL PARAGRAPHS.

THE death is announced of Mr. C. S. Jerram, in his seventy-eighth year. He was educated at Cheltenham College and Trinity College, Oxford. He took a first class in classical moderations, but ill-health prevented his competing for honours in the final schools. He was for many years associated with the late Rev. C. B. Fendall, in the management of Woodcote House School, Windlesham. Mr. Jerram's name is well known in a large number of schools as the compiler of "Angelice Reddenda," and "Latine Reddenda." He also edited Greek plays, but his most important work was done in English literature. He was an interesting teacher and a sound scholar.

* * *

MR. W. R. CARTER, headmaster of the Boys' Grammar School, Watford, died on April 2nd, at the age of fifty-nine. His decease is greatly deplored in the town and in Hertfordshire educational circles, where he was one of the best-known and most popular figures. To say he was popular with the boys of the Grammar School is a mild way of describing his relationship to them. He was esteemed by all of them through his genial disposition and his keen interest in everything for their benefit. Mr. Carter received his early education at the Royal Latin School, Bucks. Thence he passed to St. Mark's School in 1873; in 1877 he became sixth-form master in the lower school at Dulwich College, and graduated in arts at the London University in 1879. After acting as mathematical tutor at St. Mark's College he was appointed first headmaster of Watford

Grammar School in 1884. The school commenced with seventy-one boys, and under Mr. Carter's care it has become one of the most important of its type in the county, and now numbers 320 pupils.

* * *

THE REV. WALTER JOHN BARTON, of New College, Oxford, has been appointed to the headmastership of Epsom College, which will become vacant at the end of the summer term, owing to the resignation of the Rev. T. H. N. Smith-Pearse. At Oxford Mr. Barton was placed in the first class in moderations and lit. hum. For the past seven years he has been a master at Winchester College, his old school. For the last four years he has been Recorder of the Geographical Section of the British Association.

* * *

MR. SMITH-PEARSE, who has been headmaster of Epsom College for twenty-five years, was educated at Marlborough College and Exeter College, Oxford. He spent one term at Repton, and ten years at Marlborough College as a master. He has written various books, and articles on subjects connected with education and natural history.

* * *

THE committee of prominent ecclesiastics and laymen formed to raise a suitable memorial to the late Cardinal Vaughan unanimously decided, says the *Tablet*, in favour of the secondary school for boys, to be known as the Cardinal Vaughan Memorial School. Though twenty thousand pounds was raised within a year, the committee found the high price of available sites a bar to further progress. This difficulty has now been surmounted by the purchase of property in Addison Road, Kensington, which was designed and built as a secondary school. It provides accommodation for 150 pupils, and will be opened in September of this year. The Governors have appointed as headmaster the Rev. James Driscoll, who was educated at St. Edmond's College, Ware, graduated at London in 1889, and obtained his master's degree at the same university in 1902. Mr. Driscoll has been since 1902 headmaster of the Westminster Cathedral Choir School.

* * *

MR. W. T. LITTLEJOHNS, Naval Instructor, R.N., died recently in his seventy-second year. Mr. Littlejohns became a naval instructor in 1864, and soon became known for his zeal and efficiency. On the *Britannia* at Dartmouth he had the honour of serving as instructor to King George when his Majesty was a cadet, and a few years later at the Royal Naval College, Greenwich, the King

was again under his tuition. In 1885 Mr. Littlejohns retired from the active list, and gave up his time entirely to coaching boys for the Navy. A large proportion of the lieutenants and commanders of to-day owe to Mr. Littlejohns a debt of gratitude for having instilled into their minds as boys the principles of energy and accurate work.

* * *

MR. R. H. COCKS, second and science master at the Grammar School, Kingston-on-Thames, and head of the Chemical Department at the Technical Institute, Kingston-on-Thames, has been appointed headmaster of the Grammar School, Alresford. Mr. Cocks was educated at Wells Cathedral School and Lincoln College, Oxford; he took second-class Honours in Natural Science. He taught at the Wilton Road Higher Grade School before going to Kingston in 1903.

* * *

THE *Manchester Evening Chronicle* recently published an account of an interview with Mr. John Angell, who is now in his ninetieth year, and ranks as one of the pioneers of science teaching. He was one of the founders of the original Birkbeck School, and became honorary secretary of that institution. Mr. Angell told his interviewer: "I came . . . to Manchester to assist in promoting the everyday teaching of science on Socratic, or teaching to think, methods in all elementary or secondary schools. . . . The subjects I came specially to teach were those of physiology and social and political economy, the latter, I hold, being as distinctly departments of natural science as the sciences of chemistry and physics. At this time there was no such thing as science teaching in the ordinary day schools, and professors of science were strongly opposed to it as leading to superficiality and 'cram.'"

* * *

MR. ANGELL'S work at the Mechanics Institution was so much appreciated that Dr. Fletcher, a leading medical man of that time, pressed him to allow a number of men to open a school for him where the sons of well-to-do people could have the benefit of his instruction; they offered to guarantee him a salary of a thousand a year. This offer was declined because Mr. Angell felt that the owning of a private school would entirely stultify his efforts to push on the scheme of education that brought him to Manchester.

* * *

It was the success of Mr. Angell's teaching that induced the governors of Manchester Grammar School to include science in the curriculum. In 1869 Mr. Angell accepted an

offer to join the staff of the Grammar School, and his eighteen years' work there brought him many tributes in later years. In speaking of present-day matters Mr. Angell said: "A loud outcry is being raised against the teaching of so many subjects, which is said to lead to cramming and superficiality. The cry is raised chiefly with respect to science subjects, and I utterly deny its truth if these subjects are taught properly." . . . "Nothing makes me so impatient or indignant as the nonsense so frequently talked about the good old times and the complete failure of education. In my boyhood I never went out for even a short walk without being asked by boys or men to read an address or a message which they carried. . . . It was scarcely possible to enter a street in which one did not see a blind, small-pox-marked man led by a dog or an imbecile being teased by boys. The rarity of all these things for many years past is one indication that the present day has very little, if anything, to learn from the good old times."

ONLOOKER.

IMPERIAL GRANTS IN AID OF EDUCATION.

By J. H. REYNOLDS, M.Sc.

Formerly Principal of the Manchester School of Technology.

IT is a far cry from pre-school board days, when in 1869 the total expenditure by Parliament in aid of education was, for buildings £35,978, and for maintenance £773,839, or a total of £809,817, with no aid from the rates, to the year 1911-12, when the amount granted by Parliament in aid of elementary and higher education had reached the vast sum of £13,833,000, and the rate in aid £14,782,000, or a total of £28,615,000, the proportion of Imperial to local taxation in aid of education being as 48·3 is to 51·7, with a constant tendency to increased subventions from the rates.

In 1869 the number of children in average attendance in the public elementary schools of England and Wales was 1,283,319 out of a population of twenty-two millions, showing the absence from any effective instruction of two-thirds of the elementary-school child population. In 1911-12 the average attendance was 6,033,914, when the population had reached thirty-six millions, a striking measure of our neglect to educate the children of the nation.

The local expenditure upon public education, elementary and higher, has now become the chief charge upon the rates, and is the

subject of keen and often of very adverse criticism, especially in those areas where the necessity is great but the ability of finding the means of meeting it is meagre, as is shown by the fact that the produce of a 1*d.* rate in the urban district of Ebbw Vale is 1*s.* 7*d.* per child, with an expenditure of 10*9s.* 5*d.*, as compared with the borough of Richmond, where the corresponding sums are 6*s.* 11*d.* and 87*s.* 4*d.*, or West Ham county borough, where the produce of a 1*d.* rate per child is 1*s.* 9*d.*, with an expenditure of 114*s.* 5*d.*, compared with the county borough of Eastbourne, where the rate per child is 6*s.* 5*d.* and the expenditure 80*s.* 7*d.*

Instances such as these, illustrating the poverty of means but at the same time the desire for efficiency, and, on the other hand, plenitude of resource with little educational zeal, may be multiplied indefinitely.

The effective education of the children of the nation is now recognised as a service intended for the benefit of the people as a whole, and not exclusively for the advantage of particular localities. It therefore takes the position of a "semi-national" service, the cost of which must be apportioned equitably as between the locality and the State. In such circumstances, the responsibility for the effective administration of the large expenditure involved must be shared between the two authorities, and the contribution of the State towards the cost will be determined by the urgent need of the locality on one hand and its ability to meet it upon the other.

The introduction of the principle of compulsion, following upon the Act of 1870, in the sphere of elementary education—a comparatively easy course of legislation, but fraught with serious consequences—has gradually but inevitably led the nation to see that other measures, involving large expenditure, are essential if the full results of elementary education are to be achieved.

It is discovered that it is impossible to give any effective training to children who are in a state of semi-starvation, and as an encouragement to local authorities to provide free meals, not only on ordinary school days but on Saturdays and holidays, to such necessitous children, who are estimated to number half a million, it is proposed to contribute half the cost from Imperial sources.

The need for more effective physical training, and for open-air schools, in order to combat the scourge of tuberculosis, which it is stated affects one-fifth of the children; for medical inspection and treatment; for special schools for the defective and the deformed, and for maternity schools, as conditions precedent to any really satis-

factory education, is at last admitted. Such measures for the amelioration of the conditions of child-life are equally the concern of the neighbourhood and the nation, and the cost of applying them should be equitably shared.

It is further realised that adequate school buildings and playgrounds, with provision for manual training and for instruction in the domestic arts, reduction in the size of classes, an increased supply of properly-trained teachers, with salaries such as will make the profession of teacher attractive, are all necessary to give full effect to the demands of a satisfactory elementary education, especially if it be extended, as it shortly must, to all children up to fourteen years of age.

The Government proposes to stimulate the adoption of these provisions by substantial grants in aid of each of these special services according to the need and to the ability to provide them in each area. In addition, the Government proposes to encourage still further the provision of the means of continued and higher education by the offer of substantial additional grants amounting to about £560,000, which would include, amongst other things, provision in aid of pensions for secondary-school teachers, but it is obvious that very large further Imperial grants-in-aid will be necessary if Mr. Denman's Bill, now before the House for third reading, becomes law, since not only will it cause a much larger number of children to remain in the elementary schools, but provision will have to be made in respect of buildings, equipment, and special teaching staff for the continuance of part-time education of more than two millions of children between fourteen and seventeen, who will have ceased attendance at the elementary schools.

It would appear that the Government proposes to adopt the recommendations of the "Kempe Departmental Committee on Local Taxation," which suggests, so far as elementary education is concerned, the adoption of the principle of a "Block Grant," providing for all aspects of elementary education, based upon a formula which has regard to the "need" and "ability" of each area, and to give effect to this, proposes a standard local rate of 7*d.* and a standard expenditure of 6*s.* per child as being the *minimum* sum for which the service could, under the most favourable conditions, be efficiently administered. The grant would then be calculated upon the basis of a payment of 3*s.* a child in average attendance, plus two-fifths of the total expenditure, less the produce of a 7*d.* rate. This would give, in the case of an authority with 10,000 children, where a 1*d.* rate produces £1,500—spending £40,000—a

Government grant of £23,500. If the authority spends a larger sum per child than the minimum standard, so will the grant automatically rise, having regard also to other conditions, but much oversight will be necessary to prevent merely extravagant expenditure. The reformation in the methods of the incidence of rating and local valuation foreshadowed in the Budget and recommended by the Departmental Committee, will, it is expected, bring about a more equitable adjustment of local burdens.

With regard to higher education, it would appear that the grants, though considerably increased, will continue to be disbursed upon the present methods, but the Residue Grant, hitherto paid direct, which since 1908-9 has been fixed at £807,260, is to cease as such, and to be charged on the Education Vote, and distributed under the regulations of the Board of Education in proportion to the net expenditure incurred by the different local education authorities concerned.

So far as can be ascertained, the first charge upon the new grant will be the demand for necessitous areas and the feeding of school children to the extent of £515,000 for the current year, but the Chancellor of the Exchequer stated that "next year the grants would come to £3,892,000." We are entering upon a period of great potency and promise, and it is hoped that, whilst the central authority will exert a wise oversight over expenditure, it will leave a large freedom of initiative to intelligent and public-spirited local authorities.

THE USES OF POETRY.¹

WE may ask ourselves why anybody uses poetry. It is a question which sounds extremely absurd, but it is not so easy to answer as some of you may at first suppose. It is clearly much more difficult to use verse than to use prose. It is clearly possible in a sense—in a sense, mark you—to say anything in prose that you can say in verse. Why, therefore, use verse? Well, the answer up to a certain point is quite easy, or it is easy enough. You may say, for example, that verse gives pleasure, the unanalysable pleasure, the unaccounted-for pleasure, which we get from melody. Nobody has ever explained, I know, why melody in music pleases us, does more than please us, moves us passionately. That remains the ultimate æsthetic effect, which neither psychologists nor physiologists have ever in the least explained, have ever gone near explaining. And something of the same unaccountable or unexplained pleasure undoubtedly attaches to beautiful verse. Then, in addition to that and beyond that, there is always a pleasure in seeing refractory material worked by the hand of a master. There is,

¹ From the presidential address by the Right Hon. Arthur J. Balfour, P.C., M.P., to the English Association on May 8th, 1914.

unanalysed, no doubt, unless we read it, unthought of, unless we reflect on our own pleasures, there is a great satisfaction in seeing a difficult thing admirably done, and the ductility of the language, as Lord Macaulay said, brought out in its highest possible perfection, must be a source of gratification to everybody who really understands one of the pleasures, and not one of the least of the pleasures, which literature is capable of giving us. In addition to that there is yet a third thing. Verse, poetry, permits, justifies, even encourages the use of ornament and decoration, enrichment, in fact, which would be out of place, out of taste, altogether superfluous and indeed injurious in prose. And if you look at the poets who have tried to do what Dryden tried to do, namely, to embody reasoning, severe reasoning in poetry, you will find that they always have as a matter of fact enriched the argument by poetical matter, more or less relevant, but, if the master be a great one, always delightful.

It is rather interesting to compare the way in which argumentative poets deal with this problem of enrichment. Dryden, in the poem to which I have referred, I think very seldom deliberately goes out of his way to make a fine passage, to use a fine passage. There are very fine passages, but they seem almost struck out naturally by the course of the poet's reflections; and though I am no scholar—I have no pretensions whatever to classical scholarship—I understand from those who are competent to speak on such matters, that a greater poet than Dryden, Lucretius, in the same way did bring in his great decorative effects, his splendid passages of illuminative imagination, as an integral and living part of the argument, as if it were forced upon him by the character of the argument, and by the nature of the impassioned materialism which he was endeavouring to preach. Pope, on the other hand, as it seems to me, in the "Essay on Man," which is the greatest effort in our language at reasoned poetry—Pope, I think, brings in his great purple passages rather artificially. That is a matter, of course, of individual taste, and I do not attempt to prove it, but I think, if you will look, for example, at some of the stock examples of Pope—Pope is apt to be quoted and over-quoted—almost all his great passages are familiar, either as a whole or by an occasional couplet or line, to many persons who have not the least idea of where the poetry comes from—if you will look, for example, at a rather famous purple passage which begins:—

"Lo, the poor savage whose untutor'd mind."

You smile, naturally. It has been worn to threads, but let me tell you it is a very remarkable effort of rhetorical poetry. But if you observe the way it was introduced, you will see that Pope was much more interested in this admirable picture which he drew than in the argument of which it is a part, and is intended to illustrate. I do not say that as criticism of Pope. I think, if it is a criticism on Pope's "Essay on Man," it is a criticism on all Pope; for, as a matter of fact, it is never the thread which interests us in Pope, it is the pearls which are strung on the thread. If you read, for example, the moral essay which deals with the character of men, you

neither know nor care what the theory is which Pope professes to be endeavouring to prove. You are not the least interested in the theory that all actions of all mankind are to be explained by the ruling passion. What you are interested in are such things as the character of the Duke of Wharton and other admirable and really inimitable passages of that great rhetorical poem. In the same way you read the companion moral essay on the character of women; you are not the least interested to know that in Pope's opinion "Most women have no character at all." You do not take even enough interest in it to think whether it is pure nonsense or not. What you are interested in is the character, for instance, of the famous Duchess of Marlborough, Sarah Duchess of Marlborough, which is one of the gems of that poem, and, broadly speaking, I think you will find it true that Pope is good reading in proportion as the connective tissue, the argumentative or intellectual thread, which is the joint, or is supposed to join these great passages together, is small in amount compared with the great fragments which they join together. I do not know whether those who are acquainted with the poem agree with my criticism, but I think it is true. I think it is broadly true, and broadly true of all Pope. It is in another argumentative poem or more or less argumentative poem—another didactic poem—there occurs the simile which Dr. Johnson declared to be the best simile in the English language, very high praise from a very great critic. Again, you all know the passage. It is the passage in which the poet, having explained that in our early youth we think the field of learning may be easily conquered, and that as we get on in life we see the difficulty increase before us, introduces the famous simile which ends with the line:—

"Hills peep o'er hills, and Alps on Alps arise!"

Again, you all remember the line. It may be worth your while to look at the passage, for it is an admirable one. But I venture again to differ, with diffidence, from Dr. Johnson, who ought rarely to be differed from when he is dealing with any poet who wrote between 1660 and 1760. I venture to differ from him because, as it seems to me, the argument which Pope illustrated was not interesting to him in the least. It had very little to do with the "Essay on Criticism." It bore no important part. What he cared for was not the thing that had to be illustrated, but the illustration which he applied to the thing, and that illustration was indeed admirable. But since, if I am right, the thing to be illustrated as treated by Pope was scarcely worth the trouble. I do not feel inclined entirely to endorse the rather lavish praise which Dr. Johnson has extended to this particular part of the poem.

All that perhaps is rather by the way. I tried to point out that there are three great advantages, which everybody will admit, that poetry has over prose in dealing with any subject. I mean the melody, the pleasure which the comment on the material gives, and the enrichment which that particular form of literature permits and indeed encourages. But there is another attribute of poetry, which is relevant, I

think, to the subject of arguing in verse, and that is the power of compression, the power of reducing intensely which poetry possesses in a degree far exceeding prose in its ordinary and most appropriate use. I am not sure that this quality of intensity or compression always receives sufficient attention from critics and students of literature. It seems to me to lie at the root of much more than we are apt to think. Men of science are quite familiar with the idea that time, the amount of time taken, acceleration, intensity, these things are of the utmost importance for accounting for natural phenomena, but I do not think that we always quite grasp how widely spread through all literature is this quality of intensity, and how much it stands for, and by how many means men of letters try to attain to it.

We are apt to talk as if a meaning that had been put in a compressed form could be expanded and explained and drawn out to an unlimited length, and that then you would have the same meaning in two shapes. But that is inaccurate. Mere dilution alters quality. The mere extension, the mere explanation, the mere unrolling of a thing destroys its most essential attributes, and even commonly destroys its highest qualities. You come upon a line or couplet in a poet which for some reason seems to you obscure. You read a long note about it, and the note explains what the poet meant. But it does not give you what the poet said: it does not give you the meaning of the poet.

You might as well suppose that some medicine or some tonic would produce its effect if diluted in an infinite quantity of water. The tonic is there, and it is unchanged, in one sense, unchanged, but for all practical purposes it is an utterly and entirely different thing. And poetry does permit of this increase of tension, this augmentation of intensity and concentration, in a way which prose does not admit, and that is one of the great reasons why poetry is the vehicle for things that cannot be said in prose, and it is one of the reasons why we might hope and suppose that arguments may be presented with an efficiency and force in poetry which prose is incapable of conferring.

There is some truth in that; but before I touch upon that perhaps I had better indicate the variety of methods by which this sort of intensity is reached, because those methods are many. The simplest of all is what I may call "telegraphic concentration." Somebody sends you a telegraphic message which consists of a substantive and a verb; there is no preposition, and you are expected to fill up all the gaps and translate the message into some form more easily comprehended. Well, that kind of concentration is possible in poetry in a manner which is not possible in prose, which would never be tolerated in prose. Poets have used it and abused it. I have mentioned the "Essay on Man." There are passages in the "Essay on Man" most obscure, not perhaps greatly worth unravelling; the obscurity comes from the fact that the poet has used almost a telegraphic system; he has left out too much, and he expects his readers to put it in.

When not carried to excess, I think this power of compressing arguments is an asset for those poets

who are bold enough to try argument in verse. No prose writer would dare to use them. He is expected, and I think rightly expected, to explain his arguments at a point which is immediately intelligible to any ordinarily instructed reader. He is not allowed to make these cuts or these harsh compressions, and to that extent the poet has an advantage over him.

But there are other methods by which prose no doubt can do something towards getting this tension, this intensity, which is so important a quality of—I will not say of all style—but of much style. Paradox is such a method. What is the advantage of paradox? Why do people use it, and why do some people abuse it? Because it is a method in which the whole argument can, as it were, be forcibly compressed until it seems to have, and often has, a significance which it would not have if it were expanded to its full length.

It is the same with epigram, such epigram as, for instance, Pope constantly produced, not always in his greatest passages, but in single lines here and there, which from the very perfection of their form, from the very concentration which he was able to give them, have passed current in every country and clime where the English language is spoken, and have become almost proverbial elements in our common speech.

There is one more method I might mention which is obvious—I was going to say ostentatious—reticence, when the writer has brought up the reader to a conclusion which is so obvious, to inferences which are so plain, and then leaves the reader to do the rest himself. That is a method, not indeed very often used, but there are cases—I shall not mention them—where it has been used with really extraordinary literary effect. You must not suppose that I am suggesting that the essence of all good style is this concentration in tension, and that the difference between a bad writer is that the good writer packs in allusions, suggestions, thoughts, arguments, into a form which makes them far more powerful than they are if diluted by incompetent treatment. I do not at all hold so wide a doctrine as that. I do not think that all merits of style are in one shape or another effects of concentration.

I would suggest that there is a distinction to be drawn between two methods by which poets of different schools have attained this concentrated tension. If you take stock instances of the past—I will take a very stock instance, far removed indeed from eighteenth-century or seventeenth-century poetry, and far removed from argument—I will take it from a very familiar sonnet of Keats. We all know the last four lines of his famous sonnet on Chapman's Homer:—

"Or like stout Cortez, when with eagle eyes,
He star'd at the Pacific—and all his men
Look'd at each other with a wild surmise,
Silent, upon a peak in Darien."

Now, those are four lines in which there is no appearance of effort, in which the melody, exquisite as it is, is not forced upon your notice, and yet to my thinking, and I imagine you will be in agreement with me, there is in that a concentrated picture, which, if you were set down to write it out in prose, would take you a page, and when you had done it, it would

have no resemblance to the original. You get there, by means of the highest poetical suggestion, this compression of which I am speaking, and the peculiarity of compression by this poetic suggestion is that it has not got clearly defined limits. Compressed as it is, it shades off, so to speak, on its exterior limit, and has no definite border, and the suggestions that might be made to one man would not be precisely and exactly the suggestions that were made to another. There is a difference, and it is those people who cannot catch these suggestions who say of themselves, perhaps truly, that they do not care for poetry. But now there is another form I want to contrast—that form of concentration by high poetic allusion and suggestion, with the sort of compression so admirably secured by quite different methods by the rhetorical poets who wrote in the century that followed the Restoration. Their concentration was quite of a different kind. It was in the nature of an epigrammatic summing up. The concentration had, as it were, definite and clear limits. There was in it nothing of this vague suggestion, of this doubtful outline; it was strong and it was vigorous, but it had nothing of those special qualities which are commonly associated—and I think rightly associated—with the highest poetry.

Have I been speaking in favour of using verse as a vehicle for argument, or have I been speaking against it? I think, on paper, so to speak, you can make out a very good case from the very examples I have brought before you for using verse as a vehicle for even arguments which appear to be most remote from poetry. You might say, for example, that Dryden came forward at a political crisis and wrote a political pamphlet on a theological subject. Admittedly he was unlearned; admittedly, he had nothing more to say than the commonplaces of that particular controversy; and yet he is remembered and his poem is remembered, he is praised and his poem is praised by men who no more think of reading his learned and most effective antagonists than they would think of burrowing into some long-forgotten broad-sheet referring to an incident in which they took no interest. Tillotson, indeed, is an honoured name, but how many are there, how many are there in this room who have ever read a word of Stillingfleet, or a word of Sherlock? Not many, I think, in this assembly—there may be some. Yet Dryden remains with us. Dryden received the measure of eulogy from critics like Lord Macaulay and Prof. Verrall, which I have indicated to you, and doubtless so long as the English language lasts, this poem will be admired by competent critics.

The man who argues in prose is forgotten, however great be his talents or his qualifications. The man who argues in verse, if he has sufficient genius, is remembered. That would appear to be the great defence for that method of exposition, but I do not think it is quite true. I think, if you will look at it a little deeper, you will see that it is not true. There is nothing which grows old more quickly than controversy. The arguments which pleased our fathers do not please us, and the arguments which pleased our grandfathers did not please our fathers, and so it goes back from generation to generation. It is not—I do not for a moment suggest that it is—because neces-

sarily the old arguments, if you get at the essence of them, were not very good arguments. I do not suggest that the new form is inherently and from an absolute point of view so very much better than the old form, but it suits the generation that produces it, and each generation will insist in having its own problems discussed in its own way, in a language suited to its own intelligence and its own temperaments. Therefore when these old controversies are put in a poem, they really are mummies of which the poem is the aromatic spice which preserves it from decay. The poem does not keep the arguments alive, the poem keeps itself alive, and the arguments have to go with it, to repeat the old simile, like the fly in the amber.

Therefore, on the whole, I suggest to any gentleman or lady who has an argument to present to the public that they should present it in prose rather than in verse. I can indeed imagine a subject—and a poet—which would not be open, whose effusion would not be open, to the criticism which I have been making. I can just imagine that there might be subjects which, from their difficulty, their vastness, could only be treated by that allusive form of concentration which I have described as truly poetical, which would require, at all events, a great element of that; and I can imagine that there might arise a poet with a breadth of view, a strength of imagination, and a power of grasp, who would so fuse the matter of his argument into the form and substance of his poetry, and who would find his subject so impossible to treat, except poetically, that mankind would for all time be obliged to take argument and the poem together and never try to divorce them.

So I say that such a combination as I have suggested is but a dream, and that this society, if it lives to celebrate the fame of such an argumentative poet, of such a reasoner in verse, will have reached a dignity of age and a maturity of reputation, which I am sure it will have deserved, and which can only occur long after those who have founded it, and those who have helped its early years, are gathered into oblivion.

TRADE AND TECHNICAL EDUCATION IN FRANCE AND GERMANY.¹

GENERAL.—In the gradual evolution of systems of technical education in France, Germany, and Britain there has been much interchange of thought and ideas during the past thirty years. The ideals controlling the systems evolved appear, however, to differ radically at the present time, and in consequence these systems, as yet in no case completely developed, show wide divergence in curricula and methods of organisation. Germany aims at the building up of a great industrial nation partly by the thorough training of the leaders as experts, partly by the training of the middle-grade workers, such as draughtsmen and foremen, as thoroughly accurate and careful managers, and partly by the training of all grades of workmen and mechanics as skilled craftsmen and good citizens.

¹ From a Report to the London County Council Education Officer by Mr. J. C. Smail. (London: P. S. King and Sons.) 15.

France aims at industrial excellence, partly by the training of highly skilled experts and partly by the training of those who should become the best workmen and the best foremen.

Britain aims at individual excellence, partly by offering many avenues of training and many chances for willing and persevering workers to climb all sections of the industrial ladder.

The lines of demarcation are reasonably clear between the three main groups for whom education beyond that of elementary and secondary schools is provided, and it is proposed to deal with these three sections separately.

(i) Lower or junior technical education for those with an elementary education only engaged in or about to be engaged in trades, of ages from fourteen to eighteen—to train capable workmen.

(ii) Middle technical education for those with a more advanced general education, or for those who have already had some trade or workshop experience, of ages from sixteen upwards—to train draughtsmen, designers, foremen, managers, etc.

(iii) Higher technical education for those with a thorough secondary education, or its equivalent, of ages from eighteen upwards—to train technical experts.

The great development of voluntary evening technical instruction in Britain, which may be classed largely as middle, but partly as lower technical education, finds no adequate parallel in the systems of France and Germany. A considerable amount of work of this kind is going on, but the French and German educational experts do not appear to realise its possibilities, or perhaps too strongly realise its limitations. They accordingly look to day work as the only adequate method for imparting instruction of any real value and do not regard evening training as a practicable scheme by which individuals can gain such additional knowledge and training as will lead to their advancement from a lower to a higher grade on the industrial ladder. There is, however, evidence of a growing demand for this type of instruction in Paris and in Munich, and a note is added in the appendix to the report showing the growth at the voluntary attendance classes organised by the Association Polytechnique in Paris. In Berlin, too, a type of institution, the "Wahlschule," approximates closely to some of the British institutions.

LOWER OR JUNIOR TECHNICAL EDUCATION.—This work has developed in several distinct forms:—

(i) Day trade schools ranking as apprenticeship institutions and taking the place of apprenticeship.

(ii) Day trade and trade preparatory schools, preparing for and reducing the period of apprenticeship or training.

(iii) Compulsory continuation schools for young persons engaged in trades, commerce, or otherwise, of ages from fourteen to seventeen or eighteen.

(iv) Voluntary continuation schools.

(i) Day trade schools, which take the place of apprenticeship, have been instituted in Paris, and have now made for themselves a definite place in the industrial organisation. In them are trained those who will lead the trade, as workmen, foremen, and managers.

Students who leave after three or four years' training immediately obtain employment at journeymen's or improver's wages. A high standard of mechanical skill is secured owing to the very definite aim of the schools, the excellence of the teaching, and the large amount of time devoted to workshop practice in extensively equipped workshops. The whole atmosphere of these schools approximates to that of industrial life and this is aided by the practice of requiring pupils of all courses to work together in the workshops. Practical work is carried out for real and useful purposes, although it is not sold. In consequence the schools are costly to maintain.

(ii) Day trade or trade preparatory schools—now classed in England as junior technical schools—are well known in this country. They differ in type from schools in Germany or Paris.

(iii) Compulsory continuation classes are now almost universal in all the large towns of Germany. Their function is interpreted differently in different cities, but there is a steady movement to carry them from general schools to specialised schools. In Berlin, Munich, and Leipzig such specialisation is made on the basis of the trades in which the young workers are engaged, and the results are wonderfully successful. Not only do the trade workers receive specialised instruction, but all grades of workers are included and for unskilled workers special courses are in operation.

Munich boys will generally receive nine hours a week instruction for four years, or approximately 1,500 hours of continuation instruction. The average attendance for those who enrol in England is fifty-eight hours per annum; on the assumption that they attend two years they would receive 116 hours' continuation instruction. If all boys in England received this amount of instruction the comparison would be sufficiently startling, but when it is borne in mind that only 13 per cent. of the possible population between fourteen and seventeen years of age are directly known to be under education during these vastly important formative years the comparison becomes alarming.

(iv) Voluntary continuation schools, so well known in this country, are also in operation in Paris and in Germany. The voluntary attendance appears to act in Paris very much in the same way as it does in Britain. In Germany, on the other hand, the compulsory classes for three or four years give students definite ideas that they do or do not want further education. The result in Munich is that nearly one-third of the number enrolled in the compulsory schools are found in attendance at further courses.

MIDDLE TECHNICAL EDUCATION.—The provision of this type of education is made in two ways: (i) in full-time day courses, and (ii) in evening and Sunday classes.

The view is prevalent in Paris and Germany that the work done in evening classes can be of very limited value in the professional or trade training of any group of workers. Attendance at full-time day courses is regarded as necessary if such training is to be secured as will enable a worker to proceed to a higher grade of employment. Much is, however,

being done both in Paris and Germany in evening classes, but they do not form such a definite piece of organisation, nor are they so wide in their operations as in Britain.

In Munich there are definitely organised improvers' courses and masters' courses, which are entirely voluntary and are distinct from the compulsory continuation classes. Three thousand two hundred and eighteen improvers were attending classes in 1912-13, as compared with 10,329 apprentices. Of these 3,218 improvers only 1,221 were natives of Munich, 1,294 coming from other parts of Bavaria, 449 from other parts of Germany, and 254 being foreigners. Such classes are growing steadily, the figures for the past six years being 2,556, 2,541, 2,690, 2,733, 2,837, and 3,218. The range of courses covered is practically the same as that in the continuation classes and the same buildings are in use. This considerable proportion of students seems to show that continuation classes stimulate a desire among the best students for more advanced work.

In general, it may be said that the day courses aim at giving such technical work as will enable a workman with trade experience to fit himself for a higher type of post, while the evening classes aim at improving the standard of skill and knowledge to enable the worker to fill his post better.

Laboratory courses in technical chemistry, metallurgy, mechanics, steam, and so forth are not generally available for such students. These appear to be regarded as belonging to the work of the technical high schools.

The middle technical day work is regarded as of great importance in Germany, and the middle technical evening work is growing in importance. The British evening classes, however, offer a much wider field to students than the corresponding classes in Germany, but the British day system is extremely small, and has not yet established itself as a definite and important educational unit. There is in Britain more overlapping between what may be classed as middle technical and higher technical work.

COMPULSORY SYSTEM OF CONTINUATION EDUCATION.—The actual study of this system in operation creates a firm belief in its value and importance for boys of fourteen to eighteen years of age, provided that it has a direct relation to their employment and future career, and provided that adequate time is given for its pursuit.

I was prepared to find unwilling students taking a slovenly interest in their studies, and teachers struggling with the evils of "forced" attendance. Nothing of this kind was seen. Pupils were thoroughly alive to their work, thoroughly interested and obviously eager to do their best and get the maximum value from their attendance. Teachers were fresh and vigorous, and, with no nightmare of disappearing classes, were concentrating their efforts on educational efficiency and getting excellent results. Directors of schools were thorough masters of the whole situation, and were bending their efforts to the best curricula, the best equipment and details of organisation in a way that none of our principals or responsible teachers can possibly do owing to the multitudinous calls on

their time. No money is wasted on advertising, no special system of whipping up large numbers of absentees is required.

Much is done to meet employers half-way; extra time for instruction is arranged during the slack season in some trades and diminished time allowed during the busy season. If an employer has a sudden rush of work he telephones to the director, and if the reasons are considered adequate the boy is granted permission for absence, provided that the time is made up otherwise. With this system Berlin secures an average attendance of about 90 per cent., or more exactly 87.2 per cent. in the summer half-year of 1912, and 88.9 in the winter half-year of 1912. The unskilled workers as a group made the lowest average attendances, amounting for 1912 to 83.0 per cent., in the first period, and 85.0 per cent. in the second period. Of the other groups the maximum attendance was 93.9 per cent. for the food trades students in the winter half-year of 1912. Employers were at first difficult to deal with, but these difficulties have now disappeared.

The time required is by no means uniform, but varies from six hours to fifteen hours a week. Berlin requires six hours, Munich requires nine hours, Leipzig requires fifteen hours in a few of its courses. The times of instruction vary very widely.

The essential points on which the success of technical education for pupils between fourteen and seventeen or eighteen years of age appear to depend are:—

- (i) The confidence of employers in the value of the education provided.
- (ii) The interest and satisfaction of the students in the results obtained.
- (iii) Specialisation of the instruction to the occupation of the student; and
- (iv) Continuity of instruction.

These elements of success are being secured in such places as Berlin, Leipzig, and Munich.

GROUP COURSES.—The conclusions on this matter may be stated:—

(i) There has been, broadly speaking, a difference in ideals between Germany and Britain in the organisation of technical courses. Germany is aiming at benefiting the nation by training properly all the workers through definitely specialised courses. Britain has organised so that individuals may secure what they think best for their own advancement.

(ii) The fundamental basis of any course of study for technical students must be their trade or employment. If this is recognised and acted on in the preliminary years from fourteen to eighteen there is little danger of work at more advanced stages, even if irregularly organised, being ineffective.

(iii) Germany is aiming at making good citizens and has realised that a good citizen must be a good workman.

(iv) Germany has come to believe that workshop training alone is insufficient to make a sound industrial nation; that it must be reinforced by adequate education specialised to trades.

(v) This specialised education must include specialised calculations, technology, drawing, and

citizenship. Munich also believes in trade work in the compulsory schools, Berlin does not.

(vi) Citizenship must be taught to enable the worker to recognise his individual position in the State, his position with respect to his employer and fellow-workmen, his family and social duties, the relative position of his trade in his own country and in the world's commerce and industry.

GENERAL CONCLUSIONS.—Germany is systematically training the whole nation in different ways for their different spheres. The effect of this in a generation will be of far-reaching consequence.

I. LOWER TECHNICAL EDUCATION.

A compulsory system of continuation education for boys from fourteen to seventeen or eighteen is an excellent thing in practice. It results in economies of advertising and administration, and enables principals and teachers to focus their efforts on educational efficiency. The confidence of employers in technical education is likely to be secured more readily by specialised instruction in compulsory classes than by any other method.

Technical training is so important that it should be dealt with in separate buildings with expert heads apart from commercial or literary work.

The training of school teachers for continuation work is as necessary as the training of trade experts for the same purpose. The first group must know something of the conditions and processes of the trade while the second must learn how to impart their knowledge most advantageously.

Continuation courses must be specialised from the beginning for the trade in which the workers are engaged. The intermixture of students with different aims leads to waste of effort and diminished efficiency.

The study of citizenship for all boys is very desirable, for their own good and for the good of the nation. Special courses of training for teachers in this subject are required to enable it to be satisfactorily dealt with.

Specialised courses should be provided for all engaged in "blind alley" or unskilled occupations.

II. MIDDLE TECHNICAL EDUCATION.

The extension of organised and specialised courses of instruction is desirable to utilise evening attendance most economically and effectively.

The whole subject of day courses of this type requires careful consideration. Advantages may possibly be gained through consistent action on the part of various educational authorities.

Elementary Commercial Geography. By H. R. Mill. Revised by Fawcett Allen. 186 pp. (Cambridge University Press.) 1s. 6d.—This is a revised edition of Dr. H. R. Mill's "Commercial Geography," the first edition of which was published in 1888. The statistics have been brought up to date, and additional details given in the descriptions of several countries. As a text-book for use in schools the book is scarcely suitable; in trying to crowd into 186 pages the commercial geography of the whole world the text becomes little more than a mass of place-names and of commodities.

CAMBRIDGE LOCAL EXAMINATIONS, 1913.

HINTS TO TEACHERS FROM THE EXAMINERS' REPORTS.

COMPULSORY SECTION.—*Arithmetic.*—Difficulty was frequently experienced by *Preliminary* candidates in the use of the table of linear measure. Ignorance was shown by many candidates of the conception of proportion, especially in its application to questions on profit and loss.

There was some weakness among *Junior* candidates in dealing with questions involving interest. There was much inaccuracy; the knowledge of the metric system was imperfect, and many candidates showed that they were completely ignorant of the subject of stocks. In the more advanced part of the papers the same faults were prevalent to an even greater extent, and much of the work was marred by silly blunders which ought to have been impossible. The questions on measurement of solids were as a rule poorly done, and only a few candidates showed any grasp of the principle of percentages.

ENGLISH SECTIONS.—*English Composition.*—The spelling of *Preliminary* candidates was on the whole satisfactory, though the well-known errors were too often observable, and the punctuation, especially where the candidate adopted the safe but inelegant style of short separate sentences, exhibited a somewhat general improvement. This was, however, still the weakest point, and few understood the proper use of commas. The girls did better than the boys, but not to such a marked extent as usual.

The essays of *Junior* candidates, and especially those of the girls, were as a whole chiefly remarkable for the utter absence of style. The best were those in which the narrative form was adopted. The boys in most of the subjects showed knowledge and thought. Triviality both in thought and in expression was conspicuous among the girls. In July the spelling showed improvement, but in December both spelling and punctuation were often very bad. Colloquialisms were far too common, especially in the boys' essays. The question on punctuation was fairly done, but perfectly by very few. The commonest fault was the omission of inverted commas and notes of interrogation. In writing sentences to illustrate the correct use of certain words, both boys and girls still neglected to make the meaning a certainty by the context.

An improvement was noticeable among the essays of *Senior* candidates in respect of certain types of mistake, such as confusion of tenses, irrelevant and trivial remarks, redundant expressions and colloquialisms; but there was still widespread disregard of the simple rules of punctuation, and many candidates neglected to arrange their work in paragraphs. Both in July and in December some of the best essays were on a literary topic, for instance, a candidate's impressions of some well-known novel or a speech in honour of Charles Dickens. Both in July and in December the *précis* was inferior: the instructions about brevity were often disregarded, especially by the girls; few showed ability to pick out the essential points and express them in good English, and there

was a general tendency to secure compression by omitting words and phrases from sentences without regard to the meaning of the whole passage.

English Literature.—A fair number of the *Senior* candidates were able to give a good account of a play by Goldsmith or by Sheridan. In a description of the principal works of certain authors, though in some cases the attempts were merely catalogues often imperfect or inaccurate, yet many answers showed a satisfactory knowledge of the leading characteristics of the author selected and often of some of his writings. There was much guesswork in the identification of selected passages and of the authorship of certain specified books. Some candidates confused the nineteenth with the present century. The spelling of the names of well-known authors and characters was often inaccurate.

English History.—At some centres the work of *Preliminary* candidates was extremely poor throughout, but the general average of attainment was somewhat higher than in 1912. Once more it was the third period upon which attention had been least bestowed; and it is regrettable that the eighteenth century, with its great transformations and its nearness to our own times, should be less well known than the fourteenth. Nelson and Marlborough were the only subjects upon which really adequate knowledge was shown in this period.

A fair number of *Senior* candidates did questions in more than one period, showing some general knowledge. The weak points were still a great carelessness about dates, implying, and partly causing, a failure to grasp the proper sequence of events, and allowing a confusion between Henry I. and Henry II., between the elder and the younger Pitt, and an attribution of the grant of legislative independence to Ireland to the influence of the French Revolution, and of the Irish Rebellion to that of the American War. The candidates were often very weak in their constitutional history, saying that the House of Commons created Peers, that Parliament was "in office," that Ministers went out of office when Parliament was dissolved. In December there was an almost universal ignorance about Mr. Gladstone's career up to 1867, and some singularly good answers about the Berlin Decrees and Chartism.

Geography.—The quality of the work of *Senior* candidates varied greatly. It was evident that only a small proportion of the candidates had been taught on the lines laid down in the new syllabus. The unsatisfactory character of a large proportion of the work appeared to be due to insufficient teaching, and to the failure to point out the relation between the economic and political geography of a country and its physical character and climatic conditions. More endeavour should be made to explain the reasons of geographical facts. The least satisfactory answers were to the general questions (principles of physical geography), and to those questions on regional geography which involved some of the principles of physical geography. Not uncommonly candidates misunderstood the meaning of geographical terms such as "northern hemisphere," "arctic circle," etc. The types of coast-line and plains were considered from

many different points of view, but often the fundamental types and their mode of origin were not recognised. The questions on the advantages or disadvantages of the positions of certain towns were answered relatively well. The maps varied considerably in merit, but the position of the highlands was often unsatisfactorily shown.

CLASSICAL SECTION.—Latin.—The answers of *Junior* candidates to questions on accidence at many centres betrayed an absence of systematic teaching, and instances of really good work were rare. In the declensions there was much ignorance of regular types; the cases of less common words were given with much greater accuracy. Similarly there was much blundering in the normal inflexions of verbs, while the irregular verbs were better known. The parsing showed improvement upon the previous year.

In July the work in easy unprepared translation attained the usual standard; in December even the commonest Latin words were apparently unknown to a not inconsiderable proportion of the candidates. In both examinations a great ignorance of the pronouns was shown. The work of the girls upon the whole showed improvement in both examinations.

The work in unprepared translation of ordinary difficulty was in general unsatisfactory. Most of the boys who qualified for distinction came from a very small number of centres, at which evidence was given of careful and intelligent teaching, but in most parts of the country guess-work and astonishing inaccuracy prevailed, and a failure to apprehend differences between ancient and modern life.

Very few of the *Senior* candidates in July sent up good renderings of the easy passage for unprepared translation, the majority barely escaping failure; in December the proportion of good or fair renderings was considerably larger, although much of the work was extraordinarily uneven.

At a few home and one or two Colonial centres the Latin prose of *Senior* candidates was very satisfactory in point both of accuracy and of style, but a great part of the work was deplorably bad. Many of the candidates gave the impression that they were attempting to compose in a wholly unfamiliar medium. Some of the commoner mistakes were clearly due not so much to ignorance as to want of practice in writing Latin prose, and the work as a whole suggested that in a large proportion of schools the teaching of Latin composition is seriously neglected.

MODERN LANGUAGES SECTION.—French.—Much ignorance was shown by *Preliminary* candidates of the inflexions of nouns, pronouns, and verbs. Translation from French into English was good; in July there was some improvement in the translation into French, but in December this part of the paper was poorly done. The answers in French to questions in French were for the most part worthless.

The answers of the *Juniors* to the questions on grammar were disappointing on the whole, though there were some good centres. The verbs were not well known, and it was surprising to find how few knew the French for such everyday words as "eyes," "fingers," "sister," "large," "brown," "cold"; such forms as "leur lettres" and "leures lettres" were

quite common; "at home" frequently appeared as "à chez." Many had no idea that the past participle is the verbal form required after an auxiliary verb. The tenses were used very carelessly. For the confusion commonly shown between "ils ont" and "ils sont," and also for the recurrence of such mistakes as "L'homme donc je parlais," the oral method may perhaps be responsible. The work of the girls was better in quality and much more tidy and legible than that of the boys.

The passage of English for translation into French was mostly chosen by the *Juniors* in preference to the free composition, which in December was attempted by far fewer candidates than for some years past. The standard was deplorably low in December, and the majority of the candidates showed ignorance of the most elementary points of both grammar and syntax. The sentences were very badly translated.

The reading of *Junior* candidates offering spoken French as a whole showed improvement; it was as a rule clear, and fewer mistakes than formerly were made in the vowel sounds. At schools where the teaching was based on phonetics, the pronunciation was very good. The conversation was fairly fluent, but there were many mistakes made in the use of tenses, and candidates often showed great ignorance of very common words. The prepared book was often a help to conversation. The dictation was written well at schools where sufficient practice in the subject had been given. The numerous failures were due to the unfamiliarity of the candidates with spoken French, and also to great carelessness in such obvious points as the agreement of the article and the noun, or the proper verb-concords. It should be remembered that dictation is a test of pronunciation and grammar as well as of spelling.

In July the translation into English of the *Seniors* of the easy passage was decidedly bad; not 1 per cent. gave the meaning of the whole passage correctly; and the majority gave a nonsensical reading of the second sentence. In December, notwithstanding very general weakness in style, there was some improvement, especially among the boys, who at both examinations did better work than the girls in translation, but worse in accident. The versions of the harder passages were even more unsatisfactory as a whole in December than in July; the same defects reappeared, but in a larger proportion, and the girls' papers were especially poor. The whole of the second piece was in the present tense, but quite three-fourths of the candidates turned it into a past. The widespread ignorance or neglect of grammar points to some radical defects in the prevailing methods of teaching. The translations of even the better candidates were largely slipshod and merely approximate—and this (it would appear) often deliberately. The examiners are of opinion that the poor quality and peculiar defects of the work sent up in this part of the paper tend to show that in many schools translation as a serious exercise does not receive sufficient attention.

The conversation of *Senior* candidates both on the prepared books and on general subjects was often very good. There was, however, a distinct lack of vocabu-

lary. Some candidates had spent too much time on the prepared book and seemed quite unfamiliar with ordinary words of everyday life that did not occur in it. There was also a tendency to answer by mere repetition of phrases from the prepared book. The tenses were constantly used wrongly, the imperfect being employed instead of the present very frequently. The dictation was fairly good. There were far too many elementary blunders, due to carelessness as much as to ignorance. At the schools where sufficient practice in writing from dictation had been given, the copies were written intelligently and correctly, but in many others the results were poor from neglect of this subject.

MATHEMATICAL SECTION.—Geometry.—In general the elementary part of the paper was well done by the *Juniors*, though at many centres candidates wrote out propositions in continuous script instead of presenting their proofs in a clear terse tabulated style. In July the constructions were carefully and accurately made; in December they were more careless, figures with thick blurred lines and indefinite corners being too common. The most frequent faults were omission of calculations used in finding numerical results, reference to propositions by number, e.g., "Theorem 61," deduction of the congruence of two triangles from the equality of three angles. In the advanced part of the paper the theoretical propositions were proved satisfactorily at many centres, the questions on similar triangles in July being better done than in previous years; but at several centres the bulk of the candidates proved a proposition A by means of B, immediately after proving B by means of A.

In *Algebra*, too many mistakes were made by *Pre-liminary* candidates in dealing with brackets, and much weakness was shown in the expression of verbal statements in algebraical symbols. The equations were well done, but in many schools fractions would appear to have been quite neglected. Some excellent answers to the more advanced questions were sent in by boys, but, on the whole, the amount of work done on this part of the paper was very small. Easy factors were generally understood. Few good graphs were sent up.

Much weakness was shown by *Juniors* in the simplification of fractions, eccentric cancelling being the chief fault. In July the solution of a quadratic equation with irrational roots was frequently omitted or incorrectly worked by candidates who showed elsewhere that they could use the method of factorisation. The elementary problems were not well done by the girls, and many boys who otherwise did fairly well failed to solve them. Candidates frequently spoiled their graphical work by plotting an insufficient number of points. At both examinations the work on literal equations and logarithms was generally poor. A numerical problem on arithmetical progression set in July was well done by a fair number of candidates, but in December much confusion was shown in answering a question on geometrical progression. Simple applications of the binomial theorem were carried out correctly by most of the few candidates who attempted them. The general impression formed was

that candidates had been well drilled in elementary methods, but that the weaker candidates had not been trained to verify their answers.

In December a very large number of the *Seniors* failed to answer satisfactorily a question on factorisation. In July the equations and the problems leading to equations were generally well done, but in December many candidates were unable to solve correctly a quadratic equation with literal coefficients. Questions on graphs were often well answered at both examinations, but in December the graph of $y=1/x$ was often represented as a straight line. Calculations with the help of logarithms were often accurately made, but some candidates made all kinds of careless blunders, more especially in dealing with negative characteristics. The bookwork on the more advanced questions was often slovenly, and comparatively few candidates were able to attack the riders on these questions with any degree of success.

In July the geometrical proofs of trigonometrical formulæ sent up by *Juniors* were generally well done by those who attempted them, but a number of candidates used diagrams without giving any explanation of the construction. An easy question involving numerical calculation was generally done correctly. A question, involving the solution of a triangle, intended for logarithmic computation was frequently attempted by a method involving long multiplications and the extraction of a square root, and few who attempted it by this method succeeded in doing it correctly. In December the geometrical proofs were more generally attempted, but the answers were not so good, and the absence of any explanation of the diagram was still more frequent. At a number of centres the candidates were not familiar with the tables and frequently used a wrong table. Many of the candidates avoided using logarithms, and many mistakes were made by those who did use them.

In both examinations in *Trigonometry* the graphical question was not well done by the *Seniors*. A large number of candidates did numerical work correctly, but there were still many who were unable to make proper use of tables. Failure to understand the meaning of trigonometrical ratios of angles greater than 90° was very common.

NATURAL SCIENCES SECTION.—*Experimental Science.*

—(i) *Physics paper.* The quality of the work of the *Juniors* reached a very fair average. As usual, the question on calorimetry was the favourite, and was successfully dealt with wherever the pupils had been accustomed to work out their results by common sense. At centres where every candidate quoted a couple of pages of forms for entering results, ending with a formula, the numerical example often proved too much for them. It was singular that many boys who could work this question well, using the Centigrade scale, had apparently never noticed the position of the freezing and boiling points on the thermometer in daily use, though they could describe accurately the methods for fixing them.

(ii) *Chemistry paper.* The question on obtaining oxygen and water from air was not at all well done by the *Juniors*, and very few seemed to understand the difference between charcoal and pure carbon. In

December the only question that was not well answered was that on red lead: its chemical properties were not generally known, and only a few candidates could give the correct method of determining the percentage of lead which it contains. Descriptions of experiments were generally good, and diagrams were numerous and usually well drawn.

The *Chemistry* papers of *Preliminary* candidates showed on the whole careful teaching. The important function of acids was not known, or, except by a few, the action of steam on metals. The inadvisability, from an educational point of view, of teaching formulæ and equations at this early stage was shown by the frequent use of incorrect formulæ in place of names and of equations as substitutes for descriptions. Although drawings were often good, attention might well be given to clear sectional drawings of quite simple apparatus, e.g., a Bunsen burner.

In the July examination the law of multiple proportions was not understood by many *Junior* candidates. Scarcely anyone understood the use of crystallisation as a means of purification, and a large number did not understand the meaning of chemical equivalence. Generally speaking, the facts were better known than general principles. In the December examination the paper was very well done on the whole; weakness was, however, shown in the knowledge of the preparation and properties of ammonia, and of the two oxides of iron and their reactions with hydrochloric acid.

The papers showed that most of the *Senior* candidates had a sound knowledge of the elementary facts and principles of chemistry. There were not very many utterly worthless answers. The answers to a question which demanded an accurate knowledge of the differences between elements and compounds were exceedingly unsatisfactory. Several candidates failed to distinguish clearly between compounds and mixtures. Many appeared to regard combustion as a mechanical process.

In the *Botany* answers of *Junior* candidates questions on morphology were usually done fairly well, though many candidates did not distinguish clearly between a fruit and a seed, and very few were able to represent correctly from memory common objects such as a dandelion fruit. Many candidates still possessed little knowledge of the physiology and biology of plants. A false analogy was frequently drawn between transpiration and perspiration, and consequently the nature of transpiration was entirely misconceived. Very few candidates realised that shoots respond to the stimulus of gravity, as in experiments performed to demonstrate this fact the influence of light had not been eliminated. The description of types instead of concrete examples and the statement that flowers were alike because they belonged to the same natural order were both very frequent.

The knowledge of general botany shown by the *Seniors* was fair, and in many cases satisfactory, but plant physiology was still very weak, seeming to indicate that practical experiments are not the basis of the instruction. The candidates from the good centres showed a commendable knowledge of ecology, but a great many answers in this subject were almost worth-

less, displaying a lack of personal outdoor observation on the part of the candidates. In the December examination the descriptions of the iris rhizome were very poor, and in both examinations the description of specimens showed carelessness in observation and lack of precision in statement.

The majority of the Juniors' answers in *Physical Geography* were weak, with the exception of those from a few centres, which reached a high standard of excellence. The answers to physical questions were the worst, especially those relating to the form and other characters of river-valleys, and misconceptions often prevailed as to the nature of glaciers, volcanoes, and islands. There was also very general confusion between such terms as tropical and equatorial, or Arctic and Antarctic. The majority of the candidates referred to the coral polyp as an "insect," and imagined that volcanic islands were necessarily floating islands. There was rarely any evidence that the theoretical instruction had been supplemented by outdoor observation: few candidates seemed to have noted for themselves the changes in the altitude of the noonday sun with the seasons.

Most of the Senior candidates showed a satisfactory acquaintance with the meteorological and climatic part of the subject, but questions of a more purely geographical nature, and especially those dealing with land-forms and their origin, were not well done. More attention should be paid to denudation, deposition, and the elements of physical geology. Much confusion was shown between the tidal wave and the Atlantic drift. Many candidates drew excellent diagrams of co-tidal lines, although their comments showed that they had no idea of the true significance of the lines drawn. A question on the means employed to fix the position of the north pole revealed much confused thinking

HISTORY AND CURRENT EVENTS.

At the Children's Welfare Exhibition at Olympia in London, during the Easter holidays, the chief performance, "Springtime," was concluded with a procession of "Makers of England." The characters chosen for representation were Boadicea, Alfred, William I., Cœur de Lion, the Black Prince, Elizabeth, Cromwell, Marlborough, Nelson, Wolfe, Wellington and Victoria (we quote from the official programme). Questions for the class:—(1) What did each of these "make"? (2) In what sense may each of them be said to share in the making of England? (3) Most, if not all, of them may be regarded as fighters; what names can you suggest as substitutes for some of them as "makers of England" in other ways? Which foreigners would you put in the list?

"If armed conflict should unhappily come as the result of General Huerta's personal resentment towards this Government, we should be fighting only General Huerta and those who adhere to him and give him their support, and our object would be only to restore to the people of the distracted Republic the opportunity to set up again their own laws and their own Government." Have we not heard something like this before? Not to speak of Charles XII. of

Sweden against the Duke of Saxony who was also King of Poland, or the events of 1399, 1485 and 1688-9 in English history, do not these words of President Wilson remind us irresistibly of the events of 1814, and especially of 1815, when "General Buonaparte" was outlawed by indignant Europe? But what if "the people" do not want "to set up again their own laws and their own Government," but prefer the "traitor"?

"OVER all persons and causes within his dominions supreme." So runs the formula used on many occasions in the services of the Established Church of England, and echoed, if not with voice, yet with heart, by large numbers of dissenters from that church. It expresses the spirit of that great change in the relationships of the English Church by which Henry VIII. ended, finally, except for the brief interludes of the reigns of Mary Tudor and James II., the medieval quarrel between King and Pope. But, owing partly to the principles involved, partly to the survival in England of many who owe spiritual obedience to the Pope, partly to events in the reign of Elizabeth, the matter has never received a *quietus*, and every now and then English anti-papalists are roused to indignation by what, if they could but think calmly, they would regard as very natural conduct on the part of their Roman Catholic fellow-subjects. The most famous instance of this impotent anger was the enacting of the Ecclesiastical Titles Bill in 1851, and in April last there was indignation because certain folk meeting at Winnipeg toasted the Pope before they toasted the King. "I come not to send peace but a sword."

LAST April there died in Vienna an Austro-Hungarian statesman whose name is little known in England, but who was useful to his country in many ways. Baron Géza Fényvay, Knight of the Order of Maria Theresia, held positions in the army and the ministries of Francis Joseph, but the most important event of his life was in 1905, when he was seventy-three years old. The Emperor-King wishing to resist a coalition in the Hungarian Parliament which, in demanding that the words of command in Hungarian regiments should be uttered in Magyar (the language of only a part of Hungarian folk) had "encroached on his constitutionally-guaranteed privileges," commanded Baron Fényvay to form a Royalist Cabinet. How, in spite of his unwillingness, the King insisted on his obedience because "your life belongs to me in any case" (Francis Joseph had some years before saved his life in a serious illness), and how he defeated his enemies by advocating universal suffrage may be read in the annals of Austria-Hungary. It is still possible in that federation for the King to choose his own ministers.

A Handbook of Pictorial History. By H. W. Donald. 194 pp. (Charles.) 3s. 6d. net.—This book contains "680 illustrations from original and contemporary sources treating upon architecture, arms and armour, antiquities, costumes, customs, shipping, heraldry, the Church, etc., with notes and descriptive articles on these subjects for the use of students and teachers." So the title-page and the promise is excellently fulfilled. There is a wealth of information in this book which will be extremely useful in presenting the outward aspects of history.

ITEMS OF INTEREST.

GENERAL.

THE recent visit of the King to the Leys School would seem to have some significances of its own. Such recognition has, indeed, often before been conferred upon schools; but the circle of these has been narrow. Now we find selected a representative of the smaller, younger, in several senses less conservative, public schools. This visit clearly acknowledges the modern and non-clerical type of foundation. For the Leys was founded in 1874 by the efforts and contributions of Methodists in response to the final removal (except in the theological faculty) of credal tests at the older universities, and without such tests in its own constitution, whether for pupils, for masters, or for governing body. In its practice this principle operates quite freely; while Nonconformists predominate, other religious allegiances are constantly represented in every section of the Leys community, and the tone and usage, if evangelical, are broad. On the studies side, again, while doing brilliant things in classics, the school won its spurs long ago in the physical sciences, in history, and even in commercial work, being a leading supporter of the Oxford and Cambridge Schools Examination Board Commercial Certificate scheme. On the sports side it gave a fine lead in lacrosse—the best of games for schools in the weeks when boys are prepared for the athletic sports, and grounds for cricket. In the classroom and on the field alike British conservatism proved too strong; neither experiment continues, to the loss of English public schools. On the other hand, that august and not too radical body, the Headmasters' Conference, found it in its heart to anticipate the Royal recognition, accepting the hospitality of the Leys four years ago, and blessing it with unstinted post-prandial eulogium.

THE King's attitude towards the Leys was full of interest. Whatever he may have sought to express, by his very presence or by his reply to the formal address presented, towards Nonconformity or undominationalism in religion, towards modernity of foundation, towards freshness of idea, towards smallness of numbers, he manifestly had an eye for details. It had been intimated to the school authorities that some actual work by average boys should be in the programme. Accordingly, a junior squad was turned out to do ordinary calisthenics in the gymnasium, and a batch of fourth form boys to do actual current experiments in the laboratory, both evoking appreciative observation and comment. In the bath, on the other hand, after watching a fine 90 yards' handicap, the King called for other exercises, whereupon excellent under-water swimming and trick diving delighted him. Not to overcrowd or stretch the hour he had assigned for the proceedings, no inspection of hostels had been scheduled. But he was unwilling to omit this side of the life and equipment, and gave a few minutes accordingly to viewing studies, houseroom, and dormitories. The last quite captured him, as he is apparently a convinced supporter of the half-cubicle or dressing-box system in preference to the individual or small-group bedroom. The O.T.C. guard of

honour secured his attention inevitably, and encomiums too. Scholastic folk, whatever their personal views or associations, may at any rate be glad that the monarch thus regards the existing institutions with a friendly but discriminating eye, and an open but not indifferent mind.

THE Board of Education proposes to appoint shortly some assistant inspectors (men) for service in the elementary schools branch of the Board. There will be about seven vacancies. For these particular vacancies applications will be confined to candidates who are above thirty years of age and not more than fifty years of age on September 1st, 1914, and who have had not less than eight years' experience as teachers in elementary schools. *Ceteris paribus*, preference will be given to candidates who have had experience as head-teachers. Applications made in connection with previous vacancies by candidates who satisfy these conditions will receive full consideration on this occasion, and should not be renewed. Applications from new candidates must be made on the prescribed form, and must reach the Board not later than midday on Monday, June 8th. Copies of the prescribed form, together with particulars as to salary and conditions of employment, can be obtained on application in writing to the Secretary, Board of Education, Whitehall, London, S.W.

THE annual conference of the Association of Head-mistresses will be held this year on June 12th and 13th, at the Redland High School, Clifton, Bristol. The president of the association, Miss Robertson (Christ's Hospital, Hertford), will preside.

AN extraordinary general meeting of the Association of Assistant-mistresses will be held on June 6th, at 2 p.m., at the Wyggeston Grammar School for Girls, Leicester. An account of the report of the departmental committee on the superannuation of teachers will be presented by Miss C. L. Laurie, and a report on registration by Miss E. S. Lees. Mr. P. J. Hartog will read a paper on imitation, sincerity, and imagination in English composition.

A CONFERENCE is to be held at London University on June 18th, 19th, and 20th, under the auspices of a committee of representatives of the Fabian Education Group, King Alfred School Society, Moral Education League, National Union of Teachers, Ratan Tata Foundation (London University), School Medical Officers' Association, Theosophical Society, Theosophical Educational Trust, and the Women's Industrial Council. Among those who have at present promised to speak are Dr. L. D. Cruickshank on the school clinic, Mr. N. Bishop Harman on the type of school books affecting the vision of school children, Dr. J. Kerr on ventilation of schools, Dr. Letitia Fairfield, and Mr. J. L. A. Paton on sex instruction, Prof. J. H. Muirhead on civics, Mr. Cyril Burt on mental types and their different educational needs. School feeding and the status of the teacher are other subjects which are to be dealt with, and a number of prominent educationists have already expressed the intention of being present and taking part in the discussion. Admission to the conference will be free.

but accommodation can be reserved for those who apply for tickets. It is hoped that the attendance will be very large, and that the authoritative nature of the papers and discussions will serve to bring educational reforms ripe for settlement very prominently forward. Further particulars can be obtained from the secretary, Mr. L. Haden Guest, 16A John-street, Adelphi, W.C.

A MEETING of the council of the Educational Kinetograph Association was held on May 20th, when the report of the provisional committee on the formation of the association and its work was adopted. The association aims at making the kinematograph an educational instrument by advising film manufacturers upon the length, character, and arrangement of suitable moving pictures, compiling lists of films to guide teachers and local authorities in the selection of subjects, and in other ways assisting the development of kinematography from the educational side. It is not suggested that moving pictures can take the place of individual effort in an educational course, but it is rightly held that they can be used with advantage to bring together the loose threads of occasional observation in such subjects as nature study and physical science, and to give living interest in places and peoples of the world, both of these days and of other times. To neglect such a powerful means of expanding the minds and extending the interests of children is pure obscurantism; and we are glad that the association is to take active steps to ensure that what is good in kinematography shall be encouraged in the educational field. Probably the majority of children would learn more from an exhibition of selected moving pictures than from many visits to museums or other places to which they are taken; and in the course of time we may look to educational authorities to arrange for such exhibitions, and even to pay for the production of films of particular interest to schools in their districts. The new association has the support of many leading representatives of elementary and secondary education, and it should exert a worthy influence upon film producers as well as upon local education authorities. The secretary, to whom all communications should be addressed, is Mr. Morley Dainow, 22-23 Great Portland Street, London, W.

A CONFERENCE on Further Education is being organised by the Teachers' Guild of Great Britain and Ireland, the Workers' Educational Association, and the Letchworth 1914 Celebration Committee. The present position and future development of further education in England, Germany, and America will be dealt with by experts. There will also be sessions dealing with non-vocational work; vocational work (including agricultural), domestic subjects, civics, and the training of teachers for the work of further education. It is intended to organise a publishers' exhibition, and there will be exhibitions of arts and crafts by the Arts and Crafts Club of Letchworth, children's work from the elementary schools, and the work of pupils in technical schools. Other features of interest will be a performance of "The Tempest" by the Letchworth Amateur Dramatic Society, a pianoforte recital by Dalhousie

Young, a concert by the Letchworth Musical Society, and a pageant play. Educational associations are being invited to send delegates to the conference (fee 5s.). Information regarding the conference may be obtained from the general secretary, the Teachers' Guild, 74, Gower Street, London, W.C.; or from the local secretary, Mr. Edgar Wing, Norton Way, Letchworth.

THE problem connected with the school children who are unable to leave their homes during the summer holidays led the London County Council to experiment last summer with play centres where the children enjoyed leadership in organised games, gymnastics, etc. The experiment has led to the decision to institute twelve play centres for boys and twenty-eight play centres for girls and infants during the summer holidays this year. These centres will be open from 10 a.m. until noon, from 2 p.m. to 3.30 p.m., and from 5 p.m. to 6.30 p.m.

THE Bulletin of the Metropolitan Museum of Art, New York, for April, contains a short account of the work of the children of the Social Settlements in the Museum of the city of Boston. Visits are made by the children, who range in age from five to fifteen, to the museum, where each child seeks what interests him. Often the drawings of the children show a keen sense of humour and an appreciation of animal and human nature. In many cases there is displayed a strong sense of artistic effects, of movement, of atmosphere.

THE Board of Education has issued a leaflet, to be obtained from the Government publishers for one penny, entitled "A Table of Summer Courses in England for Instruction in Various Subjects, 1914." Full particulars as to dates, fees, subjects, secretaries, are conveniently tabulated.

MORE than a year ago the elementary education subcommittee of the London Education Committee appointed a section to consider and report as to what action, if any, could be taken with reference to the question of instruction in sex hygiene and purity in the elementary schools of the metropolis. The report, based on the evidence of teachers and medical men, has just been submitted to the committee. It definitely disapproves of the class-teaching of sex hygiene in elementary schools, but suggests that much may be done, especially by head teachers, by means of talks with individual children, and personal communications with parents when the beginnings of evil are suspected. The report states, moreover, that suitable guidance might be given to students at the early adolescent stage attending the evening institutes, and that teachers in training might receive advice which will enable them to deal with undesirable habits in children. The moral dangers arising from insufficient supervision of parks and open spaces are emphasised—a point which any observant Londoner will appreciate.

THE subcommittee recommends also that certain memoranda, containing information for the use of girls on leaving school, and information for older persons on the subject of safeguarding girls seeking

employment, should be printed and widely distributed. On the whole the findings of the subcommittee seem to us very wise. The dangers of giving open class-instruction on this delicate subject in elementary schools, and therefore of causing it to become a common topic of conversation among children, seem perfectly obvious. But even in the case of adolescent students in evening institutes, we wish the report had pointed clearly to the great difference between special instruction in sex hygiene as such, and the treatment of the subject in its natural place in a general course on hygiene. What is really required is that the subject should not be ignored when it naturally arises; and even then the subject should never be left on the biological plane, otherwise a merely prudential view of sex-relationships might be cultivated. The vast difference between men and animals implied in the word self-control is of the essence of the situation.

Science Progress for April opens with a strongly expressed editorial, entitled "Sweating the Scientist," in which the disparity between the payment for scientific work and other lines of effort is emphasised. The article of outstanding interest, however, is that by Mr. F. Soddy, on the nature of the argon family of gases. Ever since their discovery there has been much discussion whether these gases are to be regarded as consisting of single atoms or of polyatomic molecules. Physicists generally incline to the former view, but many chemists—in particular Prof. Armstrong—consider that these gases have an intense affinity exercised between the constituent parts of the molecule. Mr. Soddy now attempts to reconcile the essentials of both views with a distinct gain in clearness as to the conceptions of the chemical character of these gases and their place in the periodic system.

PROF. CAVERS contributes to the *University Correspondent* for May a short but interesting article on Arctic plants which should appeal to the teachers of nature-study and geography.

IN the May issue of THE SCHOOL WORLD (p. 196) the price of Canon Glazebrook's "Layman's Old Testament," was incorrectly given as 4s. 6d. We are asked by the manager of the Oxford University Press to state that the book is published, either in two parts at 2s. 6d., or in one volume for 3s. 6d. net.

SCOTTISH.

LAST year a question on the definition of political terms appeared in the history paper, and this year it is safe to say that every secondary-school pupil in the land has had stuffed into him the definition of every possible and impossible political term. Teaching, as Mr. Strong pointed out, has become entirely, or almost entirely, subordinate to preparation for examinations. In Scotland at the present moment educational experiments have utterly ceased in the secondary school because teachers have ever before them the leaving certificate examinations, which are their cloud by day, their pillar of fire by night, guiding and directing every step of their way. The one redeeming feature is that the examinations are framed on the soundest of educational lines, and are models of their

kind. But even excellence is dearly bought at the price of absolute uniformity and the stifling of all initiative. At the annual meeting of the Secondary Education Association at St. Andrews, Mr. John Strong, rector, Montrose Academy, subjected the leaving certificate examination of the Scotch Education Department to a searching criticism. He pointed out that while in theory no prescribed course of preparation for these examinations was laid down, in practice a rigid and uniform course was followed, namely, that prescribed by the nature of the examination papers in each subject, which remained largely the same from year to year. When any departure from the use and wont questions was made a wail of dismay arose from all the teachers and pupils in the schools, and the following year the new model was worked up and threshed out in every conceivable form.

THE General Council of Edinburgh University has approved of the proposal to establish a degree and a diploma in education. The diploma will be granted only to graduates in arts and science, and will necessitate one year of additional study and practical training. The degree in education will be open to diploma students, and will involve another year of study. It will rank as an honours degree in the subject. The council also approved of the new regulations for the entrance bursary competition, whereby science and history are added to the list of subjects that may be offered for examination. It was also unanimously agreed to support the proposed alteration of the date of the bursary competition from September to June.

THE Summer School of Social Study which is held annually in Rothesay is attracting to itself an increasing number of the earnest social workers of the country. This year the special subject of study was "The Training of the Child," and papers bearing on various aspects of the question were given by distinguished educationists and social workers. Dr. William Boyd, Glasgow University, lecturing on our educational system, pointed out that the school was only one among many educational institutions. The general tendency had been to expect too much from the school, with the result that there was a widespread dissatisfaction with its products. The home and the street played a great part in education, and until these were enlisted on the side of the school influence it was hopeless to look for any great improvement in the moral outlook of the young. Dr. Henry Dyer, chairman of Glasgow School Board, gave an address on education in citizenship. At the outset he pointed out the importance of the subject and the necessity of educating our future citizens in civic and national duties. In these days, unless education plays its part aright, the government of democracy will become the government of ignorance, and will result in national disaster. Dr. Dyer then gave an outline of the education which should be given in personal, civic, and national duties in elementary, secondary, and continuation schools.

THE annual meeting of the Scottish Class Teachers' Federation was held this year in Edinburgh. The report submitted by the special committee on continuation classes dealt in an interesting and exhaustive

manner with the whole question. The voluntary system, it was stated, has to a large extent failed to reach the very class which most requires guidance and control, and it is now necessary to take a further forward step and make education compulsory at day or continuation classes up to the age of seventeen. The education given during these additional years of school life should be largely vocational, and handwork should be given a more prominent place in the curriculum of the elementary school. The secretary reported that a deputation had waited upon Sir John Struthers in regard to the reduction in the size of classes. Sir John expressed his sympathy with the desire of the association to have the classes reduced in size, but explained that there were several important difficulties in the way of an immediate reduction. As it is well known that these difficulties are financial rather than educational, the meeting appointed a deputation to interview the Secretary for Scotland upon the subject, and to press upon him the urgency of the case for reform.

SCHOOL authorities in Scotland are greatly exercised over the Chancellor of the Exchequer's promise of increased Treasury grants for health work among school children. The Chancellor's statement was so involved and so nebulous that it is almost impossible to say how much money is to come to Scotland for this purpose. If, as some maintain, the expense of feeding, clothing, and treating and educating defective children is to be borne to the extent of one-half by the State, then in the large centres this means a big addition to the grants. In addition, the Chancellor has promised increased grants for physical training, open-air schools, and medical treatment of tuberculous children. School boards are busied just now preparing their budget for the coming year, and the uncertainty as to the meaning in hard cash of the Chancellor's good intentions is causing grave inconvenience.

IRISH.

IN our last issue was an outline of the new Intermediate Bill introduced by Mr. Birrell making a grant of £40,000 for the salaries of lay teachers. The Bill itself contained no scheme for its application, but this has since been published. It does not differ in any essential from the original scheme which gave rise to so much contention, and, as Mr. Birrell has expressed a hope that his Bill will go through without opposition, it seems that the opposition has in some way been overcome. The scheme is in four sections: Section i. defines the method of allotting the grant to schools, which is to be in proportion to the results fees paid to each school respectively by the Intermediate Board. It is curious that the scheme uses the term "results fees," which does not appear in the rules of the Intermediate Board, where the expression used is "school grant." In Section ii. it is stated that the grant will be varied if at any time the number of whole-time lay registered teachers in schools under Roman Catholic management, or, similarly, in schools not under Roman Catholic management, is less than one-fortieth of the total number of intermediate pupils attending those schools. By Section iii. a whole-time lay registered teacher is to be entitled to three months'

notice or three months' salary; and by Section iv. until the expiration of one year after the establishment of the register of intermediate teachers, any person who is employed as a whole-time teacher, and has been so employed for three years in an intermediate school, and is over twenty-one years of age, is to be counted as a registered teacher for the purpose of this scheme. A schedule adds that the minimum salary for male teachers shall be £120 per annum, and for female teachers £80.

THE Intermediate Board has issued new rules for carrying into effect the Intermediate Act of last year, which was passed to enable a grant to be made to schools on pupils between the ages of twelve and fourteen as the result of inspection. Schools must apply for inspection to be made for this purpose, and payment will depend on the results of the inspection. The Board will set apart for the payment of a grant on such pupils such sum as they may determine, not exceeding one-sixth of the total amount payable in the same year. The payment of the grant, called "inspection grant," shall be determined on the result of inspection having regard to (1) the degree of efficiency shown in the education of the pupils; (2) the number of pupils between twelve and fourteen receiving such instruction; and (3) the attendance of such pupils during the school year. The efficiency will be measured by a standard called the "normal standard," and schools reaching this standard will receive 20 per cent. more than schools not reaching this standard. In connection with the ages of the pupils, managers are to keep a special register which introduces the following new features into the working of the intermediate system. Hitherto the age of a pupil has been defined as the age which he reaches on June 1st, but now the attendance of any pupil reaching the age of twelve in the course of the school year between August 15th and the following July 31st, is to be marked on and after his twelfth birthday; and, on the other hand, a pupil who reaches fourteen during the year is to have his attendance marked until his fourteenth birthday, and not after. It is difficult to see how all the schools are to be inspected for this purpose during the current school year, as they practically all close at the end of June.

ON May 13th-15th three lectures on his researches and discoveries in architecture were delivered by Prof. W. H. Goodyear, curator of the Brooklyn Museum, New York, in the Royal College of Science, under the auspices of the Classical Association of Ireland. During the month there was an exhibition in the National Museum of two hundred photographs taken by Prof. Goodyear of classical and medieval temples and churches. Prof. Goodyear has for forty years carried on researches into the refinements of ancient architecture, and has shown that the Ancient Greeks possessed certain principles of beauty, consisting in deviation from straight lines, which they passed on to Roman architects, and were used by the medieval architects in the construction of the great Gothic cathedrals of Europe.

THE Royal College of Science has issued a pamphlet of its regulations for the entrance examination, of the

examinations for science and technological scholarships, teacherships in training, and for scholarships in agriculture, horticulture, forestry, and creamery management, during the forthcoming summer. It has also given notice (1) of the usual summer courses of instruction for teachers in experimental science, drawing, and modelling, domestic economy, and manual instruction (woodwork); (2) of a course in chemical manufactures (mainly for teachers in technical schools); (3) of courses for teachers in schools of art and art classes, dealing with life-drawing and figure composition, weaving, lithography, and coloured embroidery; (4) of a course in applied design for teachers of craft classes in technical schools; (5) of a course for teachers of introductory English and mathematics in technical schools; (6) of courses in office routine and business methods; (7) of courses for manual instructors in practical mathematics and mechanics, handrailing, and manual training (metal work); (8) of courses for domestic economy instructresses in advanced cookery, advanced dressmaking, and hygienic and sick nursing; (9) of a course of instruction for teachers of lace making, crochet work, and sprigging; and (10) of courses in rural science (including school gardening). The department also issues regulations for a limited number of commercial scholarships (not more than six) value £100 a year each for two years, for persons intending to teach commercial subjects.

WELSH.

THERE are eleven summer schools arranged for the month of August this year. Abergele County School has a course, free to Denbighshire and Wrexham teachers, in manual instruction and drawing; Aberystwyth Council Cookery Centre one in cookery, laundry, and housewifery; Barry County School and the new Training College one in manual work, nature-study, hygiene, and needlework. At the Madryn Castle Farm School, near Pwllheli, and at Welshpool County School, there will be courses in rural science and kindred subjects. Economic and social studies will be pursued at Bangor University College, under the guidance of the Workers' Educational Association, and at Aberystwyth College (Cambridge University Welsh Society), and Llandrindod Wells (School of Social Service for Wales). The Welsh Language Society will hold its twelfth course at Christ's College, Brecon, and the Glamorgan County Council will for the tenth time have its School of Mining, Engineering, Building, and Science for Teachers at Cardiff University College and Penarth County Schools. At Aberystwyth College there will be courses in manual work of various kinds, geography, and history, rural science, physical training, etc.

THE Welsh Department of the Board of Education has prepared a separate list of these Welsh courses, giving the names and addresses of the secretaries, from whom further information should be sought. The pamphlet points out the value of intensive study, of contact with experts in the various subjects, of the academic atmosphere, and of interesting surroundings; and indicates the inducements and aids offered by education authorities to attend these courses, in the way of scholarships and allowances.

TEACHERS will not welcome some of the recommendations made to the Carnarvonshire Education Committee by the special subcommittee appointed to inquire into the condition of the Intermediate schools of the county. It has been no secret for the last two years that the schools had great difficulty in paying their way, a fact publicly emphasised by the absence of prizes at the Speech Day of Friars School, Bangor. This state of things is by no means confined to the county of Carnarvon; there is a general—and righteous—outcry for the improvement of the position of the teacher, the needs of buildings and equipment never cease to grow, and the standard and variety of the instruction must be maintained if Welsh secondary schools are not to lose their honourable position. There are few schools in the Principality which, if not actually in pecuniary difficulties, are able to give effect to schemes for desirable or even necessary improvements. But it may be hoped that the policy of depriving the schools of the opportunity of doing work above senior—say matriculation—standard is voiced mainly in order to show what will be the inevitable result unless more money is forthcoming. The local authorities dare not propose any substantial addition to the rates, and the only available source is the National Exchequer.

FROM the educational point of view the result of withdrawing all financial support from post-senior work, except in a few favoured schools, would be disastrous; the country child is at least the equal of his brother of the town in intelligence, and it has been a matter of legitimate pride that Wales had provided within every child's reach the best of secondary education and of opportunity for advancement; and the whole of the work of the schools is sure to suffer if the highest part is taken away; the teaching of lower forms is most important and honourable work, but teachers who are qualified to do advanced work will hesitate to accept or retain posts where their attainments are to be useless; and though the inefficient or half-qualified teacher may be for the moment cheaper, the results of his work and the consequent loss of public esteem will in the end recoil on the heads of the administrators.

THE policy of dividing the larger mixed and dual schools into separate schools for girls and boys has been responsible for the erection of new girls' schools at Aberdare, Barry, Pontypridd, and Porth. It is now announced that the governors of the Wrexham County Schools intend, instead of enlarging the present premises, to build a complete new school for girls, leaving the portion of the present buildings occupied by them to be used in part by the boys and in part for technical instruction. When complete the new girls' school will provide for 284 pupils; at present it is intended to proceed, at a cost of £4,000, with a first section, to accommodate eighty-five pupils.

Two new Board of Education inspectors have been appointed for Wales. Miss Mary Ellis is an old scholar of Dr. Williams' School, Dolgelly, and a student of Aberystwyth and Bangor Colleges; she has held posts in Manchester, near Paris, and at the Colston School, Bristol. Mr. John Thomas, an old pupil

of St. David's County School, has served in elementary schools in Abertillery, the Rhondda Valley, and Cardiff, and has been for eight years senior master at Tredegar Intermediate School.

At the half-yearly meeting of the court of governors of the University College of North Wales, Bangor, attention was directed to the financial position of the college, the building fund of which was overdrawn to the extent of £19,000, large amounts having been required for repairs, though the buildings were not three years old. The president, Lord Kenyon, admitted that the court had been misled in believing that the college would be opened free from debt, and also that the annual income was not sufficient for the upkeep of the college. It was hoped to get increased Government grants, and to obtain largely increased subscriptions. In this connection it is interesting to note that in England the Treasury grant to university colleges and universities in respect of full-time degree and post-graduate students is £28.8 for each student; in Wales it is £22.1.

RECENT SCHOOL BOOKS AND APPARATUS.

Classics.

Limen: A First Latin Book. By W. C. F. Walters and R. S. Conway. xxiv+376+24 pp. Fourth edition, with Teachers' Appendix. (Murray.) 3s.—Certain changes are introduced in this edition. The terminology has been revised, and brought into harmony with the recommendations of the joint committee, so far as the editors could conscientiously do so. Where they do not, the committee's terms are given in notes. For the conditional clauses they have made new names on this plan: open-question type, might-have-been type, and so forth. The two parts of the formula appear as protase and apodose, which are, it is true, not easily confused as the Greek words are, but are not attractive: here the committee has if-clause and then-clause, which in their context do not seem open to the objections which the editors raise.

The appendix gives hints on the use of what the editors call "the oral method." This is an unfortunate title. Oral practice is what they really describe, added to the method of the book, which is the common one. Oral practice can help a great deal to lessen the effects of the current method, but it is not a method. The editors probably mean the direct method, which includes oral practice, but approaches the study in a wholly different way from that of this book. We say this to remove a common misconception. The hints and models given in the appendix are good. Three simple dialogues for acting, in Latin, are also given.

We note that the editors use the phrases, long and short syllables, although they do not adopt the incorrect phrase, lengthening of short vowels in position. Perhaps in a future edition they will avoid the resulting confusion by speaking of syllables as light or heavy, and of vowels only as long or short.

Dialogues of Roman Life. Written and adapted by S. E. Winbolt. xii+142 pp. (Bell.) 2s.—We offer a hearty welcome to this little book. The subjects of the dialogues are all drawn from common life in town and country, camp, games, school, sea, travel, and women's dress—why not men's? Is this the feminist influence? But no; that would have the opposite effect, unless it be implied that the sexes are to change places. The reading of these dialogues will increase

the vocabulary for subjects which do not often come into school reading, and make the Latin language available for daily use. *Macte virtute esto!*

History.

The Nation and its Government from 1485 to the Present day. By E. H. Spalding and P. Wragge. viii+296 pp. (Philip.) 2s.—This book had better be asked for under its shorter but less descriptive title of "Piers Plowman Histories, Junior Book VII." It belongs to a series inspired by the title of the mediæval poem, which lays more stress on the social side of our history than is usual, and explains at much length for the comprehension of children the working of some of our institutions and the results of political changes. The book is noteworthy, not only for its text, which is good, but especially for its illustrations, which are unusual, interesting, and abundant.

Heroines of European History. By A. R. H. Moncrieff. 191 pp. (Blackie.) 1s. 6d.—"The purpose of this book is to give, in simple reading lessons, an account of celebrated women, whose lives are so presented as to illustrate successive scenes of history." The author more than fulfils the promise of his preface. By telling the story of some twenty-four women from S. Elizabeth of Hungary to Miss Nightingale, and by slight mention of others, he manages to give a sketch of a good deal of European history. The stories are well told; some of his heroines are well known, whose lives have often been told, but others, such as the "three Amazons of Brittany" and Christina Gyllenstierna, are scarcely known. Altogether an admirable book. There are a dozen good pictures, but no index.

Heroes of Welsh History. By D. W. Oates. 156 pp. (Harrap.) 9d.—This little book is intended to encourage the spirit of patriotism in young Welshmen by telling them the stories of their ancient heroes. The careers of fourteen Welshmen are accordingly presented, as well as the thing can possibly be done. But we cannot but think these Welsh heroes are, many of them so shadowy, others so purely selfish in their ambitions, and all of them so "ancient" and out of touch with any modern Welsh aspirations that the study of their lives can scarcely cause much enthusiasm nowadays. However, we can learn here what is not easily accessible, the story of such persons as Taliesin, St. David, Hywel Dda, Owain Glyndwr, and others, the spelling of whose names looks strange to the mere Englishman.

Pageant of the Birth, Life and Death of Richard Beauchamp, Earl of Warwick, K.G., 1389-1439. Edited by Viscount Dillon and W. H. St. John Hope. x+114 pp. (Longmans.) 21s. net.—This book contains twenty-nine plates, photo-engraved from a manuscript in the British Museum by Mr. Emery Walker. They are a series of drawings on vellum with brief sentences at the top of each leaf giving some account of the events pictured beneath. On alternate pages the editors give a reproduction in modern print of the various legends, and explanatory notes which are, however, not always quite accurate. But the interest of the editors is more in the drawings as evidence of costumes, etc., of the period, for the book was made within a few years of the death of the Earl, and they have added, at the end, for the same purpose, some photographs of the tomb at Warwick in which he lies buried.

South Africa, 1486-1913. By A. W. Tilby. x+632 pp. (Constable.) 7s. 6d. net.—This is the sixth, and

for the present the concluding, volume of Mr. Tilby's work on "The English People Overseas." We have noticed the other five volumes (the American Colonies, 1583-1763, India, 1600-1828, British North America, 1763-1867, Britain in the Tropics, 1527-1910, and Australasia, 1688-1911) as they appeared, and have remarked on the author's growing power over his subjects. This last is certainly his best. He ignores the internal politics of each colony, at least so far as the ins and outs of politicians and cabinets are concerned, in order to devote his attention to the growth of what has come to be United South Africa and the adjoining British territories, and he tells the story of British and Boer expansion with a fullness we have not previously met. Especially does he bear witness to the part played by Christian missionaries of various kinds, and though he has apparently no high opinion of them except of David Livingstone and Robert Moffat (he does not even except John Mackenzie), he feels bound to report their share in the expansion of the British Empire and in the treatment of the natives. He is fair, too, to the Boers, even to Paul Kruger; he sets forth their ideals and the way in which they strove in vain to escape from British control, both of missionaries and of traders, and he is evidently an admirer of Cecil Rhodes, and critical of the Home Government in the days when Cabinets and Colonial Secretaries were of the same mind as the Roman Consul who prayed the gods not to increase the Empire. His preface is interesting, being mainly about himself. He justifies the use of the word "English" in his title as meaning "English-speaking"—"a habit to which the best of Scots must plead guilty." He apologises for his errors on the ground of the vastness of his subject, and promises to complete "at some future date" by adding the story of Canada since 1867, India since 1828, and the United States. Let us hope he will then give us an index.

Mathematics.

An Introduction to the Infinitesimal Calculus. By G. W. Caunt. Pp. xx+568. (Clarendon Press.) 12s.—Although this book is called an introduction, still it takes the reader a considerable distance in the subject, not so much in the direction of pure theory, as in the applications to geometry, mechanics, and physics. The author, rightly, as we think, recognises that the mode of reasoning, frequently of a subtle character, which is necessarily used in a rigorous presentation of many of the theorems, is to a great extent beyond the grasp of beginners, and he has occasionally assumed results without proof. Indeed, the book is intended rather for those who wish to use the calculus as a tool than for those training to be pure mathematicians. But the statement of the fundamental parts of the theory is far from being slipshod, and the chapters dealing with the fundamental concepts of limits, continuous functions, differentiation, treat these important matters in a thoroughly satisfactory manner. The number of examples is unusually large, and a considerable number are worked out and discussed in the text. The book as a whole is an exceedingly good and useful piece of work.

A School Statics. By G. W. Brewster and C. J. L. Wagstaff. viii+248 pp. (Heffer.) 3s. net.—This book presents novel features. The writers say that they have followed a historical rather than a logical order of development; so we find the first and second chapters devoted to a discussion of the pulleys and those other machines which find a place near the end of the usual text-books. Of course, in a logical development of a subject one can take as funda-

mental axioms any that one pleases (subject to certain well-known conditions), and the authors are perfectly justified in the course they have adopted. As other examples of the inversion of the usual order we may mention that work, horse-power, velocity ratio, and efficiency are discussed in the first chapter, and moments before the parallelogram of forces. The mathematics has been kept as simple as possible—little more than easy algebra, geometry, and the trigonometry of the right-angled triangle. By postponing the vectorial representation of forces until a somewhat late stage, the writers hope to avoid some of the difficulties which arise from confusing a force with a structure diagram, the length of a string with its pull, and so on. The examples are almost without exception numerical. An interesting feature is furnished by the "Questions for Discussion." They are designed to make a pupil think about mechanical principles, and some of them are certainly not easy to answer. The book is altogether very attractive, and shows that in mechanics, no more than in geometry, is there need to adhere slavishly to one mode of treating the subject.

Plane Geometry. ix+213+xxxi pp. *Solid Geometry.* ix+108+xlx pp. By W. B. Ford and C. Ammerman. (New York: The Macmillan Company.) 3s. 6d. each.—These books by American teachers bear testimony to the progress of the reform movement in connection with the teaching of geometry in the United States. The writers have accepted the report of the committee of fifteen of the National Education Association as an authoritative statement of guiding principles in geometrical instruction. They have, however, not followed the report in a slavish manner, and it is interesting to note that they make special acknowledgment of their indebtedness to Godfrey and Siddon's "Plane Geometry" for ideas in framing the preliminary drawing course. The general arrangement proceeds on lines which are now familiar. After the preliminary course, the order of treatment is rectilinear figures, the circle, proportion, areas, polygons, lines and planes in space, polyhedrons, cylinders, cones, spheres. A difference in type is used to indicate the order of theorems in the scale of importance. Fundamental theorems are printed in bold-faced type, and those of considerable importance in large italics. In the case of theorems of minor importance usually no more than an outline proof is given. The old-fashioned riders are absent, their place being taken by very easy theoretical deductions and simple trigonometrical and mensurational exercises. It is impossible to praise too highly the general form of the books; the type is agreeable, the diagrams clear, and special mention must be made of the beautiful "phantom" half-tone engravings in the "Solid Geometry." To both volumes is appended a well-arranged collection of four- and five-figure tables. These geometries will, we are sure, be much appreciated, both by teachers and pupils.

Science and Technology.

Wild Flowers as They Grow. By H. Essenhugh Corke and G. Clarke Nuttall. Vol. vi., viii+200 pp. Vol. vii., viii+204 pp. (Cassell.) Each volume, 5s. net.—We have previously had the pleasure of directing attention to the very attractive series of which the two last volumes are before us. The distinctive characteristic of the series is the coloured plates representing plants photographed in colour direct from nature by Mr. Corke, and reproduced by three-colour process, so that perfect pictures are obtained, untouched by human hands. All the pictures are very fine, but we like those best in which the whole plant is seen in its natural surroundings rather than those of which

flowering stalks only are shown. No doubt photographic difficulties determined in some cases the extent of the field of view, and artistic effect demanded that the chief attention should be given to beautiful blossoms, but the most instructive pictures are those, like the groundsel, shepherd's purse, and dove's foot geranium, in which the complete plant is shown in its habitat. It would also have been an advantage for purposes of identification if an approximate scale of dimensions had been given under each picture; for at present there is nothing to show the difference in size, for instance, between ragwort and groundsel. These, however, are minor points, and they do not detract in the slightest from the delight which every lover of wild flowers must have in the contemplation of the pictures. There are many popular books on botany, but none represents flowers more faithfully, or is better adapted to create interest in them. The descriptive text also is appropriate and pleasing, being full of quaint folk-lore as well as an easy guide to the study of details of scientific interest. The final volume contains a classified index to the families, genera, and species of the plants—about 170 in all—pictured and described in the series. We have nothing but praise for the volumes, and cannot conceive more welcome gifts to lovers of plant-life, or more suitable additions to school library or private bookshelf.

(1) *Elementary Entomology*. By E. Dwight Sanderson and C. F. Jackson. viii + 372 pp. (Ginn.) 8s. 6d.

(2) *Common British Moths*. By A. M. Stewart. viii + 88 pp. (Black.) 1s. 6d. net.

(3) *British Butterflies*. By A. M. Stewart. viii + 88 pp. (Black.) 1s. 6d. net.

(4) *Common British Beetles*. By Charles A. Hall. viii + 88 pp. (Black.) 1s. 6d. net.

(5) *Insect Life: Its Why and Wherefore*. By Hubert G. Stanley. viii + 118 pp. (Pitman.) 2s. 6d. net.

"BUG-HUNTING" is perhaps the form of nature-study which is most assiduously pursued during holidays, and many young naturalists may be glad to know of the books mentioned above, from which considerable help and inspiration may be gained. The first-named forms, indeed, a fairly complete text-book, and is intended for the use of serious students of elementary entomology. It is so attractively written and well illustrated, however, that British amateurs with but little previous knowledge may profitably rely upon it for guidance in the study of life-histories, and in collection and identification, and this in spite of the fact that it is of American authorship, and concerned specially with American insects.

Mr. Stewart's two books will appeal to young lepidopterists for the sake of the eight very beautiful coloured plates which each contains, if for no other reason. Together with the other illustrations, these provide faithful representations of all our native species of butterflies and of the commonest moths—nearly 300 in all. The books, moreover, contain interesting and useful chapters on life-histories, the capture and preservation of specimens, and concise descriptions of the species figured.

Beetles do not usually receive so much attention from young naturalists as the more showy butterflies and moths, and there was room for a book pointing out some of their many claims to popularity. The beetles wisely selected by Mr. Hall for description and illustration are all among the larger and commoner species. The general structure of beetles is explained without unnecessary detail, and nearly 150 species are figured in the eight coloured plates, and are

classified and described. The book also contains fifteen plates in black and white and several useful diagrams. Full instructions for collection and storage are given. Unfortunately there is no index.

Mr. Stanley's book is intended to have a more general and popular appeal. In it he gives short and simple chapters on selected common insects, together with—for some unexplained reason—one on slugs. The information is generally trustworthy, though many of the author's suggestions as to the "why and wherefore" are more than a little fanciful, and some of them are of rather obscure humour.

Blackboard Diagram Drawing for Teachers of Needlecraft. By Ethel Hambridge. (Pitman.) 3s. 6d.—Miss Ethel Hambridge has produced an excellent little treatise on one of the important aspects of the teaching of needlework. Her work is all the more welcome because in this branch of the subject there is real need for help from the specialist for the "would-be-efficient" teacher of needlework. She tells us that she does not attempt to show the way, but only *one* way where other methods exist. Those who have had long experience themselves can best estimate the value of her unconventional discussions. It is in this desire to convince by seeing that Miss Hambridge claims for clear blackboard diagrams a usefulness which teaching specimens cannot claim alone. The essential characteristic of good diagrams, to which she gives a first place, is the absolute necessity of the diagram for the explanation in hand. By far the greater part of the book, however, is taken up with every variety of diagram, from the simple process of making a knot, through the processes of plain needlework, dressmaking, millinery, to the more advanced requirements for fashion-plates.

Garment Construction in Schools. By Ada Hicks. (Macmillan.) 4s. 6d.—Miss Hicks understands in a special way the needs of the average child who comes from a home of slender means. She also foresees the difficulties that will face the girl when she grows to womanhood. A sympathetic reading of her remarks on general mending and renovation shows how completely she understands the people she is dealing with. Here we seem to breathe the very atmosphere of the homes. In the same spirit she tries to present, not one, but many ways of cutting out. And lastly, only after much experience could she warn the young teacher of the many pitfalls that await every beginner. It is for these among other ideas that the book should prove valuable, although much trouble has been expended in giving an exhaustive account of suitable garments for a school course, together with their construction.

X-Rays. By Dr. G. W. C. Kaye. 252 pp. (Longmans.) 5s. net.—This volume gives, in a most interesting form, the historical growth of our present knowledge of X-rays, commencing with Prof. Röntgen's famous discovery in 1895. It will also serve as a perfectly trustworthy source of information on the present methods of producing and of using the rays; and it must prove to be of great service, especially to members of the medical profession. Those interested only in pure science will appreciate very much the chapters on the measurement of X-rays, their interference and reflection, and on their nature.

Miscellaneous.

The People's Books. (Jack.) 6d. net each.—Six further volumes of this series have recently reached us, among them being "Greek Literature," by H. J. W. Tillyard; "Bacteriology," by Dr. W. E. C.

Dickson; "Canada," by F. Fairford; and "Robert Louis Stevenson," by Miss Rosaline Masson. In addition to these, we had previously received, among others:—"A History of Rome," by A. F. Giles; "Principles of Logic," by S. Williams; "Applications of Electricity for Non-technical Readers," by A. Ogilvie; "Wild Flowers," by M. Skene; "Architecture," by Mrs. A. Bell; "Bismarck and the Origin of the German Empire," by Prof. F. M. Powicke; and "Empire and Democracy," by Dr. G. S. Veitch. In the limited space at our disposal it is impossible to do more than refer briefly to two or three of the works, and to say that the writers of the various volumes appear to have been chosen with great care, and that their work has been done conscientiously. The series is wonderfully cheap, each book containing more than ninety pages of text, and several of them are illustrated. One of the most delightful volumes is that by Miss Masson on Stevenson. It forms an admirable introduction to the study of the life and writings of an eminent man of letters. Two volumes that should appeal especially to readers of THE SCHOOL WORLD are those dealing with "Greek Literature" and "Rome," by lecturers in the University of Edinburgh in Greek and ancient history, respectively. The works on "Architecture," "Bacteriology," and "Applications of Electricity" should prove of service to beginners in the study of these subjects; those by Prof. Powicke and Dr. Veitch are carefully done, and the volume dealing with "Wild Flowers," with its two hundred figures in the text, should make the identification of many of the commoner flowers comparatively easy to the non-botanical reader.

We are glad to find that the series is meeting with the success it undoubtedly deserves, and shall look forward with interest to additions to it from time to time.

How to Breathe, Speak, and Sing. By R. Stephenson. 120 pp. (Jarrold.) 1s. 6d.—The work of an enthusiast is always welcome, and useful books on the voice are few and far between. Let it be said at the outset that this book is more concerned with singing than with speaking, and that it advocates strongly the Old Italian, or, as we may say, the natural method of breathing, in which the abdomen is contracted and slightly drawn back and the epigastrium is protruded; and much stress is laid on the necessity of allowing the voice to *travel on the wings of the breath*. The author also preaches the value of nose-breathing, the importance of *shooting the words away as from a sling*, and the avoidance of any attempt to hear one's own voice. All this is excellent, and admirable rules are given. But a large part of the book is taken up with vituperations of the stage, the pulpit, and the ordinary singer and speaker. When will writers learn that the learner doesn't require criticism of wrong methods, but continual adjuration to do what is right? Many writers are quoted, but Mr. Stephenson seems not to know of Dr. Bonnier, or of Legouvé; he speaks of diagrams, and prints one which is inadequate, for it shows the nasal cavities scarcely at all; he praises the reciter, a person generally loathed by all educated people; and his book would be more valuable if it contained a few definitions of terms. There are some printer's errors, and Dr. Jones could not have written "Pronunciation of English Phonetics." We do not know what "ey as heard in the word *let*" means. Full justice is done to the fine work of Morell Mackenzie, now, alas, out of print, and to Clifford Harrison's "Reading and Readers." As an encouragement to the study of correct methods in singing and in breathing the book is excellent; for speaking and reading it is inadequate

EDUCATIONAL BOOKS PUBLISHED DURING APRIL, 1914.

(Compiled from information provided by the Publishers.)

Modern Languages.

Julius Stinde: "Die Familie Buchholz." By G. H. Clarke. (Cambridge Modern German Series.) xii+76 pp. (Cambridge University Press.) 2s. 6d.

"Six Contes par Guy de Maupassant." By Harold N. P. Sroman. (Cambridge Modern French Series.) xii+76 pp. (Cambridge University Press.) 2s. 6d.

The Modern Language Review. Volume ix, April, 1914. No. II. (Cambridge University Press.) 4s. net.

"Modern French Grammar." By W. H. Fraser and G. Squair. 350 pp. (Heath.) 3s.

"Une Insurrection à Paris (Les Misérables)." Edited by F. G. Harriman. 96 pp. (Harrap.) 8d.

"Longman's Modern French Course." Part II. Containing Reading Lessons, Grammar, Passages for Repetition, Exercises and Vocabularies. By T. H. Bertenshaw. With illustrations by Dorothy M. Payne, and from photographs. Pupils' Edition, 1s. 6d. Teachers' Edition: Containing Notes on Reading Lessons, Grammar, and Passages for Repetition, Translation of Exercises, etc., 2s. (Longmans.)

Balzac: "Le Curé de Village." Edited with introduction and notes by S. L. Galpin. 384 pp. (Oxford University Press, American Branch.) 3s. 6d. net.

Classics.

"A New Latin Grammar, based on the recommendations of the Joint Committee on Grammatical Terminology." By E. A. Sonnenschein. (Second edition.) 166 pp. (Clarendon Press.) 2s. 6d.

English: Grammar, Composition, Literature.

"Tiny Town; or, In Nature's Wonderland." By Margaret Cameron. Illustrated in colour and in black and white. (Stories Old and New.) 126 pp. (Blackie.) 9d.

"Three Bad Pups." By Gladys Davidson. For junior infants. Cleverly illustrated. (Blackie's Large Type Supplementary Infant Readers.) 64 pp. (Blackie.) 4d.

Blackie's Large Type Poetry Books. A classified collection for school use. Junior Book, 96 pp. 4d. Intermediate Book, 112 pp., 5d. Senior Book, 144 pp., 6d. (Blackie.)

Edmund Spenser: "The Faerie Queene." Book II. By Lilian Winstanley. lxxii+296 pp. (Cambridge University Press.) 2s. 6d.

Cassell's "Modern School" Series. Literary Readers. Book V., 1s. 6d. Book VI., 1s. 8d. (Cassell.)

Keats, "Isabella." With introduction by Sir Arthur Quiller-Couch, and notes by M. Robertson. 16 pp. (Clarendon Press.) 9d.

Bacon: "Selected Essays." Set for the Certificate Examination, 1915. Edited by A. F. Watt and A. J. F. Collins. viii+63 pp. (Clive.) 1s. 6d.

"The Practice of English." By J. W. Adamson and A. A. Cock. (The Mother Tongue, Book II.) 363 pp. (Ginn.) 2s. 6d.

"Rossetti and his Poetry." By Mrs. F. S. Boas. 160 pp. (Harrap.) 1s.

"Easy Road to Reading: By Way of Verse and Paper-cutting." By Louise B. Chancellor. 4 Vols.: I., Book of Children; II., Book of Letters and Numbers; III., Book of Animals; IV., Book of Fun and Fancy. 48 pp. each. (Harrap.) 6d. each.

"The Story Primer." By May L. White. 128 pp. (Heath.) 6d.

"The Story Reader." By May L. White. Book I. 128 pp. (Heath.) 6d.

"Folk Stories for Young Readers." I., II., III. 32 pp. (McDougall.) Paper, 2d.; cloth, 3d.

The Children's Classics—Intermediate II., No. 45: "The Gods of the North." By A. and E. Keary. 80 pp. Sewed, 3½d.; cloth, 4½d. Senior II., No. 63:

"Little Women." (Abridged.) By Louisa M. Alcott. 128 pp. Sewed, 5d.; cloth, 6d. (Macmillan.)

"The Autocrat of the Breakfast-Table." By Oliver Wendell Holmes. Edited by C. R. Rounds. (Pocket Series of English Classics.) 386 pp. (Macmillan.) 1s. net.

"Poetry for Boys." By S. Maxwell. 192 pp. (Mills and Boon.) 1s. 6d.

History.

"The Oxford Student's History of India." By V. A. Smith. Fourth edition. 256 pp. and 7 maps. (Clarendon Press.) 2s. 6d.

"Teachers' Handbook to Dramatic History Readers." By Fred E. Melton. 192 pp. (Harrap.) 2s. 6d. net.

"Threshold of History." By H. R. Hall. 160 pp. (Harrap.) 1s.

"Pageant of the Birth, Life and Death of Richard Beauchamp Earl of Warwick, K.G., 1389-1439." Edited by Viscount Dillon and Dr. W. H. St. John Hope. Photo-engraved from the original manuscript in the British Museum by Emery Walker. (Longmans.) 21s. net.

"A First Book of English History." By Prof. F. J. C. Hearnshaw. (First Books of History.) 204 pp. (Macmillan.) 1s. 6d.

"Irish History for Young Readers." By H. Kingsmill Moore. (First Books of History.) 172 pp. (Macmillan.) 1s. 6d.

"Contemporary American History, 1877-1913." By Charles A. Beard. 406 pp. (Macmillan.) 6s. 6d. net

Geography.

"Junior Regional Geography of Asia." By J. B. Reynolds. 184 pp. (Black.) 1s. 4d.

"The British Empire." Edited by Lewis Marsh. (The Rambler Travel Books.) Illustrated in colour and in black and white. 80 pp. (Blackie.) 9d.

"Practical Atlas: Canada." By T. W. F. Parkinson. 32 pp. (Collins.) 6d.

"Asia and its Monsoon Lands." By T. W. F. Parkinson. 256 pp. (Collins.) 2s.

"Journeys in Industrial England." By W. G. Claxton. 192 pp. (Harrap.) 1s.

Mathematics.

"First Steps in the Calculus: Being Chapters xxii.-xxvi of 'Elementary Algebra,' together with a Set of Miscellaneous Exercises." By C. Godfrey and A. W. Siddons. xvii+70 pp. (Cambridge University Press.) 1s. 6d.

"Elements of Algebra." Part i. By G. St. L. Carson and D. E. Smith. 346 pp. (Ginn.) 3s.

"Mathematical Papers, for Admission into the Royal Military Academy and the Royal Military College, for the Years 1905-13." Edited by R. M. Milne. 440 pp. (Macmillan.) 6s.

"Elementary Bookkeeping." By E. E. Spicer and E. C. Pegler. 380 pp. (Oxford University Press.) 2s. 6d.

Science and Technology.

"Wild Flowers as They Grow." Vol. vii. By H. Essenhigh Corke and G. Clarke Nuttall. 208 pp. (Cassell.) 5s. net.

"Elementary Practical Chemistry." Part ii., seventh edition. By Dr. Frank Clowes and J. B. Coleman. 241 pp. (Churchill.) 3s. 6d. net.

"The Principles of Inorganic Chemistry." By Wilhelm Ostwald. Translated by Alexander Findlay. Fourth edition. 870 pp. (Macmillan.) 18s. net.

"An Introduction to Nature-Study." Part ii., "Animal Life." By Ernest Stenhouse. 204 pp. (Macmillan.) 2s.

"Simple Directions for the Determination of the Common Minerals and Rocks." By W. H. Hobbs. 40 pp. (Macmillan.) 1s. net.

Pedagogy.

"A Book of National Games: Their Value, Organisation, and Laws." By Herbert Leather. (Blackie's Library of Pedagogics.) 172 pp. (Blackie.) 1s. 6d. net.

"The Young Teacher's Primer." By J. S. Davis. (Blackie's Library of Pedagogics.) 96 pp. (Blackie.) 1s. net.

"William James." By Howard V. Knox. (Philosophies Ancient and Modern.) (Constable.) 1s. net.

"Lessons on the Kingdom of Israel." By C. C. Graveson. 136 pp. (Headley.) Cloth boards, 1s. 6d. net; cloth limp, 1s. net.

"Lessons on the Kingdom of Judah." By C. C. Graveson. 128 pp. (Headley.) Cloth boards, 1s. 6d. net; cloth limp, 1s. net.

"Coeducation in Practice." By J. H. Badley. 40 pp. (Heffer.) 1s. net.

"Education and Psychology." By Michael West. (Longmans.) 5s. net.

Art.

"Brush and Pencil Notes in Landscape." By Sir Alfred East. (Cassell.) 10s. 6d. net.

"The Art of Spiritual Harmony." By Wassily Kandinsky. (Illustrated.) 112+xxvii pp. (Constable.) 6s. net.

Miscellaneous.

"Isaiah, xl.-lxvi." The Revised Version edited for the Use of Schools. By Rev. W. A. L. Elmslie and Rev. John Skinner. xxxiv+138 pp. (Cambridge University Press.) 1s. 6d. net.

"The Progress of Eugenics." By C. W. Saleeby. 252 pp. (Cassell.) 5s. net.

"The Amazing Argentine." By John Foster Fraser. 304 pp. (Cassell.) 6s.

"New Guide' Weather Note Books." By W. J. Hutchings. 52 pp. (Davis and Houghton.) 2d. each.

"New Guide' Weather Charts." By W. J. Hutchings. 12 charts in one packet. (Davis and Houghton.) 2s. 6d.

"Book of Stories for the Storyteller." By Fanny Coc. 288 pp. (Harrap.) 2s. 6d. net.

"Pictures: English Monarchs." A series of nine cartoons by Eileen M. Robinson. Full-length portraits, lithographed in colours. Size 27×13 in. (Harrap.) 1s. 6d. net. The set of nine plates, 10s. 6d. net.

"Elementary Bible Studies: Being Some Notes on the Historical Books of the Old Testament." By the Rev. A. du T. Pownall. (Longmans.) Paper covers, 6d. net; cloth, 1s. net.

"The Growth of the Graded Sunday School." By S. Allen Warner. 104 pp. (Headley.) 1s. net.

Music.

Year Book Press Part Songs for Schools:—No. 97, "Oh! Breathe not His Name." By Dr. Chas. Wood. 4 pp. 2d. No. 98, "Song of Innisfail." By Dr. Chas. Wood. 8 pp. 3d. No. 99, "Time." By Dr. Chas. Wood. 8 pp. 3d. (The Year Book Press.)

CORRESPONDENCE.

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The Free-Placer in Secondary Schools.

THE article on "The Problem of the Junior Scholar," contributed by Mr. G. H. Clarke to the May issue of THE SCHOOL WORLD, raises the important question of the effect of the free-placer system upon many secondary schools, particularly in country districts. In town schools the difficulties in the way of the assimilation of the free-placer do not seem insurmountable, and some headmasters are, doubtless, justified by their success in taking an optimistic view of the problem. The position is more complicated in country schools and the outlook less hopeful.

The incorporation of a boy, possessing exceptional abilities and an adaptable temperament, as a unit in school life, is not an easy matter in country districts. His social status is impressed on his mind by incidents of daily occurrence. His perception in such matters increases yearly and raises a barrier between himself and his schoolmates. His pride or his self-respect forbids him to take the influential part in school activities which his character and attainments demand. In consequence, both the boy and the school suffer, the school, it may be temporarily, but the boy will probably never gain the *esprit-de-corps* which is an acquisition of youth.

If this is the position of the brilliant pupil, that of the average free-placer is almost hopeless in this respect. In large schools the advent of free-placers does not materially affect the number of pupils, and on the whole the town boy is a superior intellectual being to the country product.

The regulations of the Board of Education insisting on a fixed percentage of scholarships and the resulting limited competition in many districts have a deleterious effect. Even if the mental standard is the same in town and country the difficulty of allocating and incorporating fifteen to twenty boys out of a total of sixty or eighty is great. When this standard is lowered it is not fair either to the school or to the deserving pupil who fails to reap the advantages to which he is entitled.

The presence of a sixth form containing from fifteen to twenty boys of ability and character, most of whom after six or seven years are saturated with school tradition and fully conscious of what they owe to their school and to themselves, is the greatest asset a headmaster can have. Once in possession of such a form, the work of assimilating diverse elements proceeds rapidly, and the school draws within its influence the most unpromising and least amenable pupils. But headmasters less happily situated need sympathy.

Another feature peculiar to country grammar schools is the diminishing proportion of paying pupils in the upper forms. Since the advent of the free-placer parents who can afford it are beginning to regard these schools as lacking in tone and to remove their boys at the age of thirteen or fourteen to semi-public or private schools. This loss of reputation is producing a gradual extinction of boarders in many country grammar schools.

Farmers and tradesmen have conscientious objections to their sons being educated with boys whose

fathers are labourers or village mechanics. It would never do later for the farmer's son to be addressed as Tom, Dick, or Harry by an old schoolmate working for him at a weekly wage of 15s. and a cottage, or for the master-blacksmith to be addressed in like terms by his assistant who blows the bellows of the forge and church organ for 10s. a week and his board! Such is the general opinion of parents in the country.

That the status of the free-placer can be altered, not by the headmaster alone, but with the cooperation of the different education authorities, must be granted, and he may become a credit to his school and enjoy advantages which are not open to him now in many localities.

But before the country school is able adequately to grapple with the problem, its present anomalous position must be remedied. Headmasters who find the numbers of their boarders dwindling and are compelled to expend all the financial resources of the school in its equipment and the maintenance of a capable staff, must be pardoned if they do not find themselves free to devote their energies to the same problems as the headmasters of schools suitably, if not lavishly, maintained.

In small as well as in large schools the permeating of every pupil with a common spirit, whatever his antecedents may be, is possible, but at present the prospect is a visionary one, and though our efforts do meet with some degree of success, the time is not yet come to predict an affirmative answer to the question, "Is the free-placer an asset to the school?"

Our problem often is not how to incorporate the newer elements, but how to prevent them disintegrating the social unity which it was comparatively easy to maintain when the boarders were an important part of every grammar school.

I know a small market town where there is an endowed "recognised" school and a private school. The number of pupils in the former is falling off considerably, whereas the latter is attracting the attention of residents so much that the numbers are steadily increasing through the influx of boys from the endowed school. Is the free-placer the cause of this change?

ALBAN JAMES.

The Grammar School, Hanley Castle.

The School World.

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

THE TEACHING OF PUNCTUATION.

By ALBERT E. ROBERTS, M.A.

L.C.C. Day Training College, Islington,

EXAMINERS in their reports on English composition almost invariably complain that the punctuation of the candidates is bad. For example, the report on the Junior Cambridge Local paper, July, 1913, states that "punctuation was often very bad." Among the seniors "there was still widespread disregard of the simple rules of punctuation." In the preliminary examination "the punctuation was still the weakest point, and few understood the proper use of commas."

Although correct punctuation is not an altogether simple matter, and examiners must always expect faults in punctuation as in spelling and in construction, yet they are not unreasonable in requiring from the majority of the candidates a knowledge of the simple rules on which all writers are agreed. The reason for the ignorance displayed is due partly to the new methods of teaching English, which are so misinterpreted as to imply a total disregard of direct instruction in grammar and punctuation. Definite instruction must be given, and the absence of this instruction is at the root of the ignorance. It is best given in connection with the reading of the prose authors in the English syllabus, but it is, of course, part of the composition work, not of the literature. The teacher should, however, first make up his mind clearly what is the purpose of punctuation, and what rules shall be given. Two great difficulties confront him at the outset. First, there is an entire lack of uniformity in our methods, especially in our printing houses. Secondly, we do not make up our minds whether our method of punctuation is to be based on grammar, logic, or rhetoric. It is best based on a grammatical system.

The teaching of the elements of grammar, then, is an essential factor in good results in punctuation. Frequently, however, we shall

find conflict between the logical meaning and grammatical word arrangement. In that case an appeal should be made to common sense; let logic prevail. There are some who state that punctuation has a rhetorical work also to perform. Rhetorical effects should surely be produced without the aid of stops. If they are not so produced, the construction of the sentence is at fault. The variation of the pause between the words of the same thought is a matter of rhetoric and feeling, but punctuation depends entirely upon the variation of relations—upon logical and grammatical principles. The rules in the ordinary grammar seem so formidable as to be worse than useless. The teacher is advised to read H. Beadnell's "Spelling and Punctuation" (Wyman's Technical Series, 2s. 6d.), and the chapter on punctuation in the "King's English" (Oxford University Press). The "Rules for Compositors and Readers at the University Press, Oxford," contains a host of valuable information on this and other matters of interest to the teacher of English.

In the first place, then, we must realise that the stops in punctuation are not inserted for the purpose of showing us how long to pause when reading. The idea that we are to pause a little while after every comma is fallacious. In such a sentence as "A dull, heavy sound was heard," many readers will not pause any longer after "dull" than after "heavy." The commas or absence of them will not affect one whit the correct reading of "I saw a great, rough, Newfoundland dog." The fact is that the main purpose of punctuation is to make the *sense* of the written matter more clear to the reader. This, the boy should be made to realise, is the main consideration that should be before him when he is punctuating his composition exercises. Punctuation and sentence structure are closely associated, but logic rather than grammar should be the deciding factor when there is any doubt. There are some rigid rules, but both teacher and pupil should regard many as statements, not of in-

flexible laws, but of general principles, so that they cannot be applied rigidly. There must be an appeal to common sense. In other words, punctuation marks are a convenient means to an end, that of making the writer's thought more clear to the reader. The boy must, if he is to punctuate intelligibly, examine the relationship of words. He will not by the omission of a stop bring words together which are disconnected in thought, nor will he by inserting an unnecessary stop separate words which are connected. The careless writer omits stops; the inexperienced one inserts too many, especially commas. The latter fault is less pardonable. The following puzzle, given by the *Daily Chronicle*, is the result of the omission of punctuation marks: "That that is is that that is not is not is not that it it is." The insertion of the stops solves the enigma: "That that is, is; that that is not, is not; is not that it? It is."

The teacher should get his pupils to observe how the best writers punctuate. He should examine with his class selected passages and deduce certain rules from these; but not too many. The same method should be employed as in grammar, namely, first the examination of certain examples, secondly the formulation of the rule resulting from such examination, and thirdly the application of what has been learnt. Exercises like those suggested below should serve the purpose of occasional revision. In the correction of the written compositions the symbol P. should be placed under all incorrect punctuation marks. These should be corrected by the boy. One or two typical mistakes should be discussed with the class. Definite instruction, combined with systematic and regular correction, is imperative.

There is no difficulty in explaining the uses of the full stop, the note of interrogation, and the note of exclamation. There remain the comma, the semi-colon, and the colon. It is better to teach the boy not to use the dash at all, at least until he has mastered the chief uses of the comma and the semi-colon. He can get on very well without the colon. The boys in the highest forms ought to be able to use both dash and colon correctly.

Space does not permit the consideration of the simple rules. Here are some typical examples of how the instruction might proceed. The following sentences are examined with a view of differentiating the uses of full stop, colon, and semi-colon in grammatically complete sentences:

1. Fear God. Honour the King. Pray without ceasing.
2. (a) To err is human; to forgive, divine.
- (b) Truth ennobles man; learning adorns him.

3. (a) In business there is something more than barter, exchange, price, payment: there is a sacred faith of man in man.

(b) Study to acquire a habit of thinking: no study is more important.

(c) The chief must be colonel: his uncle or his brother must be major; the tacksmen must be the captains.

The following are the results of the examination of these or similar sentences:

The full stop marks the greatest degree of logical separation between sentences that are grammatically complete; the colon marks a slight connectedness in thought; the semi-colon a still closer dependence. The three stops form a series in the order of their logical linking power: they express the degrees of thought dependence. It is of importance that grammatical and thought dependence be both considered. There are some who would substitute semi-colons in the sentences under (3), but this depends entirely upon the way the writer views his sentence. He is the ultimate judge in such cases. Exercises are next set on the use of these three stops in grammatically independent sentences.

There are good reasons for teaching the pupil to confine his use of the colon to the above and the two following cases:

(1) before a quotation;

(2) before an enumeration such as the following:

"Three of the most important modern languages are: the French, which is the most graceful; the German, which is the most forcible; and the English, which combines the good qualities of both the others."

Let us take another somewhat difficult point, the use of the comma to separate relative clauses. The following pairs of sentences are examined:

1. (a) Hiram Watts, who has been living in New York for five years, has just returned.

(b) This is the best article that he ever wrote.

2. (a) The man, who had an impediment in his speech, could not tell us what we wanted to know.

(b) The man who has an impediment in his speech is at a serious disadvantage, etc.

The class will be led to explain the difference between the pairs and so formulate their rule. In the (a) sentences an additional piece of information is given in the relative clause. In the (b) sentences the relative clause is equivalent to an adjective. We thus have the rule that when a relative clause supplies an additional thought, it is separated from the rest of the sentence by a comma, but when the relative clause is restrictive, *i.e.* when it is inseparably connected with its antecedent and is used like an adjective restricting the meaning of the antecedent, the commas are omitted.

Exercises are then set on this topic to test the results of the instruction.

The following sentences or phrases illustrating the chief uses of the comma have been found useful by the writer with his pupils for purposes of reference.

An enterprising, amiable, harmless man.
The honourable and learned gentleman.
A great, wise, and beneficent measure.
God is wise and faithful and righteous.
His method was ornate, learned, and perspicuous.
Industry, honesty, and temperance are essential.
I cannot leave¹ until my friend arrives.
I will follow you¹ whithersoever you go.
He knew that this was so.
He ran away¹ as soon as he saw me.
As soon as he saw me, he ran away.

The general, having exhorted his soldiers, led them to battle.

This being so, we will continue.

The current, however, is very swift.

The following are typical exercises for the purposes of revision :

1. Omit the commas and state how the meaning is changed in the following :—

(a) The prisoner, said the witness, was a convicted thief.

(b) The criminal, who had betrayed his associates, was a prey to remorse.

(c) Sailors, who are superstitious, will not embark on Fridays.

(d) The Chinese, who is in every respect fit for citizenship, is excluded; but the Italian, who is absolutely unfit, is admitted.

2. The following piece is reduced to nonsense through faulty punctuation. Punctuate it correctly.

Every lady in this land
Hath twenty nails upon each hand;
Five and twenty on hands and feet.
And this is true, without deceit.

3. Dictated passages to be punctuated. (Such cases as admit of several ways of punctuation should be discussed. This occasional discussion is particularly valuable.)

4. Explain the use of the punctuation marks on a page of your text-book or in part of one of the leading articles in a daily newspaper.

5. Improve or justify the punctuation of the following :—

(a) The air gives you a bad sick headache. For that reason some people who would like to dare not go near the House of Commons. (*The Times*.)

(b) We cannot succeed, unless we are resolute.

(c) Opposition to him, was comparable to, etc. (Meredith.)

(d) The man, who acts honestly, is respected (*i.e.*, the honest man).

(e) And reflecting, that he had greatly pardoned, he grew exacting. (Meredith.)

(f) The general opinion was, that, if Truth had been practised in debate, he might, etc. (Macaulay.)

6. Punctuate the following so as to express two very different meanings, a very bad and a very good man :—

He is an old man and experienced in vice and wickedness he is never found in opposing the works of iniquity he takes delight in the downfall of his neighbours he never rejoices in the prosperity of his fellow-creatures he is always ready to assist in destroying the peace of society he takes no pleasure in serving the Lord he is uncommonly diligent in sowing discord among his friends and acquaintances he takes no pride in labouring to promote the cause of Christianity he has not been negligent in endeavouring to stigmatise all public teachers he makes no effort to subdue his evil passions he strives hard to build up Satan's kingdom he lends no aid to the support of the gospel among the heathen he contributes largely to the devil he will never go to heaven he must go where he will receive the just recompense of reward.

(Lockwood and Emerson.)

In conclusion, the following golden rules should be continually set before the pupil :

(1) Let common sense be the supreme guide, but

(2) Let the grammatical relationship of words and clauses be your usual guide. In any case follow a logical method of sentence subdivision, bringing out the sense without ambiguity.

(3) Punctuate as you write, not after you have written. Revise your punctuation when you revise your composition.

(4) Use commas sparingly. Remember that fewer stops are used nowadays and fewer rules are needed. Avoid, then, the common mistake of using too many stops.

(5) Remember punctuation is not meant to help the reader to realise where and how long he is to pause when reading aloud: it is intended to make the sense of the passage clearer to the reader when reading silently.

APPLIED CHEMISTRY IN A SCHOOL COURSE.

By W. A. WHITTON, M.Sc.

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CHEMISTRY is a subject taught in most of the secondary schools in the United Kingdom. In many schools both physics and chemistry are taught and in a few biology as well; but when, as in some schools is necessary, only one science subject is taught for matriculation purposes that subject is chemistry. It is difficult to say why chemistry should be selected in this way, for it is almost certain that physics gives a better groundwork for an introduction to scientific method.

Of the many pupils to whom chemistry is taught up to matriculation standard, only a

¹ If the connection is close, the comma is better omitted between the main and adverbial clauses. Ordinarily it will be inserted.

very small percentage proceed to a further study of the subject. Many boys leave school immediately after matriculation and go to a business house, and, of those who remain, a large number proceed to the commercial work which is becoming a feature of so many secondary schools. For both these classes it is doubtful whether chemistry, as taught at present, is as useful and helpful as it might be made.

A school course in chemistry is still determined to a large extent by syllabuses drawn up by examining bodies, and it is from these syllabuses that one can arrive at an estimate of the kind of work which is being done in most secondary schools. Most of these syllabuses are much too academic in their outlook; generally they endeavour to work to some conception of the atomic theory through equivalent weight determinations, Gay Lussac's volume law, and Avogadro's hypothesis. It is questionable whether one per cent. of the candidates who sit for and pass examinations based on such syllabuses, really understand the atomic theory and its uses. The law of constant proportions may be grasped, but knowledge of the facts of chemistry is much too limited to allow a proper appreciation of the other laws and hypotheses, or of the theories based upon them. The determination of equivalent weights affords a very good laboratory exercise in chemical manipulation, but the volume composition of gases cannot be defended in this way; as the experiments require careful handling and comparatively expensive apparatus, they usually become lecture table demonstrations and occupy time, which the writer believes could be spent in a more profitable manner.

Examiners frequently complain of the lack of knowledge which candidates show concerning substances much used in our everyday life. This defect is due partially to the premature work in theoretical chemistry; for, in addition to the time required to achieve plausible notions of the atomic theory, still more time is required to scrape some acquaintance with formulæ, equations, and the use of both in calculating weights and volumes of reacting substances.

One of the greatest difficulties in drawing up a school course in chemistry is that such a course must serve for two classes of boys: those who intend to go on to a further study of the subject, staying at school until University scholarship standard is reached, and those who do not intend to give any further attention to the subject after the matriculation or similar examination has been passed. The course arranged to lead up to matriculation standard must be one that will give both

classes of boys a serviceable and useful knowledge of chemistry.

One of the first reforms necessary is to postpone all theoretical work such as that which has been already mentioned to a post-matriculation course, and to utilise the time so saved for acquiring some insight into the numerous industrial applications of chemistry. Such a procedure would be of great service in several ways. Boys who took the course would obtain some idea of the importance of chemistry in our industrial and social life; chemists know that the every-day life of the world depends upon chemical science, while very few other people realise this. Much dissatisfaction has been expressed in recent numbers of *Science Progress* regarding the poor remuneration meted out to men of science in general, and the poor esteem with which this nation regards scientific work. May it not be that this lack of esteem, and perhaps positive distrust, is due to the fact that those who pass through our secondary and public schools fail to secure any appreciation of the value of science to the nation because it is presented in a manner which is too academic and remote from real life?

It is, moreover, highly probable that a course of this kind would attract boys to the science side of a school and to a scientific career. Boys are as practical, if not more so, than their fathers, and like to see that a subject is useful before it claims much of their earnest attention.

The delay in approaching the theoretical aspect of chemistry would not be at all detrimental to the specialist, but rather beneficial, as the abstract notions of atoms and molecules would appeal to a more mature mind and to a wider knowledge of chemical facts.

It does not seem at all necessary to the writer that every industrial application should be explained. In many cases the process can be described and the uses of the manufactured article discussed without that adequate explanation which comes with riper knowledge. The use of liquid air to obtain oxygen may be described, and a liquid air machine as well, without any attempt to explain the Joule-Thomson effect; and in a similar way the manufacture of sulphuric acid can be dealt with, leaving out of the story any attempt to explain completely the function of the oxides of nitrogen.

In work of this kind it may seem that the quantitative side of chemistry will be neglected, but this is not at all the case, and many quantitative exercises could be introduced into the practical course. The industrial applications which are considered may also as a general rule be the direct outcome of a

piece of practical work or a more difficult lecture table experiment. A few of the examples of applied chemistry which can be introduced into an elementary course are:

(1) *Oxygen and Ozone*.—The manufacture of oxygen from air by Brin's process and the change of pressure modification of the original process can be described, while practical work will show the boys that barium peroxide evolves oxygen when heated, and the monoxide does not. The liquid air method of obtaining oxygen from air may also be dealt with, together with some description of how gases are liquefied.

The conversion of oxygen to ozone by the silent electric discharge is a lecture table experiment, and the particularly active properties of the ozone can be shown at the same time. The use of ozone in the London Tube railways depending on these active properties, and the other various industrial uses of ozone for bleaching fats, oils, and waxes should be enlarged upon.

(2) *Bleaching Agents*.—Ozone, hydrogen peroxide, chlorine, sulphur dioxide, are all used as industrial bleaching agents, and simple experiments show their bleaching properties. All these compounds might be dealt with in their proper place, and particular attention paid to their use, *e.g.*, after chlorine has been prepared and described, its conversion into bleaching powder should receive attention, and the way in which bleaching powder is used can be illustrated by an experiment.

(3) *Nitrogen compounds*.—Many compounds of nitrogen are used to a large extent in industrial operations. Ammonium compounds serve many purposes, and their production as a by-product in the manufacture of coal gas affords an opportunity of showing how the chemist seizes every opportunity of making an industry pay its way.

Sal-ammoniac can be prepared actually in the laboratory by neutralising ammonia with dilute hydrochloric acid and the method of purification illustrated by the simple experiment of subliming it from a porcelain dish on to a funnel. It is used for Leclanché cells, in galvanising iron and in soldering. The uses of ammonium sulphate as a fertiliser and of ammonium carbonate in smelling-salts furnish other examples.

The laboratory preparation of nitric acid leads at once to the manufacturing method with the iron retort and the improved condensers instead of the small water-cooled flask. When it has been shown that nitric acid and nitrates both contain oxygen, and will readily oxidise such substances as charcoal and sulphur, the industrial application to the

manufacture of explosives invites attention, and in this connection gunpowder, guncotton, dynamite, collodion, and celluloid can be considered.

Chile saltpetre, its occurrence, method of separation from earthy impurities, and its conversion into potassium nitrate are all within the powers of a boy at school. The importance of this nitrate as a fertiliser for soils on which wheat is grown, and the diminishing supply, would lead later in the course to methods which are used for the fixation of nitrogen.

(4) *Carbon compounds* afford many important examples of this kind. The element itself is of great service as animal charcoal to sugar refiners, as wood charcoal to absorb noxious and injurious gases, and in the form of coke as a reducing agent in many metallurgical operations.

In considering the simpler compounds of carbon, marsh gas, carbon monoxide, acetylene, are all substances which can be prepared easily and are of great importance. Marsh gas deserves consideration as a most important constituent of coal gas and on account of the havoc caused by explosions due to its presence in coal mines. Carbon monoxide is present in water gas, which is frequently prepared for addition to coal gas; and producer gas, used in many industrial processes as a fuel on account of its cheapness, contains carbon monoxide and nitrogen.

Acetylene is important as a lighting agent for motor and cycle lamps, but of still greater service in the oxy-acetylene flame which is used for cutting steel plates and welding metals together without solder.

There are many important carbonates, such as limestone, washing soda, white lead, sodium bicarbonate, and others; and their manufacture and uses deserve more emphasis than their chemical nature and constitution.

(5) *The Common Metals*.—Under this heading will come iron, copper, silver, gold, tin, lead, zinc, and aluminium. It is not easy to devise laboratory experiments which illustrate the actual process used for the extraction of these metals from their ores, but the chemical reactions which underlie most of them will be understood readily from previous work. The deposition of copper from solution by means of iron, or silver by zinc, can be shown easily enough; and the electrolytic method of refining copper is capable of illustration by a lecture experiment, but most of the work must of necessity be descriptive.

Great stress should be laid on the uses which are made of the metals and the properties which make them suitable for these purposes, *e.g.*, the lightness of zinc and its resistance to

the action of air render the metal suitable for gutters, chimney pots, rain pipes, etc. The use of tin and zinc to cover iron and make tin-plate and galvanised iron depend on the way these metals resist the action of air and water. The alloys which metals form with each other, and the consequent modification of properties which follows, are illustrated by our coins, in which copper is introduced as a metal which hardens the silver or gold, by the various kinds of solder, and the many alloys of which copper forms a constituent metal; among these are the bronzes and brass, which are very familiar.

Important compounds of these metals are iron sulphate, used as a mordant in dyeing and in making ink; copper sulphate, which is of such great service to fruit growers as a fungus and insect killer; aluminium sulphate and common alum are both used as mordants, in making size for paper and clarifying turbid liquids.

The mixture of aluminium and iron oxide, known as "thermit," and used as a producer of intense local heat, is of great interest. Boys are likely to have seen the mixture in actual use for welding steel rails used for tram lines.

(6) *Sand and Clay*.—An experimental study of these substances leads to the important industries of glass-making, brick-making, and pottery. The fusion of sand with alkaline carbonates to produce a mixture of silicates introduces water glass, which is used as a preservative for eggs, to paint old stone buildings, and for other purposes.

"Carborundum" is another industrial product obtained from sand; its preparation may be described and its properties demonstrated.

Other examples similar to those which have been already mentioned will occur to every teacher, and, indeed, the list might be extended indefinitely; sulphur and all its important compounds, common salt its occurrence and extraction, and the many organic products, would serve as an extension of such a course.

Chemistry treated in this way can be correlated to a much larger extent with other school subjects than is possible under present conditions. Geography and chemistry can be closely related to each other. The geographical occurrence of the raw products frequently has considerable influence on their subsequent treatment: sulphur is extracted in Sicily by a method which entails the waste of sulphur, but is economically sound on account of the scant supply of fuel. The occurrence of sodium nitrate in a rainless region in Chile and the necessity for great economy of water and fuel in its extraction, afford another instance of geographical influence on an industry.

An increasing demand for a certain substance

renders it possible to work a source which, in other circumstances, would be unprofitable; this is important in the statistics of geography, and chemistry gives a reason for the low profit unless there is a great demand: copper affords an illustration of such a case.

Another important point which can be made is the necessity that an industrial process must pay. A certain reaction may be possible in the laboratory, but it may not pay to work it on the large scale. A course in which the application of chemistry to industry is emphasised strongly, would produce and maintain in the minds of most boys an interest in chemistry such as it is not possible to produce by a more academic course, and at the same time the science would still retain its value, as a means of imparting scientific method and teaching boys how to observe, experiment, and reason.

MULTIPLICATION AND DIVISION OF DECIMALS.

By R. C. FAWDRY, M.A., B.Sc.

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THE modern methods which have been adopted in the teaching of mathematics have resulted in the exercise of considerable independence of thought amongst the teachers of the subject. This, no doubt, is a sign of evolution and has made for progress, but it has, for a time, produced a state of chaos in many details which is somewhat to be deplored. The results which have followed the supplanting of Euclid by various schemes of geometry is a conspicuous example of this state of affairs, but in this article I wish to direct attention to a like condition in the treatment of multiplication and division of decimals.

Thirty years ago the matter was simple enough. When multiplying, add the number of figures after the decimal point in multiplier and multiplicand and so determine the number of decimal places in the result. This method does not appeal to our modern ideas, as it is justly felt to be undesirable in the early stages to reduce the calculation to an operation which is purely mechanical. As a matter of fact, the various rules that are now suggested can lay claim to little superiority in that respect, and indeed some of them are inferior, inasmuch as they are more difficult to remember and to apply.

It is necessary to come to a definite conclusion as to the aim we have in view. At an early stage, I submit, we wish reasons for our operations, and their meaning, to be clear and convincing to the pupil. At a later stage accuracy and rapidity of calculation are the sole

desiderata, and there is then no objection to the employment of any rule which will produce those results as satisfactorily as possible.

Now let us consider the various methods which are adopted in the case of multiplication of decimals.

Method (1).

$$\begin{array}{r} 12\cdot36 \\ \quad 42\cdot3 \\ \hline 494\cdot4 \\ 24\cdot72 \\ 3708 \\ \hline 522\cdot828 \end{array}$$

The rule is: Place the unit figure of the multiplier under the last figure in the multiplicand (or place the decimal point in the multiplier just to the right of the last figure). Place the first figure in the partial products beneath the multiplying figure. All the decimal points come below the decimal point in the multiplicand.

In spite of the rule, experience shows that the decimal point persists in escaping from its proper place and competes with its rival for a place in the answer. If the multiplier is 0·000423 we may get the following unsatisfactory arrangement:—

$$\begin{array}{r} 12\cdot36 \\ \quad 0\cdot000423 \\ \hline 0\cdot004944 \\ 0\cdot0002472 \\ 0\cdot00003708 \\ \hline 0\cdot00522828 \end{array}$$

Method (2).—Change the multiplier until it has one figure in the units place and make the necessary change in the multiplicand:—

$$\begin{array}{r} 12\cdot36 \times 42\cdot3 = 123\cdot6 \times 4\cdot23 \\ \quad 123\cdot6 \\ \quad \quad 4\cdot23 \\ \hline \quad 494\cdot4 \\ \quad 24\cdot72 \\ \quad 3708 \\ \hline 522\cdot828 \end{array}$$

This is open to the objection that the decimal point is often moved in the wrong direction, and also that when the multiplier is an integer it requires the same change.

$$12\cdot36 \times 423 = 0\cdot1236 \times 4\cdot23.$$

Method (3).—Change the multiplier as above, but place the decimal points beneath one another:—

$$\begin{array}{r} 12\cdot36 \times 42\cdot3 = 123\cdot6 \times 4\cdot23 \\ \quad 123\cdot6 \\ \quad \quad 4\cdot23 \\ \hline \quad 494\cdot4 \\ \quad 24\cdot72 \\ \quad 3708 \\ \hline 522\cdot828 \end{array}$$

In this case the first figure in the partial product is placed beneath the figure which has been multiplied.

In each of these methods there is no lack of opportunity for intelligent discussion as to the underlying principles, but there is no doubt that success depends largely on remembering the rule, and the rule is far less simple than the method of adding the number of decimal places. Whatever merits may be possessed by the various devices that have been considered, it will be generally agreed that the mathematician at a later stage will have no use for any of them in his arithmetical computations; the position of the decimal place will be fixed by a rough calculation, and he will work with significant figures only.

Such being the case, it would seem highly desirable that similar methods should be adopted *ab initio* unless there are grave reasons to the contrary. The methods that have been discussed have no claim to consideration for their own sake; they are means to an end, and they are means which are ultimately abandoned.

A fatal objection to what may be called the method of approximation is the possibility of its presenting serious difficulties to pupils at the age, from 11 to 13, at which they reach this stage of their arithmetic. How far this is likely to be the case may be judged from the consideration of the method which follows.

Before the pupil has reached the stage in which he is confronted with such questions as multiply 12·36 by 42·3, he will have gone through a thorough course of examples in which he multiplies by one significant figure only, such as 12·36 × 4, 12·36 × 40, 12·36 × ·004, etc. He is then asked to multiply 12·36 by 42·3. The approximate answer is 12 × 40 = 480. The multiplication is performed without any decimal point:—

$$\begin{array}{r} 1236 \\ \quad 423 \\ \hline 4944 \\ 2472 \\ 3708 \\ \hline 522828 \end{array}$$

The answer therefore is 522·828.

If the question is 12·36 × 0·00423, he will say 12 × 0·004 = 0·048 approximately. Multiplication without a decimal point gives 522828 ∴ the answer is 0·0522828.

The feature of this method which is particularly valuable is the fact that the beginner has impressed upon him the truth that the multiplier 0·00423 is not very different from 0·004, an addition to his knowledge which is often late in arriving. One great merit, at any rate, it possesses, and that is the absence of any new rule, since multiplication by 0·00423

is a simple extension of the case in which the multiplier is 0.004.

The method adopted for fixing the position of the decimal point when the multiplier contains only one significant figure is immaterial and may be left to the discretion of the master. Once this has been learned there seems no valid reason for such elaborate arrangement of the work as is necessary in all the methods we have been considering.

Even in the simpler cases, however, it might be considered desirable to dispense with any hard and fast rule, and the argument might run as follows:—

(i) 12.36×40 ; since $12.36 \times 4 = 49.44 \therefore 12.36 \times 40 = 494.4$.

(ii) 0.012×0.004 ; since $0.012 \times 4 = 0.048$, and $0.004 = \frac{4}{1000} \therefore 0.012 \times 0.004 = 0.00048$.

For division— $12.36 \div 0.04$; since $12.36 \div 4 = 3.09$, and $0.04 = \frac{4}{100} \therefore 12.36 \div 0.04 = 309$.

In division the ingenuity of mathematicians has, I believe, failed to evolve more than two methods:—

Method (1).—Divide 12.36 by 42.3.

$$\begin{array}{r} 12.36 = 1.236 \\ 42.3 \quad 4.23 \\ \quad \quad 0.29 \\ 4.23 \mid 1.236 \\ \quad \quad 846 \\ \quad \quad \quad 3900 \\ \quad \quad \quad 3807 \\ \quad \quad \quad \quad 93 \end{array}$$

Here the divisor is changed until there is one figure in the unit place.

Method (2).—Divide 12.36 by 42.3.

$$\begin{array}{r} 12.36 = 123.6 \\ 42.3 \quad 423 \\ \quad \quad 0.29 \\ 423 \mid 123.6 \\ \quad \quad 846 \\ \quad \quad \quad 3900 \\ \quad \quad \quad 3807 \\ \quad \quad \quad \quad 93 \end{array}$$

Here the divisor is changed until it becomes a whole number.

By the approximation method the pupil will say $12.36 \div 42.3 = 12 \div 40$ approx.
= 0.3

Division without a decimal point gives 29 \therefore the answer is 0.29.

The method by approximation seems to have been so little used in preparatory schools that it would seem to have objectionable features which have not been discussed in this article. It is possible that the text-book used in arithmetic has given one or other of the methods which I have considered, and the satisfactory results which have been obtained may have rendered a trial of any other method undesirable. The public schoolmaster is, however, confronted with boys who have been brought up on so many different rules that there is a

growing desire for some kind of uniformity of practice. To obtain uniformity by the adoption of any one of the standard methods means overcoming the opposition of those who are enthusiastic supporters of one of the other methods, so that much may be gained if the superiority of the method by approximation can be generally accepted.

Little is to be gained by an expression of opinion by those who have tried only one method, but if those teachers who have experimented in this matter are willing to give their colleagues the benefit of their experience, this article will have achieved its purpose, especially if such experience includes a trial of the method by approximation. It is scarcely necessary to add that the views of mathematical masters in preparatory schools would be especially helpful, as their experience is more concentrated in details of this character, and they have better opportunities of appreciating the difficulties which these matters present to a pupil who is making their acquaintance for the first time.

THE RELATION OF "DRAWING" TO OTHER SCHOOL SUBJECTS.

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IT has been pointed out that the teaching of drawing in many secondary schools seems to bear very little relation to the work done in other subjects by the pupils. It may be said with equal justice that the teaching of other subjects has little relation to the work done in the drawing class.

There can be no doubt that correlation of school studies which are or can be made of mutual assistance to one another is very much to be desired, if such co-ordination can be attained without prejudice to any of the subjects concerned.

To take the question of drawing in its relation to other subjects, it cannot be denied that an ability to draw is of inestimable value as an aid to the study of such subjects as geography, history, and the numerous branches of science.

Attempts to bring about this desirable union of interests having frequently ended in failure; it is worth while to consider how a drawing master may adapt his course of instruction so as to introduce sufficient practice in utilitarian exercises to prevent time being wasted during other lessons in acquiring mere manual dexterity which might be learnt elsewhere.

Let us consider the question from a practical point of view. We will assume, for the sake of argument, that the drawing master has no ideals; that his teaching is not based on any

definite aim, and that he is willing to adapt his lessons to any desired purpose. He confers with his colleagues respecting the work of one particular form. The history man says: "We are doing the Saxon period. Let them draw some typical Saxon buildings; some weapons, and armour, and ships." The geography man says: "We are doing Norway and Sweden. Let them draw some characteristic furniture and ornaments and implements." The science man also gives his specific instructions as to the drawing of apparatus or botanical specimens.

The drawing master will soon find that he has ample material for a very full term's work. We may note that, if he is lucky, he will probably have two drawing periods a week with that form; say 1½ hours. He elaborates his scheme on the lines suggested, arranging, perhaps, to take the subjects alternately, or in short series, whichever may be most practicable. All goes well for, say, a few weeks, until one fine morning, just as he is commencing a well-prepared lesson, up goes a hand: "Please, Sir, we have finished Saxon and are doing the Stuart period"; or "Please, Sir, we have done with Norway and are doing South America"; or he finds that the science man has switched on to some new side track. The difficulty of keeping the lessons synchronised will be apparent. If the drawing master should elect to deal with one subject a term, he might stand a better chance of keeping up, but that course would tend to make the subject monotonous and the work very one-sided.

The chances against efficient co-operation being so great in a case where the master is willing to adapt his work entirely to suit the demands of other subjects, how much greater they must be in a case where a drawing master has a definite plan of campaign of his own to work out.

It becomes evident that, however desirable it may be that the subjects should be of mutual assistance, the solution of the problem of the suitable correlation of drawing with other subjects does not lie along the lines of an arbitrary arrangement between subject masters. Whatever relation there may be between the subjects should be spontaneous and should originate with the boys themselves. If, on one hand, the drawing lessons are so presented as to arouse the pupil's enthusiasm and enable him to realise the power of expression that an ability to draw gives him; and, on the other, if he is encouraged to use that power in connection with his other school subjects within the limits of his ability, the results will be far more satisfactory and far-reaching than those obtained by such artificial means as a conspiracy between masters.

Let the drawing course be based on the most orthodox lines of "Model" and "Freehand," it will, if the teaching is effective, at the least train the pupil to "see" and to "represent," and it should need very little effort or imagination on the teacher's part to point out in passing the connection between the models or copies that form the drawing lesson and the shapes of the miscellaneous objects that a boy may be called upon to illustrate in the course of his other lessons. If a boy can draw a cube, a cone, and a cylinder correctly, not merely by rule, in one or two stock attitudes, but with an intelligent appreciation of the principles which govern their appearance in all positions, he can very easily be made to realise that they form, with various modifications, the fundamental shapes of almost any solid object he may be called upon to draw.

It would mean only a momentary digression, for example, to point out that a cone gives the key to the drawing of a tent, a bucket, a lamp-shade, a funnel, a coffee-pot, and a score of other things met with in every-day life. And so on with the other models.

A very useful exercise, and one which frequently evokes a considerable amount of ingenuity is to let the boys, at the tail-end of a lesson, make small sketches from memory of as many articles as they can think of which resemble the subject of the lesson.

In the same way "Freehand," even if taught entirely by means of Cambridge Local Examination copies, will lead a boy to an appreciation of form and spaces, lines of growth, and details of floral construction which should materially assist him in his botany or other branch of nature study.

It will be seen that, under the most conventional system of teaching drawing, the opportunities for linking up, in an indirect way, with other studies are very considerable. When the drawing lessons can be given on a broader basis, unfettered by considerations of "systems" or examination results, the opportunities become boundless.

For the object-drawing lesson the school laboratories and workshop furnish endless material. Household appliances and the apparatus of sports afford examples of almost every conceivable form of solid and are capable of very considerable application in the illustration of other school subjects.

The study of ornamental forms, as represented by flowers, feathers, leaves, shells, butterflies, etc., opens up a sphere of usefulness in connection with other studies that it would be superfluous to enlarge upon. Treated as drawing from the "flat," any of the well-known text-books on Historic Ornament—those of Glazier, Ward, Meyer, and others—

offer at once material for schemes enough to cover a boy's whole school life, and at the same time so intimately bound up with history, geography, architecture, literature, and other interests as to make them capable of extension into something far beyond mere exercises in "hand-and-eye training." Heraldry, again, opening up a wide field of study in line, form, and colour, has a distinct connection with history which can be turned to very profitable account.

If direct co-operation between masters is necessary at all it can most effectively take the form of supervision by the drawing master of the suitability and grade of difficulty of the subjects selected (by the subject master) for the boys to draw, with the view of keeping them within reasonable limits of a boy's ability—a point which the subject master is occasionally inclined to overlook.

One would question the wisdom of asking a number of juvenile music pupils, still in the throes of scales and elementary exercises, to play a Beethoven Sonata as a competitive test; yet a class of boys (average age 10) were recently set by their history master to copy some saints and other figures from an elaborate and complicated engraved illustration in their history book; and the drawings were afterwards "marked" by the history master!

The ability to draw, in a greater or lesser degree, is latent in everybody, and the average boy is generally ready to use his power of draughtsmanship on the slightest provocation.

Given a drawing course framed on sound and liberal lines, and opportunity and encouragement to the boy on all occasions to make use of whatever ability he may possess in that direction in the course of his other studies, then the problem of the correlation of drawing with other school subjects will, in all probability, in due course solve itself.

THE KINEMATOGRAPH IN EDUCATION.

WE have on several occasions referred to educational uses of the kinematograph, and practical teachers have described in our columns how this instrument can be of service in the teaching of history, geography, natural science, and other subjects. It is true that the use of moving pictures as a means of education has been criticised on various grounds, some physiological, but mostly because it does not cultivate self-activity or the power of overcoming difficulties. The same kind of objection was made to printed books, the invention of printing being regarded as a device of the devil; and the use of the phonograph or the gramophone

in the teaching of modern languages has suffered like condemnation.

It seems to be forgotten by critics of the kinematograph in education that the chief function of the instrument is to illustrate and interest rather than to provide exercises. It would be just as reasonable to condemn the use of illustrations in school-books, and to insist that nothing should be taught which was not a task, as it is to suggest that moving pictures can have no place in education. We have no hesitation in saying that suitably selected picture films can do more to enlarge the outlook of children and impress them with clear ideas of the world and the manifold activities of Nature and man than many descriptive lessons in the class-room.

A few manufacturers of picture films, notably Messrs. Pathé Frères, have endeavoured to produce pictures and schemes of an educational kind, but we believe that they have received little encouragement either from teachers or education authorities. We suggest that arrangements should be made by education authorities, or teachers' organisations, for demonstrations of educational films at local kinema halls. Messrs. Pathé Frères inform us that the programme of films for an hour's show means about 4,000 feet, and the charge to the theatre is 5s. per thousand. The films would thus cost £1; and the usual charge for the hall is £1 1s.; so that the total cost would be not more than £2 5s. It would, therefore, be possible for the show to be almost self-supporting if 500 children paid 1d. each, or 250 children 2d. each.

With regard to the films available, these can be selected from a long list dealing with animal and plant life, travel, geography, and other subjects. Details are supplied of each film, so that the teacher can give some account of the subjects beforehand. It would be interesting to set essays afterwards upon one or two of the films seen and to compare them with compositions of the usual kind in which moving pictures have not been used.

We hope that active steps will be taken in many parts of the country to arrange demonstrations of educational pictures, so that firms like Messrs. Pathé Frères may be encouraged to continue the production of such films. It is useless to complain of the degrading influence of the sensational and penny novelette type of film and at the same time to do nothing to cultivate interest in subjects of a higher kind. If manufacturers cease to give any attention to this type of film, and neglect educational subjects entirely, it will be because parents and teachers have failed to offer practical support to firms which are endeavouring to provide what is good.

THE "ASSISTANT" SYSTEM.

THE question of how far schools should make facility in French and German conversation the aim and object of their modern language teaching has two sides to it. On one hand, if boys and girls learn foreign languages for years without being able to sustain a conversation for five minutes with a foreigner in his own tongue, the teaching seems unpractical and devoid of its right foundation; on the other hand, to acquire fluency in a foreign language needs a great deal of time, and it may be argued that real literary training should not be sacrificed to what is, after all, only an accomplishment which can be, and is, acquired by many people without their brains being any the better for it. Proficiency in conversation is like proficiency in typewriting and shorthand; incessant practice of a kind that demands no particular intellectual effort is what is required for success. And so it would seem that such proficiency should be rather a by-product than the principal result of school teaching. Machinery external to the school should be called in to help.

The first obvious aid is residence in a foreign family, now brought within the reach of the humblest household by the system of exchange of children; another is the "assistant" system, which has now been in working order for some years. Under this system young French and German schoolmasters and mistresses are attached for a year to English secondary schools. They are boarded and lodged in the schools free of charge, or in lieu receive a maintenance grant of at least £60. Towards this expense the Board of Education makes a grant of £30. Not more than twelve hours a week of work is required from them, and this is spent in conducting small "conversation groups" composed of pupils who have overcome the initial difficulties of speaking a foreign tongue, and require only frequent practice in order to become fluent. The "assistants" may help, too, with dictation, reading, and so forth, but they are not allowed to undertake ordinary class teaching.

The system is most useful. It provides many of the advantages of the old plan of having French and German taught by Frenchmen and Germans, and has none of its difficulties. The pupils hear the foreign tongue spoken by a foreigner; they come into personal contact with a foreigner, and they learn about the life and ways of the foreign country from one who is a native of it. The foreigner for his part gets his *quid pro quo* in the shape of time and opportunity for perfecting his command of our language and acquiring first-hand knowledge of our insular peculiarities.

It may be added that as we do to France and Germany, so France and Germany do to us. A certain number of young English teachers of both sexes are received on the same terms as we receive "assistants" in French schools and training colleges and in Prussian secondary schools.

EDUCATION IN NEW SOUTH WALES.

WE have had occasion already to refer to the steps which have been taken in New South Wales to enable the best pupils of the primary schools to proceed to the State high schools or other recognised secondary schools. In these high schools, it must be remembered, the education is free; but admission is only open to those who have obtained the qualifying certificate, or are able to produce satisfactory evidence that they are fitted to enter upon the four-year course of secondary education provided therein. But free secondary education would be of little use to many of the best pupils of the primary schools without a maintenance grant to meet their expenses during these four years. Under the Bursary Endowment Act of 1912 provision is made for such cases. No boy or girl is eligible for a bursary unless the income of his or her parents comes within the salary limitation, viz., a quota of £50 per annum for each member of the family, including the father and mother, and excluding children earning a wage of 10s. or more weekly; provided that the above restriction shall not affect any boy or girl whose parents' income is less than £200 per annum. The bursaries comprise an annual grant of £30 for four years to candidates who have to live away from home in order to attend school, and grants of £10, £10, £15, and £20 in successive years to those who can travel to and from school daily.

The Bursary Endowment Act has now been in operation two years. It is interesting to notice the liberal provision the State has made for the needs of students in the secondary schools.

In 1913, the first year of this system, the following awards were made, as from January 1st, 1913:—

140 bursaries at £30 per annum	= £4,200
160 " " £10 " "	= £1,600

For the school year commencing January 1st, 1914, the following new awards have been made:—

148 bursaries at £30 per annum	= £4,440
156 " " £10 " "	= £1,560

It should be added that the bursaries beginning at £10 per annum are increased to £15 and £20 in the third and fourth years, so that

the total sum involved is larger than appears in the above tables. The competition for these bursaries has been very keen. They are tenable in any registered secondary school or State high school, but, as a matter of fact, by far the great majority of the successful candidates elect to enter the State high schools.

The development of these high schools in recent years, owing to the enlightened policy of the Government in educational affairs, has been extraordinary. The figures are noted below:—

First Year Course	...	1912	...	1913	...	1914
Second	„	1,465	...	2,100	...	2,473
Third	„	831	...	1,273	...	1,698
Fourth	„	114	...	355	...	653
	„	65	...	98	...	222
Total	...	2,475	...	3,826	...	5,046

These figures are exclusive of pupils in the sixth and seventh classes in superior public schools and of pupils doing the first two years' work of the high school course in district schools.

The State of New South Wales does not cease to assist these students when they have finished the course of secondary education. This year (1914) the first award of university exhibitions on the results of the leaving certificate examination has been made, and about one hundred students have entered the University of Sydney with the privilege of free university education therein for the five years of the curriculum of their faculty. In addition, twenty-five university bursaries have been awarded by the Bursary Endowment Board from the funds provided by the Minister. These amount to £50 per annum and are no longer confined to the faculties of arts and science.

THE TREATMENT OF FRENCH LITERATURE IN CLASS.¹

By HARDRESS O'GRADY.

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III.

THE reading aloud, it will be remembered, is a part of the whole work of critical examination. This examination is divided into two parts. The first, by preparation for reading aloud, is mainly intuitive. The second, according to the notes given at the beginning of my previous article, is entirely intellectual. The reading aloud makes us *feel* where a true or false note has been struck; the examination of form and matter makes us *know* the method and even the personality of

the writer. Better than polite generalities on the subject is a concrete example, and this will be afforded in the present article by the two last poems quoted, that by Baudelaire and that by Verhaeren.

The ideal course of such lessons as are here advocated is that the teacher should first show how the thing is done; next, by questions, get the cooperation of the whole class and, as a result of the work, himself summarise the conclusions; lastly (and this is, of course, the aim of the whole business), that the pupil should ask *himself* the questions, and after sincere answering and classification write a connected, coherent, clear critique of the poem or passage set.

A brief summary of the method of preparation for reading aloud will not be out of place here, as it leads directly on to the study of form. First, we make up our minds as to what is to be the dominant tone of the whole piece. Within and framed by this dominant tone we shall, after close examination of the piece to decide whether there are two or three constructional parts, give two or three subsidiary tones to represent these parts. Next, we shall study the pauses, so as to mark the rhythm-curves of the piece. Next, we study the words which are to bear the stress required by the meaning. Lastly, we ask what small variations of intonation, what alterations in speed and force, are necessary to bring out the full meaning of the whole.

In the critical examination of the piece the dominant tone is paralleled by the dominant idea—that is, the intention of the writer. What was his intention? The constructional parts are the steps by which he brought about or failed to bring about his intention. The pauses mark his periods. The stresses direct attention to his diction, his personal obsessions. Let us apply all these things to the two poems. They were chosen because both of them deal in a manner with the same sort of thing—I am purposely loose in my wording.

IV.

Horloge! dieu sinistre, effrayant, impassible.
Dont le doigt nous menace et nous dit: "*Souviens-toi!*"

Les vibrantes Douleurs dans ton cœur plein d'effroi
Se planteront bientôt comme dans une cible;

Le plaisir vaporeux fuira vers l'horizon
Ainsi qu' une sylphide au fond de la coulisse;
Chaque instant te dévore un morceau du délice
A chaque homme accordé pour toute sa saison.

Trois mille six cents fois par heure, la Seconde
Chuchote: *Souviens-toi!*—Rapide avec sa voix
D'insecte! Maintenant dit: Je suis Autrefois,
Et j'ai pompé ta vie avec ma trompe immonde!

¹ The second article appeared in THE SCHOOL WORLD, June, 1914, p. 210.

Remember! Souviens-toi prodigue! Esto memor!
(Mon gosier de métal parle toutes les langues.)
Les minutes, mortel folâtre, sont des gangues
Qu'il ne faut pas lâcher sans en extraire l'or!

Souviens-toi que le Temps est un joueur avide.
Qui gagne sans tricher, à tout coup! c'est la loi.
Le jour décroît; la nuit augmente; *souviens-toi!*
Le gouffre a toujours soif; la clepsydre se vide.

Tantôt sonnera l'heure où le divin Hasard,
Où l'auguste Vertu, ton épouse encore vierge,
Où le Repentir même (oh! la dernière auberge!)
Où tout te dira: "Meurs, vieux lâche; il est trop
tard!"

BAUDELAIRE.

V.

La nuit, dans le silence en noir de nos demeures,
Béquilles et bâtons qui se cognent, là-bas;
Montant et dévalant les escaliers des heures,
Les horloges, avec leurs pas;

Emaux naïfs derrière un verre, emblèmes
Et fleurs d'antan chiffres maigres et vieux;
Lunes des corridors vides et blêmes,
Les horloges avec leurs yeux;

Sons morts, notes de plomb, marteaux et limes,
Boutique en bois de mots sournois
Et le babil des secondes minimes,
Les horloges avec leurs voix;

Gâines de chênes et bornes d'ombres,
Cercueils scellés dans le mur froid,
Vieux os du temps que grignote le nombre,
Les horloges avec leur effroi;

Les horloges
Volontaires et vigilantes,
Pareilles aux vieilles servantes
Boitant de leurs sabots ou glissant sur leurs bas,
Les horloges que j'interroge
Serrent ma peur en leur compas.

VERHAEREN.

One is called *L'Horloge* (Baudelaire), the other is called *Les Horloges* (Verhaeren). What are the respective dominant ideas? In IV. it is Fear. In V. it is also Fear. But we can distinguish. In IV. it is the Fear which hangs about the idea of the doom awaiting sinners. In V. it is the Fear of Things (*sunt lachrymae rerum*, with Fear instead of Tears). It is an undefined Fear. The intention of both authors is to produce a sensation or emotion of Fear. How do they go about their work?

The examination of the form shows us that Baudelaire has a definite development to a climax. That climax is in the last line, in the last words of the last line—*trop tard*. In V. (Verhaeren) there is also a definite development to a climax, which, however, comes in the last verse but one. The feeling is then

held on and the ideas leading to it are summarised in the last verse.

What is the general method of each author? In IV. the intention is brought about by the repetition of the same idea, that of Fear of Time Passing, like the beating of a gong on one note. In V. the effect is produced by the use of small, separate, strange comparisons. As these statements are sweeping, let us take verse by verse the poems under study.

Baudelaire. Verse 1.—The Clock as the personification of Time which threatens man. The poem is presumably addressed to the reader. Begins the tale of doom by the threat of the sorrows time holds in store. Verse 2.—Extends the idea of coming doom. Pleasure flies ephemeral, time is its devourer. Verse 3.—Still the idea of coming doom. Now is already THEN, as the seconds tick forth. Verse 4.—The threat of doom is repeated with the stressing of *Souviens-toi*. Verse 5.—Still the threat of oncoming doom. Day dies. Night comes on. Against Time the Devourer none shall stand. Verse 6 and last.—The seconds become minutes; the minutes, hours; at last the hour strikes, the hour of Doom. It is too late!

Verhaeren. Verse 1.—Night and silence and the ticking of the clocks like the crutches of cripples going up and down the stairs of the hours. Verse 2.—In the passages the clock-faces are like moons. These are the eyes of the clock. Verse 3.—Out of the clocks come strange voices, muted sounds, and the chatter of the seconds. Verse 4.—The clock-cases are compared with coffins built into the wall, and for the first time the word *Fear* is mentioned. Verse 5.—The clock sounds, either clattering or silently gliding, are my very Fear.

To summarise, then, we find that the author of IV. achieves his object by the cumulative effect of repetition under different forms; the author of the second by a series of comparisons which are in themselves things of fear, the sounds, the appearance of the clocks at night, in the silence. In the first, Fear, the Fear of doom, is presented at once. In the second it is brought about by the strangeness of the comparisons leading to the climax in the use of the word *effroi*.

It will be realised that the French professor's note "*quasi impossibilité de séparer l'ordre du fond*" is certainly true of these two poems and needs little comment.

We have now seen what is the dominant idea in the two poems, a dominant of Fear in the first, with a qualification of the Fear of Doom; in the second, a dominant of Fear, with the secondary idea of the Fear of Things. (purposely vague—the Fear of the unknown).

The effect is produced in the first by the order leading to a climax; in the second the order is not important for the second and third verses, but the first is obviously the first, the fourth could only come fourth, and the last is final. Verse 3 is to some extent a repetition of Verse 1, and this is a weakness in construction. If this verse had followed Verse 1 immediately, it might have been regarded as an amplification of it.

Next we make a detailed examination of the comparisons contained in the two poems. Baudelaire compares the clock with a god. He speaks of the Sorrows plunging into the reader's heart as into a target. Pleasure flying is compared with a dancer (a sylph) disappearing into the wings of a theatre. The Second is compared with an insect of which the filthy proboscis sucks the life of the reader. The clock has a throat of metal. The minutes are ore from which the gold of life must be taken. Time is a greedy player. The gulf is thirsty. The clepsydra is emptying. In a last figurative verse, Chance, Virtue (a virgin bride), Repentance (the last refuge) are personified. In the poem by Verhaeren, it is the sounds, the appearance of the clocks themselves, not the clocks as the personifications or symbols of something else, which are compared with (1) crutches and sticks clattering on the stairs, (2) moon faces, livid, with staring eyes, (3) leaden sounds, of hammers and sounds of files, and to grim-humorous murmured words, (4) coffins and old bones gnawed by Time, (5) old servant-women clattering in their shoes or gliding on stockinged feet.

It will be admitted that Baudelaire's comparisons are all highly "literary," not to say artificial. Moreover, by the very multiplicity of figures he confuses and affects the success of his method. What is the *valeur de vérité* of Time flying likened to a ballet-dancer vanishing into the wings of the theatre? In Verhaeren there is not a single comparison which is not taken from the ordinary lives of the humble in a country district. The appeal of the first is, therefore, special, to a certain class of reader; that of the second is general, to all simple and sincere people. Let us check this further by an examination of the actual vocabulary used.

Baudelaire uses, in addition to usual words: *cible, vapoureux, sylphide, coulisse, trompe, immonde, Remember! Esto memor! gosier, gangues, gouffre, clepsydre*. Verhaeren, in addition to a large number of very common words, uses the not uncommon *béquilles, cognent, dévalant, limes, gaines, grignote*. Baudelaire's expressions are largely abstract, those of Verhaeren are concrete. How do the words and comparisons in the two poems fit

into the general scheme? In Baudelaire (I have to dogmatise) they are inchoate and *discrete*. In Verhaeren they are so simple that one idea or comparison leads naturally to the next. What shall we say of the vividness of the words and comparisons used? It is paradoxical that Baudelaire's words, although (perhaps it is *because*) they are unusual, do not strike me as specially moving. Compare with this the words, all quite simple, of the climax, "*Meurs, vieux lâche! il est trop tard!*" In the poem by Verhaeren almost every word, by its very appositeness, makes an effect. Specially forceful are: *blêmes, sournois, babil, ombres, mur, froid*, etc.

It would be ridiculous to overlook the use of rhymes in the two poems, but time prevents me from going into this matter in detail. Briefly, there is nothing remarkable about Baudelaire's rhyme scheme, except the use of the (wa) rhyme three times. In Verhaeren, on the other hand, in addition to the use of the (a) and (wa) rhymes four times, there are several interesting assonances and the —*horloges—interroge—* in the penultimate line. It will be found, too, that the actual sounds of many of his words represent the meaning to some extent (e.g. *sons morts, notes de plomb*, etc.).

We may now write briefly a critique of the two poems. That by Baudelaire is cunningly constructed to lead up to a terrifying climax, but its very cunning and elaborate construction militate to a great extent against its success. Its form is purely literary, and its appeal will be much stronger to the highly cultured or over-civilised. The choice of images and of vocabulary justify the conclusion that the author is a man who has lived chiefly in a city and with books. He is a moralist in this poem, and his inspiration is possibly due to a very real sense of the manner in which he has lived his own life. The implications of the poem are many, and a close study will reveal much that is interesting as to the tastes of the author. On the whole, the poem is only moderately clear, and its truth only partial, but the effect is rendered greater by the art with which the successive verses are piled one upon the other, and by the vivid, yet simple, words with which it ends.

Verhaeren's poem is not so well developed from a clear start to its end. The repetition in the first and third verses is a fault in construction. However, the simplicity of the language, the vividness of the images due to their truth to life and their connection with the subconscious feelings of the people, compensate for the slight fault, and give to the whole poem an effect of fear which is perfectly

natural, and therefore really effective. The appeal is to all who have lived quiet, reflective lives, or have spent any impressionable period of life in solitary places. We are justified in thinking that the author has a close and intimate acquaintance with country life, and that he is a man of a singularly sensitive and impressionable temperament, closely in touch with the subconscious; in fact, an intuitive. The poem gains force by having no expressed intention. The poem by Baudelaire is "*plutôt artificieux*," while that of Verhaeren is "*essentiellement artistique*."

It would have been interesting and agreeable to submit to a similar analysis the *Trois Contes* by Flaubert, to trace the author's method of attaining his object, to examine his choice of words, to get at his intimate beliefs. Or it would have been profitable to take one characteristic page and examine it according to the notes given above. But pressure on the space of this magazine makes such extension of these articles impossible. I will, therefore, conclude by reminding the reader that the method here developed is accessible to all who care to throw aside prejudice and avoid generalisation. All that is required is a rigorous examination of the matter before us, so that we shall make no statement which cannot be supported by reference to the text. And the object of the whole work is to get the pupil to make the examination and draw his conclusion for himself. Finally, it will not have escaped the reader that this method can be applied to any language, and that its adoption may lead to more exact and more searching criticism in the columns of our literary newspapers and magazines.

PERSONAL PARAGRAPHS.

MISS C. P. TREMAIN has resigned her post as head of the Department for Training Secondary Teachers at Alexandra College. Her work in training students has been attended with signal success, and at the present time about a hundred teachers who have passed through the Alexandra Teachers' Training Department are filling responsible posts in England and Ireland. Her loss will be felt not only in the College, but also in the whole field of Irish education, in the problems of which Miss Tremain has taken so keen and practical an interest. Miss Tremain was formerly a lecturer in English and history at West Ham, and afterwards mistress of method at Aberystwyth. Miss Tremain will continue to hold the post to which she was appointed in 1906 as examiner in the University of Dublin of women candidates for the secondary-school teachers' diploma.

MISS GWLADYS JONES, now acting head of the Secondary Training Department in the Ladies' College, Cheltenham, has been appointed to succeed Miss Tremain at Alexandra College. Miss Jones was at Girton College, Cambridge, where she took Parts I. and II. of the Historical Tripos. On leaving college, she entered St. Mary's Training College, London, and took the London University teachers' diploma. She was then appointed lecturer in history at the Ladies' College, Cheltenham, and afterwards assistant in the training department. Miss Jones has been co-opted on the Education Committee of the Borough of Cheltenham, and on subcommittees under this authority.

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MISS C. L. LAURIE, who moved a resolution welcoming the report of the Departmental Committee on the Superannuation of Teachers at the meeting of the Association of Assistant-mistresses in public secondary schools, was educated at Bristol and Maria Grey Training College. She has been at Cheltenham Ladies' College since 1880. Most of her published work is on botany or nature study. For some time Miss Laurie has taken a keen interest in the establishment of a scheme of insurance for teachers in secondary schools, and is now one of the authorities on this subject.

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PROF. J. W. HALES, whose death was recently announced, was for many years associated with King's College School before it was removed to Wimbledon. While he is best known as professor at King's College, yet the pupils at the school remember with delight his interesting and inspiring lessons on English literature. Prof. Hales's elder son is still associated with King's College as assistant secretary.

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THE REV. JOHN WISKEN, formerly of Gonville and Caius College, died on June 2nd at Caius House, Cambridge. Mr. Wisken was born at Cambridge, and educated at the Perse School. He was eighth Wrangler in the year in which Todhunter was Senior, and was elected to a junior fellowship. Upon leaving Cambridge Mr. Wisken became Master of Newport Grammar School, where he remained until 1865. From 1865 until 1891 he was mathematical master at the Perse School.

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THE Governors of Eltham College, the school for the sons of missionaries, have appointed to the headmastership Mr. George Robertson, Craven and Ireland scholar. He was until recently professor of classics at Grey University College, Bloemfontein.

MR. J. HOLDEN, headmaster of the Cleckheaton Secondary School and Technical Institute, has been appointed headmaster of the new secondary school for boys at Woking, and principal of the Technical Institute. Mr. Holden was educated at the Royal College of Science, and at Trinity College, Oxford. He was formerly a master at the Roomfield Higher Grade School, and from 1898 to 1908 headmaster of Todmorden Secondary School. In 1908 he was appointed to Cleckheaton.

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MR. A. H. GILKES has resigned his position as Master of Dulwich College, and it is expected that the resignation will take effect at the end of the present term. Mr. Gilkes was educated at Shrewsbury and Christ Church College, Oxford. He was for twelve years an assistant master at Shrewsbury and, in 1885, was appointed Master of Dulwich College. Among the books he has published are "Boys and Masters," "A Day at Dulwich," and "Kallistratus." Mr. Gilkes has of recent years taken little part in educational movements apart from his own school, but from time to time has spoken in the discussions of the Headmasters' Conference.

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THE REV. W. TEMPLE, headmaster of Repton School, has been appointed rector of St. James's, Piccadilly, in succession to the late Canon McCormick. He will leave Repton at the end of the present term to enter upon his new duties. It will be remembered that Mr. Temple succeeded the Rev. Lionel Ford as headmaster of Repton in 1910, without having had any experience as a schoolmaster. The appointment was, at the time, severely criticised.

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THE Governors of Repton, however, have decided upon another experiment that will not commend itself to practical teachers. They have appointed as headmaster the Rev. G. F. Fisher, a master at Marlborough, with only three years' experience as a schoolmaster. Three years is, no doubt, better than no experience at all, but it can scarcely be considered enough to qualify a man to take up the headship of any school. Mr. Fisher was formerly a pupil at Marlborough, a scholar of Exeter College, Oxford, and obtained the Liddon Scholarship in 1911.

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SIR WILLIAM ANSON, whose death was announced on June 4th, had been a fellow of Eton College since 1883, a governor of Wellington College since 1892, and was for twelve

years a governor of Dulwich College. He was one of the first members of the Consultative Committee of the Board of Education opened in 1900; and in 1902, in the middle of the debates on the Education Bill, he became Parliamentary Secretary to the Board of Education, and represented the Education Office in the House under Mr. Balfour. During his term of office he took a prominent part in the debates on the Education Act of 1902, and the London Education Act of 1903. Of Sir William as a scholar and administrator this is not the place to speak. His work at the Board has left a lasting impression on English education, and all those who knew him there will remember his keen penetration, his dignified simplicity, and his charm of manner.

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THE Cambridge Tripos lists just published are interesting for the successes of undergraduates from the more modern schools as compared with the old public schools. In the lists of the Mathematical Tripos, Part I., the Natural Science, Parts I. and II., the Medieval and Modern Languages and Economics, Parts I. and II., there are placed in Class I. a hundred and two men, of whom eight came from other universities or from abroad. The remaining ninety-four were educated at sixty-seven schools; Rugby, Dulwich College, and King Edward School, Birmingham, account for four each; the Central Foundation School and the Perse School, Cambridge, for three each. Two came from each of fourteen schools and one from each of forty-eight schools.

ONLOOKER.

SWEDEN FOR THE HOLIDAYS?

By C. S. FEARENSIDE, M.A., Oxon.

Lector in English at Handelshögskolan, Stockholm.

SWEDEN deserves a little more attention from English people than she usually gets—from the point of view both of work and of play. Stockholm is within a couple of days' easy journey of London; and yet English friends, who seem to regard Egypt as a kind of holiday resort for London, not infrequently ask me, "How do you like being *out there?*", which always reminds me of the delightful Pirate Boy in Miss Macnaughtan's "Modern Cranford." And even in serious statistical books of English origin Sweden is treated somewhat cavalierly: in a modern text-book of business geography, for instance, Sweden is scarcely mentioned, and in a general railway map of Europe it is not credited with a single railway, though one of

the direct routes from London to Petersburg crosses this country. To this, however, I hope to return another time; meanwhile, I may refer to the recently published official work entitled "Schweden," edited by Dr. Guinchard—a copiously illustrated cooperative book in two volumes (1600 pages), of which an English edition is in preparation. The rapidly growing economic-political importance of Sweden is doubtless a good reason for making its further acquaintance, but is not exactly a decisive reason for choosing it as a holiday resort!

Nor can one allege stupendous natural phenomena such as draw Englishmen to Switzerland and to the fiords of Norway, or the architectural or other art treasures of the Netherlands or Italy. Except in the extreme north and near the Norwegian frontier, in fact, there are practically no hills which give one such an impression of mountains as one gets even in South Britain, *e.g.*, the Pennines, the Lake District, or North Wales; and there are few places where one feels as much constrained as, say, in rocking through Derbyshire on the Midland, to dash from side to side of the carriage dredging one's mind for synonyms for "lovely." And so, though there are plenty of mountainous excitements to be had in the less accessible parts of Sweden, the greater part of the country is not one to be rushed through in breathless search for "sights" to "do," but rather one to be taken slowly and rather in quest of peace and rest than of adventure. In its central and southerly parts, at any rate, its beauty is as homely or domestic—"tame," if you like—as that of England itself; but the prevailing features of its domesticity are not meadows and hills, but endless forests—mostly birch and conifers—and lakes. It is this "profusion of lakes" which has made the greatest impression both on myself when I took my first long railway journey through the heart of the country eight years ago, and on several friends fresh from England whom I have personally conducted through central Sweden. And generally I fancy that if overworked English teachers ventured on a not too hurried or extensive journey through Sweden, stopping at three or four well-selected places to explore the primeval-looking forests and enjoy the varying effects of light and shade, they would find the experience soothing and restful, as well as novel and instructive. Nor need such a tour be expensive, if they would take the trouble to get to "know the ropes" and conform to the customs of the country. And the language difficulty will seldom present itself on the main routes, especially if one has a little German to supplement one's English.

The present year affords those who prefer to combine educational pursuits with their holiday-making exceptionally good opportunities of studying the modern cultural aspects of these northern lands. A "National Exhibition" is being held this summer at Kristiania, while a more ambitious "Baltic Exhibition" is being held at Malmoe to represent all the countries round the northern inland sea—Sweden, Denmark, Germany, and Russia (the Baltic seaboard of which two countries belonged to Sweden not so long ago). To most English-speaking people probably the Baltic is little more than a name; and to such there is at least food for thought in the assertion of a speaker, at the opening of this Baltic Exhibition, that the civilisation of the countries lying round the Baltic, long the nearest rival to that round the Mediterranean, has now definitely taken a first place. (One rather wonders where the speaker would place the English-speaking people grouped round the larger "inland sea" of the North Atlantic!)

Nature and Art together thus make the "call of the Northland" (more movingly put in Thorkild's song in Mr. Kipling's "Puck of Pook's Hill"); and there remains only to give a few hints as to the best ways or means of hearkening to one or other note (or both!) of this call. And these hints rest on the assumption that for the teachers who will form the majority of the readers of these lines money no less than time is limited. It would doubtless be possible to combine with a survey of the central bulge of the Scandinavian Peninsula a scamper through North Germany to the south thereof, or Lapland to the north, but scarcely both, in the brief summer school vacation; and I purpose to drop the latter alternative altogether—*viz.*, the perfectly feasible and in itself attractive tour among the northern Norwegian fiords and skerries to the wonderful iron-ore-shipment port of Narvik, and back through northern Sweden. Naturally, one's choice of route will depend upon what one most wants to see; and in this connection one may add a warning against letting one's inclinations be overruled by the advice—not always either well-informed or, it would seem, disinterested—of the tourist agencies. Settle the general route beforehand, by all means, but leave local details to be settled by the willing, gratis, and non-commercial advice of the local agent of the Swedish Tourist Club, Svenska Turist-föreningen—of which the guide-book, less complete, but also less overwhelming, than Baedeker, can be obtained in English and in England.

(1) *The urban traveller*—by which I mean the tourist with a Johnson-Lamb-like preference for towns and land-travelling over

"hideous" forests and seas—will naturally travel overland *viâ* Holland or Belgium, *viâ* Hamburg or Berlin, and preferably through Copenhagen (where the sculpture-galleries are exceptionally fine), and will make a point of including in his itinerary Malmoe (for the exhibition), the neighbouring university town of Lund (where he might well stay during his Malmoe period), possibly Gothenburg (the chief commercial town of Sweden), and certainly Stockholm (not the greatest, or the largest, or the most important, or the most interesting, but surely the most charming of European capitals?), and perhaps the old-time commercial centre of Visby in Gothland, where alone in Sweden there are any extensive remains of the Middle Ages.

(2) *The rural traveller*—by which I mean one who prefers to shun the crowded haunts of men, who is weary of temporary exhibitions, and finds a certain degree of monotony in permanent museums—would probably choose one of the all-sea routes to Sweden, favour Visby more than any other town in the above list, and include in his route many of the quiet, peaceful waterways in which Sweden is especially rich, but which, unfortunately, seem to bore Swedes to extinction, so that they find it hard to survive railway competition. Amongst these waterways the best known, and the easiest for the visitor who knows no Swedish, is the "Gotha Canal," which connects Gothenburg with Stockholm by means of a series of canals connecting lakes and canalised rivers, and provides the rest-seeking traveller with a moving home through varied scenery fairly representative of the chief types found in mid-Sweden. Those who follow this route would find it interesting, especially if they are botanists or geologists, to stop *en route* at Mariestad and Motala to explore the curious and pretty isolated hills of Kinnekulle on Lake Vänern and Omberg on Lake Vättern; and a further expedition from Motala on the long, narrow and beautiful Lake Vättern to Jönköping ("matchless in lights, but not in lucifers"), at its southern extremity, would be found to repay itself. From Stockholm there are innumerable water-trips available, both to places in the vast archipelago of islands that protect Stockholm from the sea and to places—some of them having historical or architectural as well as scenic interest—on Lake Mälaren, and even on Lake Hjälmaren: it is possible, for instance, to reach the university town of Uppsala by water, though it seems to be considered a somewhat eccentric thing to do, because it "takes nearly five times as long."

Apart from Stockholm, the chief districts for water-trips are the much-frequented region

round Lake Siljan¹ in Dalecarlia—eight hours' journey by through train (two routes—that by Ludvika being the more picturesque) north-west of Stockholm, and notable not only for its quiet natural beauty and its rich historical associations of the Boscobel and Flora Macdonald type, but also for the continued wearing of the picturesque national costumes; the region of the lower courses of the huge rivers that pour into the sea near the ports of Sundsvall and Härnösand; and the series of picturesque navigable waterways that one would naturally cross (mostly without noticing them) on the *direct* route back to Gothenburg, either from Lake Siljan or from the logging rivers of Norrland. The chief of these, taken in order from north to south, are Klara Älven (accessible from the pretty townlet of Filipstad, the burial-place of George Stephenson's Swedish rival in 1830), Lakes Fryken (accessible from Kil, the dull junction where the Gävle-Gothenburg and the Stockholm-Kristiania main railways intersect), the Glassfjord (accessible either from Arvika at its northern end or Säffle from the south), and the extensive and varied system of waterways known as the Dalsland Canal (accessible either from Köpmannabro on the Gävle-Gothenburg railway or from Ed, a good stopping-place on the main route from Kristiania to Gothenburg—which main route is not identical with what *looks like* a direct route on a modern map.

To sum up these two paragraphs: my "urban" tourist would cut a kind of Swedo-German "figure of eight," of which the German circle would be marked by Hamburg, Berlin, and either Rotterdam or Flushing, the Swedish circle by Gothenburg and Stockholm (possibly Visby), while the point of contact between the two circles would be Copenhagen-Malmoe. My "rural" tourist would traverse a "Swedish Inner Circle"—probably Gothenburg, Stockholm, Siljan, Fryken, Gothenburg. There remains a somewhat more ambitious "Swedo-Norwegian Outer Circle," which would mean crossing direct either to Bergen in Norway, or to Gothenburg in Sweden, and would substitute the railway stretch, Gothenburg-Kristiania-Bergen, and the Norwegian fiord route, Bergen-Trondhjem, for either the Siljan-Gothenburg (rail and water) route, or the Stockholm-Gothenburg (rail or canal) route of the "inner circle." A visit to the big rivers could readily be combined with this, turning north from Bräcke (the junction where the Swedo-Norwegian line from Trondhjem through the grand scenery of Jämtland joins the Swedish northern trunk line) and going

¹ The writer of the present article spends the summer at Rättvik (one of the three centres on Lake Siljan), where he holds a summer course in English at the Anglo-Swedish boarding-house (where English tourists unfamiliar with Swedish might find refuge), called "Anglicia."

either down the Ångermanlandsälven to Härnösand and up the Indalsälven from Sundsvall, or *vice versa*. The scenery in this central district is considerably grander than it is immediately to the north or anywhere to the south.

Space fails to deal with routes from England to Sweden; but here the usual agencies may be used. Perhaps I may just indicate three points which English people often overlook. (a) It is not in the least necessary for residents in the North of England to travel to the South of England in order to cross the North Sea—unless they wish to avoid a long sea-crossing: there are Scottish boats from Leith to Norway, Swedish boats from Granton to Gothenburg, the Newcastle-Bergen boats, the Wilson liners from Hull and Grimsby to Gothenburg, and the Finnish boats from Hull to Copenhagen and Gothland. Some of these, at least, are as good as the Swedish direct service from Harwich to Gothenburg. (b) On most of these routes the second class is quite good enough for anybody who cannot afford to spend money on *mere* luxuries. (c) There need not be much “changing” if one prefers an overland route: there are through carriages from Flushing to Hamburg, and from the same station in Hamburg to Kristiania (by the Prusso-Swedish Sassnitz-Trälleborg train-ferry, with the possibility of changing *en route* into a Stockholm carriage in the same train).

Finally, two points as regards the question of economy. One concerns travelling, the other food. Swedish railway fares, especially for long distances, are extremely cheap—Swedish second class not being dearer than third class in England. It is therefore no extravagance to travel second class. But travelling third usually effects a saving of 33 per cent. in the fares, and the free-weight allowance for luggage is the same for all classes. The other point concerns food. The meals in Swedish restaurant cars and at Swedish stations (even when quite small) are usually both good and cheap; and the system of helping oneself at junctions where time for meals is allowed may be warmly commended. When staying for some days in one place it is nearly always possible to effect a considerable saving by compounding for all meals at a hotel or boarding-house (as sometimes on steamers). And in most of the towns there is a Hushållsskola (school of cookery), where, if one is staying for two or three days, one can get three *good* meals a day (sometimes plain, sometimes fairly varied) for about half-a-crown a day. Those who desire a similar economy, but have not the Swedish to negotiate, may fall back on the popular waiter-less and tipless restaurants labelled “Automat.”

THE EDUCATIONAL PROBLEM OF THE CENTURY.¹

By P. W. H. ABBOTT, B.A.

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IN technical education we have hitherto concerned ourselves as a nation with the education of the workman; in the future we must educate the man. We must not only train a man for a livelihood—we must train him to live. Side by side with the training which is required to fit a man for his calling there must proceed that wider education of all his faculties which is necessary for the complete development of an intelligent, broad-minded, and well-informed citizen, one who is not only efficient in his own work, but cognisant of his duties as a member of the State. There are signs that this view of education is forcing itself upon the consideration of educationists in this country. It has been grappled with in other countries. We have, of course, always before us the work done in this direction in Germany and the remarkable experiments of Munich. These are too well known for me to dwell upon them now, but they illustrate in a remarkable degree the possibilities of this wider training of which I have spoken. In many American technical schools, too, non-vocational subjects form an integral part of the industrial courses. For example, in the Carnegie Institute of Technology, Pittsburg, English is a subject of instruction in all evening courses in such subjects as plumbing, electric wiring, bricklaying, carpentry, telephony, etc. In the day engineering courses of the same institute, music and history are compulsory on all students.

These examples might each be multiplied; they are signs which indicate changes which have begun in our conceptions of education beyond the school age. In the future, education will be concerned not only with the mere training of a man for his vocation; it will aim also at the cultivation of the humanities; it will endeavour to train him in citizenship. All education of the future must be three-fold; it will train a man for his vocation; for the proper enjoyment and ordering of his life, and for his duties to the rest of the community; in other words, it will aim at forming the complete citizen.

But it will be objected that all this is quite impracticable; that it is sufficiently difficult at the present time to impose the group course system upon our students; that it is only because the student feels that technical education will be of definite advantage to him in his work that he can be persuaded to attend at all. There are some who feel that even in the course system we have gone too far; they assert, and there is a large measure of truth in the contention, that already the course system imposes too heavy a burden upon the student, superimposed as it is upon his daily work. How, then, can we add further to the strain? It must, of course, be admitted that under the existing conditions of technical education there is no hope of any material advance in the direction which I have indicated. Why, then, do I place

¹ From the presidential address at the annual conference of the Association of Teachers in Technical Institutions, Liverpool, June 1st., 1914.

it before you to-day? I do so because the question is fundamentally bound up with the whole problem of the education of the adolescent, and it is to certain aspects of this problem that I desire to direct your attention.

The education of the adolescent is the educational problem of the century. It is a problem of the first importance to us as technical teachers, for it is inextricably bound up with the future of our work. It behoves us, then, to be prepared with contributions towards its solution. If you cast your mind retrospectively over the education of the last half-century, I think that you will agree that the educational problem which has chiefly engaged the attention of the nation has been the education of the child, and apparently many people have thought that the solution of this meant the solution of the problem of education. Failure to realise the absurdity of this has been largely responsible for the dissatisfaction which at present exists in regard to the results of education.

It has become fashionable to profess disappointment with our system of elementary education. We are continually told that this is something of a failure; that it is extravagant; that the results are incommensurate with the money spent upon it. But I urge that the failing is not with elementary education; it is the nation which has failed in its duty to education; it has failed because it has brought the education of the child to a dead end at the age of thirteen or fourteen. The nation has failed to realise that the education of the child is only beginning at the time when, so far as the majority of children are concerned, it comes to an end. What would the wealthy classes think if it were suggested that the education of their sons was completed when they leave the preparatory school? The foundations only have been laid, and for most of the children in the elementary schools no superstructure ever appears. It is not with our elementary education that the fault lies. The elementary-school teacher, working often under lamentable conditions, both educational and professional, has done his work for the nation in a manner which must command our admiration and our gratitude, and one can conceive that there are few things which cause greater disappointment to the elementary-school teacher than to watch the rapid disappearance of the fabric which he has built up with such infinite care and patience.

It is not in continual endeavours to improve our elementary-school system that the real remedy will be found. Two fundamental principles must receive full recognition; there must be continuity in our system of education, and there must be no sudden cessation of it before it has been carried to a satisfactory and appropriate stage. The State must recognise its responsibility for the complete education of the youth of the nation. If this is to be effected there must be an extension of the age of full-time instruction to fourteen or fifteen, and this must be followed by compulsory part-time instruction to the age of eighteen or twenty. But this compulsory further education must be accompanied by a radical alteration in the conditions under which our present voluntary system is carried on. It must not be, as now, an additional

burden to the day of toil which already presses so heavily upon the youth at a time when he is least able to bear it.

If there is to be compulsion on the youth to continue his education, there must be compulsion also upon the employer to diminish the hours of work in a corresponding degree, so that the instruction may be given at suitable times either wholly or partly during the day. This must be done whether the youth is learning a trade or whether he is engaged in what are termed blind-alley occupations. It is even more important in the latter case than in the former. The instruction itself must be of a suitable character. It must not be merely a revision of work previously done in the elementary school, but must be more distinctively suited to the more mature age of the pupil. It must be definitely coordinated and linked up, where necessary, with technical and other education of a higher character which follows; there must be no gaps. The corporate life of the school also must be developed, so that to the pupil it may be a State in miniature, and help him to a right conception of his position as a citizen. It should become an attractive focus for his social interests outside his home.

It may be necessary to remind you that these proposals are not the impractical theories of a visionary. All that I am pleading for has already been tried, and tried with success. It is possible, too, that opportunities will occur in the near future for realising in some measure the reforms which I have ventured to place before you. The Denman Bill, which is now before Parliament, though far from providing for the full education of the adolescent, does, nevertheless, represent a great step forward. It will give the local authorities power to extend the leaving age to fifteen; to compel attendance at continuation classes until sixteen; to restrict the hours of child-labour and to restrict street trading for young people. The defect of the Bill is in its permissive character, but it represents a great advance, and local authorities will possess, for the first time, the power to carry out the reforms which I have briefly indicated, reforms which will be effected by the more enlightened and progressive of these authorities. Resolutions on this Bill will be placed before you, and I am sure that you will all agree with me in expressing the strong hope that the Bill should be placed upon the Statute Book. It is the very least that the Government can do to redeem some of their promises of educational reform. In the event of this happening, it must become part of our work to urge upon local authorities the adoption of the Act, and to assist in overcoming opposition to it.

For there will be opposition to the adoption of it, at any rate at the outset. This will come, in the first place, from the employers and from the parents. Opposition of this character has always accompanied every such step in educational progress. Exactly the same arguments will be used as were put forward with explosive violence when it was decided to deal similarly with the child worker of eight or nine years of age.

Perhaps the strongest objection to the adoption of these proposals is the solid one of the extra expenditure which will be involved. It will therefore be

necessary to show clearly that there will be an adequate return for the money required, and I think that it ought not to be difficult to demonstrate conclusively that there is no expenditure on the part of the community which will produce more beneficial or more permanent results than expenditure on further education of this character. Apart from the direct material results which will be obvious to you, there is another indirect form in which this expenditure will prove productive.

One of the most lamentable results of our present system, under which the State relaxes its control over the child at the age of thirteen or fourteen, perhaps the most impressionable age of all, is the production of the loafer. Everybody is familiar with the process. Released suddenly from the bonds of discipline, the child, at the end of his long day of toil, seeks the street as the chief source and inspiration of his relaxations. The street corner becomes the rallying point for him and his chosen companions, and there he spends his evenings, planning mischief or contracting evil habits. Or it may be that he is one of that unfortunate band of child street traders, to whom the street becomes a permanent residence, who are never free from the temptations and dangers which surround all who are thus engaged. Or perhaps he is one of that multitude of blind-alley workers who at a later age are thrown on the street without resources, without any training for further occupation, with nothing done to develop their self-respect or to induce habits of self-reliance. On this question the report of the Canadian Royal Commission on Technical Education contains the following:—"Comparing a German city with one in England or Canada, one is struck by the absence from the streets in the evening of the youth of both sexes, standing at street corners or wandering aimlessly about."

THE FUTURE OF ENGLISH EDUCATION.¹

By Miss ROBERTSON.

Christ's Hospital, Hertford.

THE establishment of the Teachers' Registration Council marks an era in English educational history. It is not only that it will give us, before long, a register of men and women definitely acknowledged as qualified to teach, but, that the making of the register has been entrusted to teachers themselves, and that we may hope to see evolving a self-governing profession the extraordinary diversity of which should act as a wholesome antidote to professional narrowness.

Can the profession rise to its opportunity? Is there a desire for unity and cooperation, or is the idea of unity a mere delusion, to be laid aside save on ceremonial occasions when conventional politeness demands that courteous words of little meaning should be used to conceal our divisions?

Fundamentally, our reply will depend on the view taken of the task before us.

Not a hundred years ago, English education was mainly an education of groups, in the culture traditionally desired within the group. So far as it was in the public eye at all it consisted of the training given to boys in the ancient public schools; and of the very simple elementary education undertaken by private or semi-private persons, land-owners, clergy, and the like for the benefit of tenants or parishioners. The State recognised no obligation in the matter; the great bulk of the nation either provided or neglected to provide, its own education on entirely individual lines. Much excellent work was done—possibly we shall rarely touch the level reached by some early pathfinders—but the private practitioner, good, bad, or indifferent, was uncontrolled; there was no Board of Education to curtail his unchartered freedom, no public opinion to attribute all national shortcomings to schools and schoolmasters (or schoolmistresses).

Much water has run under the bridge since these days, and gradually the question has shaped itself, as Mr. Cholmeley puts it, in an arresting phrase: "What are we going to do with the children of the country while they are growing up?" This question makes insistent and ever more urgent appeal to statesmen, to politicians, to social workers of every kind. For all teachers it is literally their vocation—their call. Our task is nothing less than the training and education of the whole nation, from the poorest to the richest, from the ablest to the mentally deficient. And to state this is surely to state that unity among teachers is not only possible, but essential, not only desirable, but a goal to be kept steadily before our determined enthusiasm.

In this work of national education it is obvious that we start late, and many of our difficulties arise from the haste inseparable from previous sluggishness. (I do not think that it is realised how severe is the demand made by brain work on a generation whose forebears have used their minds but little.) The Scotch in three hundred years have at least developed a respect for education and a real grasp of its meaning which is still rare in England. Germany learnt much one hundred years ago in a school of bitter adversity. We have not yet a clear conception of the problem, and the field is partly covered—I will not for one moment say cumbered—by vigorous and various growths innocent of any "town-planning" scheme, and not to be replaced by any cut-and-dried scheme without grievous loss.

The education of the middle class, still in the present day meagre and uneven, was not systematically attempted until the close of the nineteenth century. This, a disaster in itself, is the more disastrous in that, poor and immature as secondary education has been, it has moulded the aim and the progress of elementary education. The educational ladder of which we hear so much has been set up from the primary to the secondary school, while the latter is still incomplete; the landing-place is obscured by dust and scaffolding, very shaky and uncertain. Elementary education itself has been planned from the outside without considered or philosophic basis, without distinct purpose. The mass of the people have been strangely silent with regard to it. Surely it is one of the most hopeful

¹ From the presidential address to the annual conference of the Association of Headmistresses, June 13th, 1914.

signs of the times that in the Workers' Educational Union we see at last an instrument slowly forging itself which should in the near future bring to bear on the training given in the primary schools the instructed opinion of the classes most nearly acquainted with their working and their output.

But whatever the strength or weakness of our elementary schools, one grave fact cuts at the root of their service to the nation. It is estimated that three-quarters of the children educated therein receive no further education whatever after the age of fourteen. That is, in the most crucial years of growth and development, just when independence of parental control is most frequently desired and asserted, external guidance and discipline are abruptly withdrawn.

We must grapple with this problem before we can call our education in any sense national. I do not believe that it will be solved along any one line; certainly not by the mere multiplication of secondary schools of any pattern yet evolved, nor by the indiscriminate transfer of boys and girls to existing schools. We must recognise—in all humility—that many growing boys and girls who are capable of making useful citizens would be—frankly bored by most of the existing forms of higher education. Our ideals of scholarship make no appeal to them—at present. Are they therefore incapable of education? And is the work and welfare of the modern world to fall into the hands of men and women whose physical and intellectual training ended with their childhood? It is a question which vitally concerns our modern world, and one which every teacher should aspire to solve.

I will not dwell on all the obstacles which have made a national system impossible so far. The most important for my present argument has not always been recognised, namely, the lack of unity among teachers. Their organisation, their outlook, their policy have been divergent, often antagonistic. There are explanations of this phenomenon into which I will not at present enter, save to say that it has its roots in facts of national life and temper against which it is easy to rail, but not at all easy to operate successfully. For the moment all I would do is to state the fact as a fact. Progress is obstructed by disagreement, open and unexpressed, among those who claim to be experts.

Yet there are signs that we are moving towards greater unity, though in saying so I do not for one moment believe that differences are likely to disappear. I for one do not believe in an artificial unity induced by suppressing peculiarities or by curtailing free development. If all teachers *could* be made to think alike how dull and worthless their thoughts would be!

If it be asked—as it has been often asked—what common ground has the master of an East End elementary school with the head of an ancient foundation, or the teacher of gymnastics with the lecturer on the classics? I would answer this, at least, that all alike are helping to fashion the citizen of the future, and that the narrow conception of teaching as the purely intellectual training of a group must give way to a wider and more catholic view of the

training of whole men in a whole nation, and of teachers as instruments in this training, whether they work on the basic development of the intellect or on those special forms of culture which have been in the past, but surely should not be in the future, too often divorced from intellectual training.

And if a further question be asked—a question not far from the minds of many—namely, Why should we desire unity among teachers? How far will it help us in our daily work? I would point to the extraordinary diversity and inequality now existing, and to the absence in whole groups of schools of the very elements which other schools possess as a matter of course. Take, for instance, the public schools with their traditions of scholarship, their disciplined *esprit de corps*; the technical and engineering schools with their eager interest in new forces and modern developments; the elementary schools with their catholic welcome to all comers, and their amazing success in imparting some measure of knowledge and training to all; our girls' schools, with their ideas of trained intellect, of refinement, of aspiration after beauty in literature, in art, in daily life.

We can all think proudly of some schools at least where each of these ideals finds full expression. Why should they not be more widely shared and combined? Why should our faith in human nature be so weak that we doubt the possibility of these noble plants rooting side by side? Why should we expect, for instance, that interest in the things of the mind, in art, in the humanities, should be for ever arbitrarily confined to a small section of the nation or the race? Why not say with Browning:—

"I like to know a butcher paints,
A baker rhymes for his pursuit. . . ."

or ask with Wordsworth why millions should not reach "the worth and dignity of individual man . . . that glorious creature" now to be found "one only in ten thousand."

If some teachers have succeeded in most untoward circumstances in passing on to their pupils their own best gifts, if schools in which the conditions a hundred years ago can only be described as barbaric are now enlightened—if not learned—abodes, then further progress is not only possible, but almost inevitable, provided that teachers are equal in numbers, in faith, and in aspiration, to their task.

If teachers fail, whether in quantity or in quality, or in both, it will not be *wholly* because of poor salaries or hard conditions—men and women have thriven on both before now—but for want of vision, of faith, and hope.

And our schools will be doubly condemned if they send forth boys and girls with no desire to pass on to others what they themselves have received—no desire to be entrusted with work for the nation and the race. What social service can rank higher than that of training the citizens of the future? If the task of the teacher is belittled, it is partly because teachers themselves fail to realise the full scope of their task, and still more because they do not work as a "band of brothers." As tunnel workers hail their fellows working on the other side in a contrary direction, yet

for the same end, so teachers of every kind should recognise and respect each other's work. Thus unity is no mere phrase but a practical necessity—a condition of further and more hopeful progress.

There are certain influences making for greater unity among teachers at the present time.

1. The increasing opportunities for collaboration and consultation due to the Act of 1902. On education committees or subcommittees teachers of all kinds have been co-opted together, have heard each other's views, have joined hands in laying down conditions and in advising laymen, and have learnt much from each other.

2. The system of scholarships, particularly those for bursars and student-teachers, has secured a steady stream of pupils passing from public elementary schools to secondary schools with a "return flow" into elementary schools of young teachers whose training and experience has been dual. It is most important to maintain this interchange between the schools (we shall discuss this subject later), yet so to regulate it that the intellectual standard in secondary schools shall be maintained. There is a real risk lest nominal promotion should bring no substantial and permanent intellectual gain.

3. The Board of Education, and especially the inspecting staff. Even though elementary- and secondary-school inspectors are differentiated, they are in constant touch with one another, and their unifying influence can scarcely be overrated. We have sometimes had reason to dread the administrative, and still more the political, action of the Board as tending to undue uniformity and the production of such tabular results as may be most easily presented in a Parliamentary statement; but I think most heads, both men and women, would bear grateful testimony, as I do, to the inspiring and sympathetic influence of the inspectors, local and central, on the work and policy of secondary schools; and I would further express my special gratitude for that encouragement of the teaching of English which may serve the cause of unity by enabling pupils in every kind of school to use our common language with real intelligence.

4. And, lastly, a new influence, making as we hope for ever closer unity and cooperation, comes in the Registration Council and the register.

It is much that a body of teachers acknowledged as representative should be working together, under the sanction of the State, for professional purposes; it is more that they should have agreed unanimously on conditions which shall admit to the profession in future. But I look upon the Registration Council and the register as the finest weapon for the education of teachers themselves, and I hope we are in sight of better understanding, more goodwill in cooperation, more readiness to learn from and about each other than we have hitherto known.

I do not for a moment suggest that the millenium has arrived. Much more remains to be done. What do most of us know, *e.g.*, about the organisation of elementary and technical schools? How far are students in training (and the training of teachers is one of the urgent questions of the hour), encouraged

to study "what is and what might be" in our national education? How far do we as secondary-school teachers realise the difficulties created in the upper standards of elementary schools by the continued exodus of the brighter and more promising pupils into secondary and technical schools? These and other obstacles to unity still remain, and neither the Registration Council nor any other machinery will charm them away.

Unity in the twentieth century cannot possibly mean uniformity. That extraordinary complex—the modern nation—cannot be educated according to any one formula. But unity of purpose—the single determination to accomplish a great and many-sided task—will yet form a bond among those whose conception of education grows and widens until it embraces all the forces that teach, as Dante said, how man may make himself eternal, and who are resolved, since teachers they are, that no form or mode of teaching shall be regarded as alien to their common end.

ANNUAL CONFERENCE OF HEAD-MISTRESSES.

THE annual conference of the Association of Headmistresses was held at the Redland High School, Bristol, on June 12th and 13th. More than 200 members, representing above 40,000 pupils, attended. The president, Miss Robertson (Christ's Hospital) presided. The following ladies were elected to serve on the executive committee until 1918:—Miss Leahy (Croydon High School), Miss Paul (Clapham High School), Miss Whitelaw (Wycombe Abbey), Miss G. Tarleton Young (Edgbaston High School), and Miss Frodsham (St. Saviour's and St. Olave's Grammar School for Girls).

Among the resolutions adopted were the following:—

"That this conference heartily welcomes the report of the Departmental Committee (Cd. 7,365) on the superannuation of teachers, and is of opinion that the main recommendations of that report, if adopted, will prove of the greatest importance in the satisfactory organisation of a national system of education. It cordially approves of the principle laid down in the report that a system of pensions and disablement allowances should be established, as laid down in the report, for full-time teachers in State-aided secondary and technical schools, and urges his Majesty's Government not to allow any obstacle whatever to prevent the immediate carrying into administrative effect of the scheme recommended by the Departmental Committee."

"That this conference regrets the decision of the Royal Commission on the Civil Service to recommend: (a) the exclusion of women from the competition for higher posts (Class I. examination); (b) the maintenance of the hard and fast rules as to—(i) compulsory retirement in all cases on marriage; (ii) the segregation of women employed in Government Departments; (iii) rigid differentiation between the classes of women typists and women clerks."

"That this association desires to emphasise the fact that there are not sufficient data at present for any

comparison between the work of men and women, inasmuch as many able women have hitherto not had an opportunity of promotion to posts of responsibility, and with regard to the Civil Service in particular the monotonous and mechanical type of work without prospect of change, hitherto allotted to women only, impairs general usefulness and gives no opportunity for showing adaptability to varying types of service."

"It desires to endorse the view expressed by the Commissioners in the reservations to chapter x., paragraph 19, which run as follows:—"We believe that efficiency in clerical, as in other forms of labour, depends in part upon the food, housing, recreation, etc., made possible by the salary paid. For this reason we think that no fair inference can be drawn as to the efficiency of the two sexes from a comparison between the work of the existing woman clerks and that of male clerks enjoying much larger salaries. And we do not think that the evidence before us (in so far as it is based upon actual experience and not a *priori* consideration) justifies the statement, even with regard to existing facts, that "in adaptability to varying service conditions the advantage lies with men."'"

"That in schools with a regular afternoon session there should be at least one assistant-mistress to every seventeen girls. This should be regarded as a minimum; in small schools and schools working under special conditions a larger staff should be allowed."

The educational administration subcommittee of the association has prepared a letter regarding the length of holidays in secondary schools for girls, and has carried a resolution affirming the principle that the payment for a full scholastic year's work should be the full agreed annual stipend, and in cases where the year is divided into three terms, the payment for the term's work should be one-third of the agreed annual stipend, whether the assistant-mistress be returning after the vacation or not.

Papers were read by Miss Kennett on the duty and discipline movement, by Miss F. I. Ghey on home and school training during adolescence, by Miss Purdie on the influence of the direct method in the teaching of language, and by Miss Bancroft on home-work and overpressure.

The presidential address will be found on p. 261.

HISTORY AND CURRENT EVENTS.

EVERY now and then, incidents, sometimes important, sometimes small, at least to the world at large, remind us of the history of our Brito-Irish constitution and compel us to notice how obscure that history is, at least of its early beginnings. One such incident, which may be regarded as great or small according to the point of view, is the death of Mr. Silvester Horne, M.P. Mr. Horne was a well-known Congregational minister, and, therefore, though addressed commonly by the courtesy title of "Reverend," he was not a "clerk in holy orders" in the sense understood by the various laws which together make up the institution known as the Establishment of the Church. Hence it was possible for him to be a Member of the House of Commons. Why

cannot his brethren of the Established Church also attain to that position? Because in the Middle Ages there was intended to be, and was for a time, a house of clergy, at least in embryo, and because long years afterwards it was decided by the law courts that the old distinction still held good, and that a man could not be a member of both houses, even though one of them had a merely theoretical existence.

ANOTHER illustration may be gathered from the following story:—"The Committee for Privileges of the House of Lords concluded recently the hearing of the claims of Colonel A. H. Leith, Mr. C. M. Kenworthy, and Mr. R. G. Alexander to be co-heirs to the ancient barony of Strabolgi. These claimants appeared before the Committee in 1912, when their rights as to the three baronies of Burgh, Strabolgi, and Cobham were considered. The Committee said that they were prepared to report that they were satisfied with the evidence as to the baronies of Burgh and Cobham, but that they would give the parties an opportunity of tendering further evidence about the barony of Strabolgi. The question turned primarily upon whether the claimants' ancestor, the first David de Strabolgi, who was present at the Parliament held at York in 1318, sat at that Parliament as a peer. Lord Halsbury said that the claim had been made out, and the chairman announced that the committee were unanimous in adopting that view." Readers who wish to understand the bearings of this case on our constitutional history must be prepared for much stiff reading in such a book as Pike's "Constitutional History of the House of Lords." But how other things than "liberty" "slowly broaden down from precedent to precedent" in our history!

WHILE we are "trifling" here about such trivialities, what is the world doing? Think of Australasia arming against a possible invasion by Japan, of Canada and the United States of America trying to close their western seaboard against immigrants from Japan, China and the world which we call India, of South Africa trying to exclude the natives of that world and face to face with the "native" problem; of the United States and the "colour" problem in her southern states; and the conflict between Islam and Christianity in the continent from which those "coloured" people originally came; the questions of membership of either House of our Parliament appear very small alongside of these world-wide issues. It looks as if Europe were against non-Europe in all its forms, and it is not at unity within itself. Magyar, Slav, and Czech aspirations distract the Austro-Hungarian empire; Pole, Alsatian, and Dane trouble the German empire; to say nothing of the rivalries of the Powers and the chaos of the Balkan peninsula. No wonder that some are asking if "Armageddon" is approaching.

Is China once more illustrating what appear to be the rules governing the history of "republics" in countries too large for representative government to be successful even if it is possible? We know how the Roman republic, when it had overthrown Carthage and conquered the East, started on that career of

constitutional development which culminated in the despotism of the Cæsars. We are watching in our own times the strange experiences of Mexico, with its upstart presidents. We all know the history of the rise of Napoleone Buonaparte, and even in our own empire we see the tendency to one-man rule, tempered by general elections. And now we read in our newspapers:—"That the Convention appointed to amend the Chinese Provisional Constitution has completed its task. The Cabinet and Senate are to be abolished, and plenary powers are conferred upon the President Yuan Shih-kai." How it reminds us of the events of 1800-1804! A little more deliberate, perhaps, but in essentials the same.

ITEMS OF INTEREST.

GENERAL.

A MEETING of representatives of educational organisations was held at the end of May for the further consideration of the question of forming a society of education. It was considered that the purpose of the society should be to encourage research and guide educational progress. It was reported that, in response to a preliminary inquiry sent to a certain number of educational leaders, fifty-three had promised to join, and a number of other letters had been received approving of the idea of such an association. After discussion it was agreed to leave the formation of a provisional committee to the chairman, with a view to the election of a permanent committee at a meeting to be held in the autumn.

THE summer general meeting of the Association of Science Teachers will take place on Saturday, July 11th, at Girton College, Cambridge. Miss Ethel Sargent, president of the botanical section of the British Association, 1913, will read a paper on "The Geophilous Habit in Plants." Visits are being arranged to the Botanical Gardens and some of the science museums during the morning. All information concerning the association can be obtained from the honorary secretary, Miss I. H. Jackson, Godolphin and Latymer School, Hammersmith, W.

IN connection with the conversazione which marks the close of the session at King's College on Wednesday, July 1st, it has been arranged to hold an exhibition illustrative of modern methods of teaching history. Further, in order to render the exhibition as useful as possible to all London teachers and all interested in historical instruction, it has been decided to keep the exhibition open during the three succeeding days as follows:—Thursday, July 2nd (5-8 p.m.); Friday, July 3rd (5-8 p.m.); and Saturday, July 4th (10 a.m.-1 p.m.). On these three days admission will be free, and addresses will be given on various aspects of the teaching of history by Prof. J. W. Adamson, Prof. F. J. C. Hearnshaw, Mr. A. P. Newton, and Mr. A. A. Cock. Full particulars may be obtained on application to the secretary, King's College, Strand, W.C.

DR. MONTESSORI is proposing to visit England in October in order to give a series of lectures and a short course with practical demonstrations for parents

and teachers. This course will be designed to throw further light on the Montessori method, particularly with relation to its employment in this country. Prospective students and others interested should apply to Mr. C. A. Bang, 20 Bedford Street, Strand, London, for further particulars.

DURING the visit to Australia, the Education Section of the British Association will meet for three days in Melbourne and three days in Sydney. The presidential address will be delivered by Prof. Perry in Sydney, and will deal with "The Place and Function of the University in the State." The discussion on the problem is to be opened by Sir Harry Reichel. The position of the universities in relation to secondary schools is at present under discussion in Australia, and considerable importance therefore attaches to this meeting. In addition to Dr. Gray, formerly headmaster of Bradfield College, and Prof. J. A. Green, local authorities are also to contribute to the discussion. On the second day at Sydney, Prof. Netschajeff, of St. Petersburg, will read a paper on educational tendencies and experiments in Russia, and Dr. Gray will deal with "School Training for Public Life." On the third day Prof. Mackie, of the University of Sydney, will read a paper on the training of teachers, and Principal Storey, of Brisbane, one on educational pioneering in Queensland.

At Melbourne, Prof. Armstrong will deal with "The Place of Science in Education and in the State." Mr. Buckmaster, of the Board of Education, will give a historical account of the position in England, and Mr. Eggar, of Eton, will follow. Miss Clarke will read a paper on the teaching of botany in girls' schools. On the second day it is proposed to discuss vocational education. Dr. Kimmins will describe the trade preparatory schools for boys and girls in London, Dr. Moody will deal with commercial schools, the president of the Agricultural Section with agricultural education, Prof. Findlay with "The Compulsory Education of Youth," and Mrs. Meredith with "The Teaching of Domestic Science in Girls' Schools." On the third day Prof. Boyce Gibson will read a paper on moral education, Dr. Smyth will introduce the subject of "The Training of Teachers," to be followed by a discussion.

ON June 11th the President of the Board of Education received a deputation from the Teachers' Registration Council with reference to the resolution passed by the council in favour of the abolition of the Acting Teachers' Examination. The proposal of the council was that the Board should now fix a date, some years hence, after which the Acting Teachers' Examination should be abolished. In reply, the President said that he was aware of the disadvantages of the Acting Teachers' Examination, and appreciated the desirability of terminating it at some future date. He also expressed his entire sympathy with the objects of the Teachers' Registration Council. He had, however, to look at the question from many points of view, and at the present moment he had especially to consider it in relation to the serious problems which are caused by the dearth of entrants to the branch of the pro-

profession concerned with elementary schools. He did not feel able to commit himself at the moment as to any precise date for the termination of the Acting Teachers' Examination, but he threw out a suggestion that some alternative method might be introduced by which teachers entering the profession through the uncertificated grade might be enabled, after a substantial period of service, to obtain certificates otherwise than by a two years' course in a training college. The President said he would instruct his officers to go further into the matter with representatives of the council, and especially those concerned with elementary schools.

MANCHESTER UNIVERSITY has decided to establish a separate faculty and special degree in education. The regulations for this degree (Master in Education) have just been issued. They provide that the degree shall be open to graduates of Manchester or of some approved university, who have obtained the Manchester University teacher's diploma or certificate in education. In the case of Manchester graduates, a diploma or certificate of some other university may be accepted as equivalent to the Manchester diploma. Candidates must produce evidence that they have had at least one year's experience in the practice of education, and that they have proved themselves to be practically efficient. They will be required to present a reasoned account of this experience, as well as a thesis on some educational subject. Graduates of other universities will be required to spend an additional year in educational work under the supervision of the faculty of education. It will be seen that the new Manchester degree is similar in character to the M.A. in education given by London University, but differs from it in having a distinctive title. It is a welcome indication that the importance of a scientific study of education is being recognised, and also that the subject itself is taking shape as an organised body of knowledge. The regulations for admission to the Teachers' Register have directed the attention of the schools and educational authorities to the question of the professional training of our future teachers, and the institution of a specific degree for those who intend to engage in school work or in educational administration is therefore opportune. Information as to the degree can be obtained from the registrar of Manchester University.

THE annual summer meeting of the Association of Assistant-mistresses was held at the Wyggeston School for Girls, Leicester, on Saturday, June 6th. Miss Laurie gave a short account of the report of the Departmental Committee on the superannuation of teachers, and moved the following resolution, which was carried *nem. con.*:—"That this association heartily welcomes the report of the Departmental Committee on the superannuation of teachers (Cd. 7,363). It cordially approves the principle laid down in the report, that a system of pensions and disablement allowances should be established with the aid of the State for full-time teachers in State-aided secondary and technical schools, and urges his Majesty's Government to take such steps as are necessary to give effect to the scheme recommended by the Departmental Committee."

MISS LEES gave an account of the recent work of the Teachers' Registration Council. She urged members to register themselves while it was still an act of grace and not of necessity. Two alterations have been made in the regulations since the January meeting: (1) the years of grace have been extended from 1918 to 1920; (2) No. 1 in the appendix of qualifications for the permanent register now reads: "A certificate of having passed the final degree examination of any universities approved by the council for the purpose of registration, under such conditions as to courses of study and preliminary examinations as may be accepted for the time being by such university." Teachers other than members were admitted to the second part of the meeting when Mr. Hartog, academic registrar of London University, gave an address on imitation, sincerity, and imagination in English composition.

THE annual meeting of the Village Children's Historical Play Society was held towards the end of May, Lady Maud Warrender presiding. The report stated that during last year sixty-eight performances had been arranged and assisted by the society. The number of associates increased, but more funds are needed to provide more sets of costumes. A larger number of good but simple plays are required. Good progress had been made in respect of the objects of the society, the chief among which was to give scope to the imagination and dramatic faculty of children. Mr. Edmond Holmes read a paper on the dramatic instinct, in which he pointed out that it was through the exercise of the dramatic faculty that all the early triumphs of self-education were achieved. No one, he said, could see the village children at Winchelsea act plays without realising that they were being genuinely interested in history, that they were entering into the spirit of bygone ages and vanished scenes, and, above all, that they were enjoying themselves to their hearts' content. But if history is to be dramatised in this way, it is essential that everything—the play itself, the coaching of the actors and the staging—shall be of the best. "In my ideal school," Mr. Holmes said, "one historical play, such as 'Sir Thomas More' or 'Ludlow Castle' (or possibly two), would be acted every year, and for the rest, the children, though not left without help or guidance, would, so far as possible, be thrown on their own resources and encouraged to dramatise things for themselves."

ANYONE who cares to compare Circular 833 (Suggestions for the Teaching of History) with previous pronouncements of the Board of Education cannot fail to recognise the increased importance now accorded to history as a school subject. The new suggestions have been drawn up with consummate consideration, and they repay careful study. In the junior classes, importance is properly assigned to the appeal to the child's imagination, though there is no reason why the stories of Greece and Rome should be entirely unknown to them. With respect to the subject-matter for the senior classes, it is significant that greater prominence is given to the economic and social phases of historical development rather than to the political and ecclesiastical. This is as it should be. Much, too, is rightly made of the importance of local his-

tory, although the means of obtaining trustworthy local information is scarcely so simple a matter as Section 19 leads one to suppose. The remarks on method are particularly suggestive; the summing up of the discussion on the periodic and the concentric plan should prove helpful. The question of dates is sanely handled.

EXCEPTION, however, must be taken to the statement that "contemporary work (for pictorial illustration, § 26) especially is an indispensable aid at all stages." Experience has rather led some teachers to be chary of using such aids indiscriminately. They often raise more difficulties than they settle. A careful judgment must be exercised. We should certainly like to know the official view on the uses of the kinematograph and the lantern as pictorial aids; this is for some reason omitted. The dramatic method is placed in its proper perspective. That history has a moral aspect may be readily granted, yet to ascertain how far the reading of modern historical text-books, with their scientific point of view, would assist a teacher to get up sufficient moral enthusiasm to give his lessons so that they may be pre-eminently an instrument of moral training would form a profitable topic of discussion.

THE recently issued report of the Board of Education deals fully with the "very grave situation" arising from the deficient supply of teachers for elementary schools. The total number of entrants, including bursars and pupil-teachers, has gradually diminished from 11,000 in 1906-7 to about 4,500 in 1913-14. The causes of the decline are said to be: (1) the neglect of some local authorities to recruit teachers; (2) the fact that a boy or girl entering the profession by the usual avenue cannot now begin full wage-earning before, at the very earliest, the age of nineteen, and often much later; (3) the period of prosperous trade through which the country has been passing, and the consequent increase in the number and variety of other openings; and (4) the altered condition of the market for trained teachers, the greater supply not having been rapidly absorbed, and a good deal of temporary and local unemployment having resulted. The remedies proposed by the Board, after consultation with local authorities, are: (1) the development of rural pupil-teachership on improved lines so that boys and girls in rural districts, where secondary schools are not easily accessible, may still be able to enter the profession; (2) some further assistance by the State, in the form of earlier maintenance allowances, to meet the expenses incidental to preliminary education where the bursar system is applicable; and (3) the encouragement and assistance of schemes other than the bursar and pupil-teacher systems for bringing recruits into the profession. There is little doubt, as the Board says, that the second of the above-mentioned causes is the most important. The pupil-teacher of the past received a small stipend rising to about £20 in the last year of his apprenticeship. At present, the young teacher is in normal cases a charge upon the family income until he emerges from the training college; and yet the prospects in his profession are little more alluring than in former days.

THE Board remarks once more upon the slow progress made in securing an adequate length of secondary-school life. Three obstacles are particularly mentioned: (1) commercial prosperity, which still acts as a strong inducement, especially in industrial areas, for parents to withdraw their children from school early in order to become wage-earners; (2) the lack of any tradition, or any formed and recognised habit, in some districts at least, of entering the secondary school with the view of taking the full course in it; and (3) the slowness with which the mass of the nation comes to believe in education for its own sake. The average leaving age, both for boys and for girls, appears to have remained practically stationary during the period 1907-12, though, as the report remarks, in view of the exceptional pressure of the first of the causes mentioned above, the fact that the figures have not fallen is equivalent to an actual increase under more normal economic conditions. It is interesting to note in this connection that the free-place holders as a whole both enter school earlier and leave later than the fee-payers. During the period 1909-12, the average school life after the age of twelve was for boy "free-placers," three years two months, for boy fee-payers, only two years six months; for girl "free-placers," three years six months, and for girl fee-payers just a year less.

ANOTHER matter to which the Board directs special attention is the secondary-school library. Somewhat astonishing differences are recorded in the practice of local authorities with regard to the maintenance of such libraries. The London County Council generously allows each school to requisition library books up to £22-£25 a year—an example not widely followed. In some cases the adequate support of the library depends upon the skill and pertinacity of headmasters in such pious frauds as including standard works in their ordinary requisition lists, and charging the binding of library books to sundries. In other cases the staff, or the boys, or both, pay a small terminal subscription towards the support of the library. Again, it appears that not more than a third of the schools recognised by the Board can be said to possess a separate room for the library. In most schools the books are scattered about in shelves and cupboards kept in the least inconvenient place, which is often a corridor or an odd corner. In some places the neighbouring free library has been brought into close connection with the school. This plan is said to be good so far as it goes, but it signally fails when the free library is regarded as a substitute for, rather than as supplementary to, the school library. The Board gives good hints about the organisation and use of a school library. One would have thought these hints rather superfluous at this time of day. But no doubt the Board has reason to think otherwise.

THE director of the Meteorological Office, Dr. W. N. Shaw, has issued a circular (202) giving particulars as to the changes in the units of measurement adopted on May 1st last in the Daily Weather Report, and containing conversion tables from the old to the new units. Teachers of geography will be interested primarily in the change in the measurement of rain-

fall where the millimetre supersedes the inch; this change does not involve any great difficulty in comparison between former values and the new values, since the error involved in taking an inch as equivalent to 25 mm. is so small. The data for atmospheric pressure are to be recorded in centibars and millibars; centibar is equivalent to ten thousand times the absolute unit of pressure—a dyne per square centimetre. A barometer reading of 100 centibars is equivalent to 29.53 mercury inches, so that in a barometer graduated in centibars the reading 100 will occupy the position conventionally marked "change." The adoption of the centibar in schools will necessarily depend upon an agreement between the teacher of physics and the teachers of geography, and both teachers will be influenced by the pronouncements of the various examining bodies. The use of the millimetre in connection with rainfall naturally falls into line with the present use of metric units in the teaching of science.

THE "regulations" for the Cambridge Local examinations for 1915, state: "Junior candidates in French and German will in future be tested in translation from the language entirely by unprepared passages." It is probable that the present craze for simplified texts for prepared translation has been overdone. There is too much teaching after Paul or after Apollos, and too little teaching of the gospel of language. Teachers are apt to think that a language must fit their syllabus, not their syllabus the language. No doubt a "preliminary" (if preliminary examinations there must be), a "junior," a "senior" standard has to be set up in general terms; no teacher should require more than this. Consequently we welcome the new regulation as likely to abolish narrowness and cramming. A language has no regard for foreign beginners, and uses expressions which are hard for them, though simple to native babes. For this difficulty even junior candidates must be quite ready. We set little store by mathematical book-work carefully learned up, and rightly consider that the test of a candidate lies in his power to answer riders or other unprepared questions. It is well known that a carefully prepared candidate faced by a passage from his text from which a portion has been omitted, often writes out the translation of the omitted portion without noticing that the original is curtailed. A system that leads to such an end can only be described as vicious. Of course, all depends on the passages set. It is not easy to find satisfactory pieces, all the more so as several extracts should be given, not one, nor even two, long ones. But suitable passages can be found, and no doubt will be found. The change announced by the Cambridge Syndicate will help substantially the study of French and German.

THE encouragement given by the London County Council to organisers of school journeys is having gratifying results. The interesting *School Journey Record* for 1913 (157 pp.), just published by the School Journey Association, states that the number of journeys taken by London schools was ninety in 1913, as against fifty-five in 1912, thirty in 1911, and nineteen in 1910. Only eleven journeys taken by provincial schools in 1913 are recorded. Apart from their own intrinsic interest, the particulars which the *Record*

gives of the cost and details of organisation, as well as of the educational work undertaken on the various journeys, will be of the greatest value to all concerned in the arrangement of future journeys. In addition to these particulars, the *Record* contains reports of the papers read at the winter meetings of the association, as well as special articles on some of the journeys taken in 1913, accounts of the summer schools at Manchester and Leicester, and a syllabus of the London County Council lectures on school journeys. The Board of Education still declines to make any extra grant for school journeys, though the inspectors, we are told, maintain a sympathetic and helpful attitude towards the movement. The *Record* may be obtained from the hon. general secretary, Mr. Harry W. Barter, 51 Elm Grove, Peckham, S.E. It is supplied free to members; its price to non-members is 2s.

IN February last the headmaster of Bedales School delivered an address, "Co-education in Practice." The address has been issued as a pamphlet by Messrs. W. Heffer and Sons, Ltd., Cambridge (1s. net). As a result of fifteen years' experience, Mr. Badley affirms his belief in the value of co-education. His pupils number 125 boys and 75 girls, of ages between seven and nineteen; the boys are maintained, by deliberate intention, in greater number than the girls, since co-education is a misnomer when applied to the schools where there are many girls and comparatively few boys. In Scotland, 70 per cent. of the public secondary schools are co-educational, and in the United States the teachers of the Centre and West are enthusiastic for co-education for its own sake, although in the East the existing tendency to separation of boys from girls is due largely to differences in wealth and social position, and to the excessive numbers of pupils in the public schools. Boys gain, up to the age of fifteen, an intellectual stimulus from the presence of girls in the same class; a girl gains a sense of greater freedom. Boys and girls do not play the same games; co-education does not mean identical education. There is no reason why a boy in a mixed school should not play football as hard as in a school for boys only. Up to the age of fifteen or so, there is no reason to think that much difference need be made in the treatment or work of boys and girls, but after that age it is to the advantage of both sexes that they should begin to specialise to some extent along their own lines. The pamphlet deserves the study of all teachers; those in separatist schools in order to find out what their pupils may miss, and those in mixed schools to see that they are obtaining the best results. The pioneer has much to say on questions which vex the minds of the moral educationists, and such troubled personages can be referred to his pages for a sane and healthy view of matters which go to the root of sex relationship.

THE examiners for the Pupil Teachers' Examination for the Cape of Good Hope remark on the errors which they have met. "Contraction in arithmetic is a means to an end and the end is missed if the means are used only when they are explicitly demanded. It seems necessary also to point out the want of sanity in the matter of answers and results. The cost of

paving a small courtyard at about 3s. a square yard varied from 4d. to hundreds of millions of pounds. The height of a tank was given in one case as something between six and seven miles. . . . Another weak point was the frequency of such statements as 'Vineyards are grown here,' 'Sugar plantations are one of its chief products.' . . . The ignorance displayed regarding Rhodesia was appalling; some answers indicate an astonishing neglect of local observational work. One candidate described the finding of a native whom Crusoe called Friday, and went on: 'next day he discovered another whom he called Saturday.'

THE Department of Public Instruction for New South Wales has issued a booklet, "Three Years of Education," which is illustrated by photographs showing the various types of schools, and describes the progress recently made in education. "Boys and girls, of whatever class, creed, or station, even those living in the most remote parts of the State, may reach the University." From the provisional school, established it may be in a deserted miner's hut, to the bush school, and the district school at the local large town, on to the high school, and finally to Sydney University the child's progress is mapped out. "It is possible for any boy or girl attending a bush school to win a bursary worth £30 a year, and thus to attend a district school for two years, and then a high school for another two years. At the end of the high-school course, the pupils pass the leaving certificate examination, which enables them to enter the University." Two hundred State exhibitions, which exempt the winner from payment of University fees, are open for competition each year.

IN *School Science and Mathematics* (vol. xiv., No. 5) for May, 1914, a contribution on the relation of biology to human welfare urges the importance of biology as a subject of instruction in schools. The average man in his work daily needs a little arithmetic, a little of English grammar, and history; but he is living the whole time, and necessarily should be observing always the laws of hygiene and sanitation. The article proceeds to urge also the great importance of carefully imparted knowledge in sex hygiene—a subject which has been discussed previously in the same publication. The writer of a plea for more effective science teaching advocates the advantage of thoroughly practical experiments in the physics laboratory, instead of the simple orthodox experiments so frequently found. In vol. xiv., No. 3, the problem of the loaded table was discussed and worked out. In this problem, a table of given dimensions, with four legs, is loaded with a given mass at a stated point near to one edge, and the pressure on each leg is to be determined. The solution assumes that the floor is not perfectly rigid. In the current number two further solutions are given, and the full discussion constitutes a valuable contribution. The use of a red light as a danger signal is almost universal, but the reason for this colour having been selected is difficult to find. An article directs attention to the unfortunate selection of red in view of the peculiar frequency of red colour-blindness. Yellow and blue are recommended instead of red and green.

SCOTTISH.

THE newly issued report on education in Scotland for the year 1913-14 records continual progress in meeting the conditions created by the Act of 1908. The local authorities have in the main risen to the wider conception of their duties, and are tentatively but strenuously endeavouring to find out the best way to deal with the new situation. For the second time the report shows a decrease in the numbers on the school roll. This, it is pointed out, is probably due to the decline in the birth-rate, and to the great trek towards the West that has marked the past four or five years. The report directs attention to the great increase in the cost of school buildings which has taken place in recent years. This is due to the increased cost of labour and to the higher standard that has been set up in regard to accommodation and equipment. In regard to the question of compulsory continuation classes the report states that school boards have been very slow to exercise the compulsory powers granted to them by the 1908 Act. Only eighteen school boards have adopted by-laws making attendance at continuation classes compulsory. These, however, are representative of all parts of the country. It is satisfactory to find that in all these cases the compulsory powers have been exercised without occasioning any friction. In several instances the cooperation of local employers of labour has been secured, and young employees have been set free from the factories at 4.30 p.m. to enable them to get their instruction over by seven in the evening.

THE fourth Secondary Education Congress was held this year in Glasgow University. Dr. Andrew Thomson, Perth Academy, presided over an attendance representative of all parts of the country. Mr. J. Ramsay Macdonald, M.P., delivered an address on the place of secondary education in a national system. Mr. Macdonald said that the most fundamental error in regard to education was the assumption that the elementary school was something in itself. But just as half a watch was no watch at all, so half education was no education. The fact was that elementary education only prepared for education. If we stopped at it we were like husbandmen who had laboured, ploughed, and harrowed the ground, but omitted to plant any seed in it. Elementary education merely brought pupils up to the edge of the wider world, and then left them without compass or guide. Our whole educational system needed radical amendment. Beginning with the elementary school and ending with the universities, it required to be vitalised and strengthened. Most of all, perhaps, did it require strengthening in the middle, in the sphere of secondary education. He deprecated, however, drawing any hard-and-fast line between elementary and secondary education. A school where elementary subjects alone were taught was a bad school, because it lacked the educational atmosphere, and both teachers and pupils were stunted by it and in it.

THE spring meeting of the Classical Association was held this year in the hall of the United College, St. Andrews. The Rev. Dr. Heard, Fettes College, in his presidential address, said that they met as an associa-

tion, not merely to reiterate their belief in the value of classics in education, but to bring together in practical conference all persons interested in classical study, and also to provide communication and comparison of view between universities and schools. Dr. Heard went on to say that his experience in England had shown him that the universities were well fitted to exercise a healthy and invigorating influence on higher education in schools. On coming to Scotland he was struck with the lack of cordiality between the higher schools and the universities, but he was delighted to find that largely through the influence of the Classical Association the old antagonism had quite died out. Miss Bentinck-Smith, headmistress, St. Leonard's School, afterwards read a paper on the classics in girls' schools. Miss Bentinck-Smith showed no little courage in coming before a Classical Association to enter a strong plea for eliminating Latin and Greek from the curriculum of a girls' school, except in the case of those who were going to continue their studies at a university. The thorough study of the classics could only be secured, she maintained, by dropping from the curriculum sewing, drawing, dancing, and music, not to speak of English literature and French and German conversation. This was too high a price to pay even for so fruitful a subject as classics.

AN educational conference under the joint auspices of the Edinburgh Provincial College Clubs and the Moray House Club, was held in the new training college buildings. Dr. John Gunn presided over a large attendance. The first subject of conference was "Experimental Work in Education and its Relation to Work in the Class-room." Mr. Wm. Scott, Peebles, in introducing the subject, said that experimental pedagogy was only beginning to make itself felt and heard in Scotland. One of the first lessons it taught them was that pupils' errors were more often due to flagging attention than to carelessness. Mr. James Drever, Edinburgh University, laid emphasis on the two following points:—(1) The need for raising practical work from the empirical to the rational level; (2) the linking up of the work done in the class-room with the work done in the pedagogical laboratory. The next subject discussed was the junior student system. Mr. Thomas S. Glover, North Berwick, said that while at first the numbers coming forward as junior students were very large, and made selection a real thing, now they had fallen off to a considerable extent, not through the elimination of the weaker candidates, but through the growing repugnance of the better pupils to the uniformity and rigidity of the course. Dr. Alex. Morgan said that there was no doubt that the junior students were overdriven, and this was a matter that would have to be faced in the immediate future.

THE annual report of the director of studies to the Glasgow Provincial Committee shows that the total number of students-in-training for the year ending June, 1913, was 1,016 for the elementary-school certificate, and 51 for the secondary-school certificate. The number of students who took a more or less complete university course was 181, made up of 166

men and 15 women. In addition, there were 94 students who had completed a full graduation course and came up to the training college for professional training only. It is disappointing to find that the number of university students has decreased in the case of men by 119 and in the case of women by 238 since 1908. On the other hand, it is satisfactory to find that the number of students-in-training as teachers of higher subjects has increased by 50 per cent.

IRISH.

THE Intermediate Board has this year published its rules and programme for next session (1914-15) in good time, a welcome improvement on the practice of the last few years. Another welcome improvement is the rare fact that the new rules contain no new departures. This does not, however, mean that they are generally approved. The rules for 1914 introduce new methods for the awarding of prizes and exhibitions on the results of the examinations which have only just been held, and if they are not changed for 1915 it cannot be argued that they are therefore sound, as they have not yet been tested. As a matter of fact, prizes, and exhibitions will this year be awarded on more specialised courses than ever before, and, as schools exist to give a good general education and not to train specialists, this *modus operandi* is *ab initio* unsound.

Apart from this, the new rules incorporate some changes which the Board has introduced since the 1914 rules were published. Thus to be eligible for awards in any of the four groups, students must obtain honours in only one other subject outside the group. And again, the new rules include those regulations with regard to the payment of fees dependent on the results of inspection of students between the ages of twelve and fourteen which were issued separately early in the present year. With regard to these regulations, it is certainly a matter of regret that they embody an altogether new and complicated principle with regard to the number of attendances made by students, and one which is in striking contrast to the old-established rule of the intermediate system, that a student is qualified by making 100 attendances between October 15th and May 31st.

THE programme for 1915, like the rules, runs on lines similar to the present year. Only one or two of the set books call for remark. That which will certainly meet with most disapproval is Jane Austen's "Pride and Prejudice," which is set for junior grade students. In the senior grade English course the prose book is Fisher's "Napoleon," which is an historical, rather than a literary work. It is also strange that both in 1914 and 1915 the commissioners, some of whom, including the chairman, are distinguished classical scholars, have avoided in the senior grade the great Greek prose writers Thucydides, Demosthenes, and Plato. In 1914 they prescribed two speeches of Lysias, and in 1915 Xenophen's "Agesilaus" (which is misspelt Agesilas). The latter is certainly a poor selection. The commercial course remains as in 1914, when it was first introduced.

THE grievance felt by a certain number of students in Ireland that it is no longer possible under the National University, as under the old Royal University, to obtain degrees merely by examination, has led to an agitation for holding lectures in the evening, so that students who are occupied in the daytime should be able by attending them to count as residential students, and so be enabled to obtain degrees. There are clearly difficulties in complying with this demand, but if there are students who, being obliged to earn their living in the daytime, are prepared to spend their evenings in university work, it is worth while for a new university to consider the practical possibility of taking the democratic steps which would enable the experiment to be tried as to whether it could open out its degrees in this direction. The Corporation of Dublin seems willing to encourage the idea, and the Association of Secondary-School Teachers is supporting it.

THE Corporation of Dublin has taken up a liberal attitude towards the National University. Besides giving scholarships every year, it has endowed a professorship of municipal history, and a professorship of Irish music, and it is now proposing to endow a professorship or lectureship in fine arts.

THE Department of Agriculture and Technical Instruction offers this summer a limited number of scholarships for young men who desire to acquire a thorough knowledge of technical agriculture, and one or more scholarships for students specialising in horticulture, forestry, or creamery management. The age-limits are eighteen and thirty on September 1st, 1914. The examination will commence on August 12th, and the last day for receiving applications is July 30th. The Department has also issued the programme for the session 1914-15 of the Albert Agricultural College at Glasnevin. The college provides two courses of instruction—one in horticulture, and the other in agriculture. The session opens in October, but intending students should send in their names not later than August 15th. The spring number of the Department's *Journal*, besides containing records of various interesting experiments in agricultural work (among others, one dealing with sugar-beet in different parts of Ireland), in the fifteenth of a series of articles dealing with some recently established Irish technical schools, deals with the newly erected technical school at Navan. The school has four courses—i., introductory; ii., commercial; iii., woodwork and applied science; and iv., domestic science. The last three are for three years. The number of students is 160.

WELSH.

ANOTHER generous gift for educational purposes has to be recorded. Aberystwyth College has received from an anonymous donor the promise of £3,000 a year for the next five years, to enable the College to start a school of instrumental music. It is intended to open the school in October, and to give public concerts in various parts of North Wales.

By the aid of grants from the Development Fund, considerable progress has lately been made in the

provision of agricultural instruction in North Wales. Bangor University College has possessed an Agricultural Department for nearly a quarter of a century. Its two divisions of agricultural chemistry, under Mr. G. W. Robinson, and agricultural botany, under Dr. Lloyd Williams, have been provided with well-equipped laboratories in the College; and Mr. R. N. Jones was last December appointed Live Stock Officer, to advise farmers as to carrying out the Board of Agriculture's plans for the improvement of stock. Beside this, an increased expenditure by the County Councils of Anglesey, Denbigh, and Flint has led to increased grants from the Development Fund; so that it has been possible to appoint an Organiser of Agricultural Instruction in each county, in cooperation with the College; dairy work and poultry-keeping are also provided for, both by travelling instructors and by the dairy school at Llewenni; and a travelling teacher of horticulture has been appointed for the counties mentioned, as well as for Carnarvon, which possesses its own farm school at Madryn Castle.

THE sum of £45,505 has now been subscribed to the National Library Fund, of which £1,341 was collected in Liverpool, and £8,185 is the result of Mr. Lleufer Thomas's campaign in South Wales. A valuable collection of manuscripts relating chiefly to the topography and genealogy of North Wales has been purchased from the trustees of the late Mr. R. H. Hughes, Lord-Lieutenant of Denbighshire, of Kinnel Park, near Abergele.

CONTRACTS for the part of the National Museum which is first to be built have been let to the amount of £108,000, and a further sum of £125,000 will be needed for the completion and equipment of this section. Mr. David Davies, M.P., of Llandinam, and his sisters have given £5,000, which entitles the Museum to an equal amount from the Treasury; £62,000 is still needed, and an appeal for this amount is soon to be made. The Prince of Wales has directed that the regalia used at his investiture at Carnarvon shall be deposited in the Museum.

The County Schools' Association (Headmasters and Headmistresses) has passed a resolution strongly disapproving of the proposals to interfere with the complete liberty of the schools to provide post-senior courses for their pupils. It has also expressed the opinion that the time is not ripe for the abolition of the Junior Certificate.

DENBIGHSHIRE elementary-school teachers are continuing their campaign for a salary scale and better pay. There is much discussion in the Education Committee as to how they should present their case. If they can substantiate the statements made in a local paper that (1) "The great increase in the cost of education has not gone to increase teachers' salaries," and (2) "The teachers of Denbighshire are amongst the worst paid in the whole of England and Wales," this would seem to be case sufficient, without cavil as to whether they should quote special grievances or confine themselves to general principles in urging their request.

THE Board of Education Report on the Summer School held at the Aberystwyth University College from July 28th to August 22nd, 1913, gives an account of the rise and progress of the school from its inception in 1909. The numbers of grant-earning students in its first five years have been 81, 84, 101, 117, 146; of the last of these numbers, 20 were from England, all but 10 were teachers, and 37 had attended the school in one, two, or three previous years. The work undertaken was chiefly concerned with the improvement of teaching methods and outlook; the chief courses were on the pedagogy of handwork, kindergarten methods, woodwork, educational handwork, art, needlework, rural science, and geography. We quote one sentence from the report: "The School is doing excellent work in improving the quality of teaching of various subjects in bringing before the students higher ideals to be aimed at in their daily work, and, above all, in helping them to feel that the real teacher is a student whose training is continued through his life."

A COMPANY under the management of Mr. Ted Hopkins has been performing short sketches and plays in Welsh and English, dealing with Welsh life and character. This is a tangible result of the movement for a national drama, for which Lord Howard de Walden has done so much. The company's repertory includes six plays, the chief one being *Change*, a story of Glamorgan life; they are playing for a week in each of the large towns of South Wales, and intend to visit the whole Principality. They have had appreciative though not crowded audiences, and in spite of some weaknesses in stage-craft and literary form, probably inevitable at the beginning of such an enterprise, there is a general agreement of opinion that these performances are a worthy beginning of a national drama that will give a true portrayal of Welsh life and character, and that the movement is full of promise.

EDUCATIONAL IDEALISM.

By A. E. CRAWLEY, M.A.

The World Set Free. By H. G. Wells. (Macmillan.) 6s. net.

MR. WELLS is the best and sanest of modern prophets; and in his latest Utopian "story of mankind" he has surpassed himself. "The World Set Free" is the most brilliant, the most creative, the most artistic, and at the same time the most simple, of all his visions of the days to come. Incidentally he identifies the scientific discoverer with the dreamer and the story-teller, or at least one species of story-teller—a naïve apology for his own work. But the idea which constitutes the form of the book, based as it is on Mr. Soddy's "Interpretation of Radium," is within the bounds of possible realisation. This is the subjugation of radio-activity to human purpose, and the development of endless applications of mechanical power and motive force by means of atomic disintegration—the infinite explosive capacity of the atom. This development is pictured with the author's finest art, and it culminates in the invention and world-destroying exploitation of a terrible "atomic bomb," the explosions of which are indefinitely continuous. The disintegrator is termed *Carolinum*, and scientific

investigators should test the idea as once they tested Mr. Wells's *Cavorite*. The result of its anti-social use by armed nations in universal war and destruction leads to a reconstitution of the world in "the Modern State," which is the whole human race under one Government.

The substance of the book is the problem of the best use, both by individual and by race, of intellect, discovery, and achievement in the material sphere. The solution lies in the spiritual sphere, the development of the soul of the people. It is here, of course, that the author's dialectic is concerned with education.

Practically, he revives the old Greek principle that the essence of government is education. He puts it that education is "the necessary reciprocal of government." The eternal problem of individual *versus* State is changed and simplified when the State and the race are one. He believes that social forms have inertia, and that the collective consciousness is always in advance of institutions. For instance, there is the law, its procedure and ceremony; "the law," says one character, "is the most dangerous thing in this country. It is hundreds of years old. It hasn't an idea; the oldest of old bottles and this new wine, the most explosive wine"—for atomic force had changed every material human concern, war, lighting, transit, building, agriculture. There is also a certain inertia even in the social consciousness, in a part of it. For a century after the inception of the modern era of scientific discovery, there was an "extraordinary mental resistance to discovery and invention."

In the case of the school itself this phenomenon was even emphasised. At the end of the nineteenth century "education was unskilled, unstimulating, scholarly, and but little valued." It might be put as an axiom that the school tends in every age to a condition of scholasticism. A special case is that of classical education—"the older so-called 'classical education' of the British pedagogues, probably the most paralysing, ineffective, and foolish routine that ever wasted human life." There was "an Oxford don who seemed to think a Greek sentence a charm when it was a quotation, and an impropriety when it wasn't."

The problem before Karenin, the author's world's minister of the education of the Modern State, was "we have still to discover education." It was to be the final cause of Government, and in relation to the new material order, in which the collective control of the race possessed in the new physical forces unlimited possibilities of material welfare. For, from the beginning, "the history of mankind is the history of the attainment of external power." Two aims are at once discerned; the stimulus to energy, in special relation to material activity, research, exploitation, invention, discovery; and the stimulus to social interaction. It is the schoolmaster's business to encourage and inspire both of these. The author says more, and in more subtle, artistic fashion, of the latter. He traces somewhat sketchily the way in which mankind has gradually become "more social and tolerant and amenable," and has made it his aim to grow into "larger and larger societies." Bismarck, the political heir of Napoleon, the man of blood and iron, was after all "just a beery, obstinate, dull man. Indeed, that is what he was, the commonest, coarsest man who ever became great. I looked at his portrait, a heavy, almost froggish face, with projecting eyes and a thick moustache to hide a poor mouth." That is an instance of the author's gift of divination, and it is a lesson to the vulgar hero-worshipper.

The national idea burked the development both of human universalism and of education. With the institution of the "Modern State," i.e., the world under one Government, education is simplified, and its ends

made clear. "The new Government early discovered the need of an universal education to fit men to the great conceptions of its universal rule. . . . It proclaimed as if it were a mere secular truth that sacrifice was expected from all, that respect had to be shown to all; it revived schools or set them up afresh all around the world, and everywhere these schools taught the history of war and the consequences and moral of the Last War; everywhere it was taught not as a sentiment, but as a matter of fact, that *the salvation of the world from waste and contention* was the common duty and occupation of all men and women." "Not as a sentiment"—this proviso is significant.

The economic foolishness of war and of waste is brilliantly touched upon in side-scenes. Seldom have the highest purposes of education been more finely expressed than in these words from the "memorandum to the teachers" of Karenin:—"Education is the release of man from self. You have to widen the horizons of your children, encourage and intensify their curiosity and their creative impulses, and cultivate and enlarge their sympathies. That is what you are for. Under your guidance and the suggestions you will bring to bear on them, they have to shed the old Adam of instinctive suspicions, hostilities, and passions, and to find themselves again in the great being of the universe. The little circles of their egotisms have to be opened out until they become arcs in the sweep of the racial purpose." And so at last, in the author's vision, "every good thought contributes, and every able brain falls within, that informal and dispersed kingship which gathers together into one purpose the energies of the race."

HOLIDAY WORK IN NATURE STUDY.

(1) *Trees and How They Grow*. By G. Clarke Nuttall. xii+184 pp. (Cassell.) 6s. net.

(2) *Flowerless Plants: How and Where They Grow*. By S. Leonard Bastin. xii+152 pp. (Cassell.) 6s. net.

(3) *The Story of Plant Life in the British Isles*. By A. R. Horwood. xiv+254 pp. (Churchill.) 6s. 6d. net.

We are all nature students, to the best of our ability, during the summer holiday, if at no other time; and those who for the rest of the year neither know nor care to know a pine from a spruce, a wild pansy from a speedwell, or one sea-weed from another, usually feel more than willing to do a little mild botanising when they come to close quarters with these plants on the mountain side, the golf links, or the seashore. It is then, in the absence of a botanical friend, that such books as those mentioned above are specially welcome.

Mr. Nuttall's book on trees (1) provides exactly the desirable blend of botanical fact, folklore, and pertinent gossip generally. The book is quite free from the smug garrulosity which one has unhappily learnt to associate with books on holiday botany, its style being, on the contrary, both pleasant and dignified. It provides plenty of material for the serious student, and the avoidance of unnecessary technicalities makes it possible for the rawest beginner to gain from its descriptions and illustrations a nodding acquaintance with practically all the trees to be found in Great Britain. The notes on the derivation of the names of the trees, and the quaint extracts from Gerard, Culpepper, and Evelyn, are all worth attention, and will be welcomed. The book is attractively got up, and contains 134 illustrations from photographs by the author and fifteen autochromes by H. Essenhigh Corke. Unfortunately it is without index.

It is a pleasure to find in Mr. Bastin's book (2) a

trustworthy yet simply written account of a group of plants which is not ordinarily dealt with except in the technical phraseology of advanced text-books. Most botany books for general readers ignore the flowerless plants altogether; the exceptions usually give a more or less garbled account of ferns only. Here, however, the beginner will find interesting and intelligible descriptions and good illustrations, not only of ferns and their relatives, but also of mosses and liverworts, sea-weeds and their fresh-water kindred, and fungi and lichens. Amateurs to whom this is unexplored ground cannot do better than accept Mr. Bastin's guidance to a particularly attractive department of botany. The book contains four autochrome plates and seventy-nine illustrations from photographs by the author.

Mr. Horwood (3) describes selected types of the common natural orders of flowering plants. The book is illustrated by seventy-two reproductions from photographs, nearly all of which will help appreciably in the identification of specimens. The plants considered are arranged according to natural orders, and emphasis is laid throughout on classification, so that nature students using the book will from the first associate closely related plants. The style is interesting, though the language is often unduly technical for a book intended to attract beginners. We have noticed a few slips; these can, however, be corrected easily in future editions, which the book certainly deserves to reach.

THE COMPOSITION OF THE ILIAD.

The Composition of the Iliad: an Essay on a Numerical Law in its Structure. By Austin Smyth. viii+226 pp. (Longmans.) 6s. net.

So many books have been written about the Iliad that one might imagine that nothing new could be said; but Mr. Smyth has found something new, and, what is more, he has said it with a frankness so engaging, even directing attention to weak points, that he wins the reader's sympathy and keeps it. Whether he is right is another question; but there is no doubt that he is fair.

Mr. Smyth examined the Iliad to see whether it fell into sections or cantos of similar length; and by fixing certain points as the necessary beginnings and ends of such cantos, he found that a large number of them appeared to contain 300 lines or thereabouts. His surprise was great when he found that in most cases the extra lines above 300 might be removed, without touching any that had not been questioned by competent critics; and he has consequently satisfied himself that the Iliad was composed in forty-five cantos of 300 lines each. This does not account for the whole of the poem; and one weak point in the theory is in his manner of dealing with this remainder. Another is that he has to transpose certain passages to make his cantos come out right. Thus the Theomachy in xxi., 385-514 is placed between 155 and 156 of xx.; the scene with Thersites, ii., 211-78, is placed after 98. No doubt they fit in very well as transposed, but that is not the point; why were they ever displaced? The Lay of Dolon goes bodily; but it reads admirably in the story where it is, and, in fact, it has been successfully defended on its merits, both by Lang and by Shewan. And all Nestor's tales of his youth go bodily. The old man garrulous, whom we all love and smile at, becomes a capable warrior, no doubt more useful to Agamemnon but not equally dear to us.

But in spite of all the interest of the book, and the cleverness of its author, we cannot see that the real objection to the theory has been met; indeed, it has not even been seen. Why should a poet write forty-five cantos all exactly of the same length? It is not

necessary for remembrance; for there are schools of traditional poetry still in India, where long poems or books of poems are learnt and said word for word through generations. The Artharva Veda is so transmitted; and the poems of that Veda are of all lengths, of different metres, and abstruse in subject. And why should the poet fix on 300? We did not realise the force of this thought, although it had occurred to us, until Mr. Smyth casually remarked that he had found the same cantos in the Odyssey, but then they were 450 lines long. We doubt in any case whether any great poet has ever needed such a plan. But we hasten to add that this book is well worth reading. Many useful literary criticisms are uttered from time to time; and the tables disclose some new points. Thus it appears from p. 185 that no two of the forty-five cantos begin in the same way. There are also some good remarks on the question, why Achilles had to reject the embassy.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Flowers from the Fatherland. Transplanted into English soil by A. M. Everest. 160 pp. (Macdonald.) 3s. 6d. net.—We have here a number of German poems by many authors, translated with evident pleasure and often considerable success. It is largely a matter of chance whether a foreign lyric admits of "transplanting"; it depends largely on the available rhyming words. In the case of translating from German there is a special difficulty: the English equivalents of many German words of two syllables (*Blume, Wolke, Welle*, etc.) are monosyllables in English, which explains the frequency of *floweret, cloudlet, streamlet*, in translations from German. Even one who knows the originals will take pleasure in the translator's skill in rendering Bodensiedt's "Only a Song," Müller's "Vineta," and "Maiden of Athens," Heine's "Star of Love," Sturm's "Retrospection," and others; and those who know no German will be able to derive some idea of German lyric verse from this pleasant book, which, in addition to shorter poems, includes some of the best-known ballads by Goethe, Schiller, and Uhland.

Easy French Phonetics with Reader and Exercises. By G. Soullier. 55 pp. (Relfe.) 1s.—This is a convenient little book for beginners, and should do good service in laying the foundation of a good French pronunciation, in the hands of a competent teacher. As Mr. Litt, headmaster of the Monnow Road Central School, says in the introduction, the book is manifestly "the outcome of the actual experience of a successful teacher." The remarks about "vowels and consonants" start badly, for "whispering" is given as the alternative to "voice"; it is incorrect to say that breath produces whispering when there is no vibration of the chords. Also, "unvoiced" is better used in the sense of "devoicalised" than of "voiceless." Apart from this, the section is generally sound, though scarcely full enough; indeed, so much remains to be supplied by the teacher that such explanations as are given might have been omitted, and the exercises alone retained and perhaps expanded. Part ii. contains "easy lessons for beginners"; they are brightly written and for the most part in the form of dialogues. A few questions are added here and there, but there are no regular exercises; the booklet must be regarded as supplementary to some first course. Part iii. deals with the "transition to ordinary spelling"; it gives examples of the various ways in which the sounds are spelled in French, but takes

account only of isolated words, and gives no help with regard to the difficulties presented to the beginner by the silent letters in inflections (*elle est jeune, elles sont jeunes*, etc.) The proof has been read with much care, and we have noticed not more than half a dozen misprints.

Schiller and his Poetry. By W. H. Hudson. 191 pp. (Harrap.) 1s.—We are delighted to find that Prof. Hudson is extending the scope of his admirable series to include the poets of foreign lands, and that he has himself written the volume on Schiller. For he is a scholar and a critic of wide sympathies and excellent judgment; this would be clear if he had written no other book than his admirable "Introduction to the Study of Literature." Prof. Hudson tells the story of Schiller's life in such a way that the poems are all fitted into their proper frame, and that we close the little book with renewed appreciation of the poet and sincere gratitude towards the exponent of his work.

Classics.

Gaii Iulii Caesaris et Auli Hirii commentarii rerum in Gallia gestarum ex recessione T. Rice Holmes. (Oxford: P. H. Lee Warner. Mediceæ Societatis Librarium Londini MDCCCXIII.) xii+252 pp. £1 1s. net boards; limp vellum, £1 11s. 6d. net; printed on vellum, £2 1 net.—This type seems to be made for the Latin language; it is delightful to read, and the blank spaces give just the right relief to the eye. Scholars may well be proud of the new row of old friends, clad in such dignity, as they survey them standing upon their shelves. We hope the Medici Press may be well rewarded for its enterprise. If it would only extend its energies to Greek, and produce a new type both beautiful and legible on the lines of the best papyrus!

A Selection of Latin Verse. Edited by the Instructors in Latin, Williams College. 134 pp. (New Haven: Yale Press; Oxford: Clarendon Press.) 3s. 6d. net.—This book deserves the teacher's attention for its range; it begins with Ennius and ends with rhymed verse, about fifty pages being compiled from authors later than Ovid. With such a range it is difficult not to be interesting, and easy to be fresh. The Ennius includes three long pieces and the most famous short ones. Lucretius and Catullus come out well in selections; from Catullus we have twenty-seven pieces. Some of Virgil's minor poetry is given as well as good parts of four eclogues and two pieces from the Georgics. From Horace are given eighteen odes and the satire *Ibam forte*. Other classical authors are Tibullus, Propertius, and Ovid. There are several fables from Phædrus, some anapæsts and lyrics from Seneca, a little Juvenal, Lucan, and Statius, a good deal of Martial, Pervigilium Veneris, and pieces by Hadrian, Florus, Pentadius, Tiberianus, Pompilianus, Ausonius, Modestinus, Claudianus, Arianus, Phocas, Boethius, Innocent III., Thomas a Celano, and Xystus Betulius Angustanus. If some of these are only names to the readers, as we confess some were to us no more, they will be agreeably surprised at the quality of the verse. We have not found any of it dull, and the book is likely to be an incentive to reading. There are no notes; it is a pity that the dates of the writers were not indicated, and that is all the fault we can see. The print is clear.

History.

We have received the April-June number of *History*, our quarterly contemporary, which all teachers of the subject should obtain regularly and read. The articles improve in value with each issue. This instalment contains, *inter alia*, the story of a simple episode in the career of Warren Hastings, a story which

should go far to destroy the pernicious influence of Macaulay's reproduction of the speeches of the prosecuting counsel in the notorious impeachment, help us to understand the importance of the short record that "he was acquitted," and make those three words outweigh all the abuse of the young writer's too well-known "Essay on Warren Hastings."

The Establishment of Minimum Rates in the Chain-making Industry. By R. H. Tawney. xiii+157 pp. (Bell.) 1s. 6d. net.—In this little book are set forth, under the auspices of the Ratan Tata foundation in the University of London, and as the first of what is intended to be a series of "studies on the minimum wage" the results of an inquiry into the working of the Trade-Boards Act of 1909. It is a very thorough piece of work, and for those who are unable to follow all the details, a "summary and conclusion" is given on pp. 130-31. If other members of the series are as well done as this there will be easily available a body of information on the working of economic laws under control of legislation which should make us wise for the future.

A History of England. By R. McWilliam. Vol. i., to 1603. 283 pp. Vol. ii., to the present day. 287 pp. (Pitman.) 2s. each.—Mr. McWilliam tells the story in each of his volumes under four headings: (1) the Royal Line and the Growth of the Empire; (2) Parliament, Law and Justice; (3) Religion and Learning; (4) the Condition of the People. It is a bold experiment in so small a book, and we cannot say it is successful. Its defects are not so obvious in the first volume, for in the Middle Ages it is possible, though with loss, to pigeon-hole information under these headings, but for the seventeenth century, when religion was politics, and politics religion, the result of the divorce between sections (2) and (3) is simply disastrous, especially as the subjects are treated in the order indicated above. To tell the story of the struggle between Charles I. and his Parliaments without reference to religion, and then to treat of English religion and learning without the story of the politics of the time necessarily results, as it does in this book, in a series of short unconnected paragraphs which are a weariness to read and impossible to learn.

The Story of King Robert the Bruce. By R. L. Mackie. 255 pp. (Harrap.) 1s. 6d.—The story of Robert Bruce is told in this little book in the usual interesting way, there are sixteen pictures and plenty of "conversations." But that which differentiates it from others of its kind is the presence of an introduction of some thirteen pages, giving an account of the sources for the history and of the writers thereof, incidentally telling, too, why some of the legends about the Bruce are not authentic and are therefore omitted. Would that other authors would follow this example!

Geography.

The Statesman's Year-Book, 1914. Edited by Dr. J. Scott Keltie. 1500 pp. (Macmillan.) 10s. 6d. net.—"The Statesman's Year-Book" has now reached the fifty-first year of its publication. Year by year the various changes due to political movements, to industrial progress, and to commercial activity have been duly recorded in such a way that the ordinary reader has been able without difficulty to gain a clear idea of the course of events. The information, compiled from official sources, or written by competent authors, has always been accurate and trustworthy. In the present edition these characteristic features are retained and others added. Statistics are given with regard to the redistribution of territory in the Balkans, as well as the area and population of the Balkan States before

and after the war; a clearly drawn map showing the new frontiers according to the treaties of London, Constantinople, and Bukharest fully illustrates the present political divisions in that part of Europe. The constitutional changes in Egypt have been noticed, and the important rearrangements in Nigeria have been recorded. The articles on Turkey and China have been revised and to a large extent rewritten. The route of the proposed inter-continental railway in America is shown by means of a map; this railway would connect the Argentine railway system with that of the United States (*via* Central America), thus affording a means of communication by land between Buenos Aires and San Francisco. Many other examples might be given of the thorough way in which the editor and his assistant have done their work; the result of their labours is to make the year-book as indispensable as ever, not only to the statesman, but to every citizen who wishes to be well-informed.

Scenic Studies of the Bible Background. By S. M. Nicholls. 130 pp. Maps and photographs. (Longmans.) 3s. 6d. net.—Miss Nicholls was the Frances Mary Buss travelling scholar in 1911, and this book is a product of the use she made of the scholarship to investigate the geography of Palestine on the spot. Many of us have seen and admired the photographs which Miss Nicholls brought back, and more of us will enjoy this text, which is a discussion of twelve of the more important pictures in relation to the Bible story. Mrs. Bryant contributes a preface in which she writes:—"But to realise scenic background effectively it is not enough to look at pictures in a vague and general manner. For our purpose, a picture should be read as thoroughly as a book, its point of view, its range, and all the details in it being carefully noted. In the production of these pictures, the necessary compass bearings were taken on the spot, and the descriptions in the book give all particulars; as much as seems requisite, or as little, can be used by the teacher in any particular Bible lesson. . . . Personally, I am much impressed by the value of the educational method implied in this series of illustrations and this way of using them. I have experimented with it and am well satisfied. It is a method capable of application to any imaginative and historical drama that is worth the additional study involved." Can more be said to recommend this book and its method?

In Eastern Wonderlands. By Charlotte Gibson. 191 pp. (Harrap.) 1s. 3d.—This supplementary geographical reader takes the form of a description of a journey of three children from their home in New York to the Far East, *via* San Francisco. The text and the illustrations give a vivid picture of life in the wonderland of the East.

Heroes of Exploration. By A. J. Ker and C. H. Cleaver. 208 pp. Maps and illustrations. (Blackie.) 1s. 6d.—The discovery of Peru, Cartier in the St. Lawrence, Drake's famous voyage, Captain Cook in the Pacific, the work of Park, Livingstone, and Stanley in Africa, exploration in the Arctic, in Central Asia, and in the Antarctic in later days, are the subject-matter of this book, which will fascinate the youthful mind, and should be available for all children.

The World and its Discovery. By H. B. Wetherill. (The Oxford Geographies.) 320 pp. (Clarendon Press.) 3s. 6d.—This book is a description of the continents outside Europe based on the stories of their explorers. Each continent is discussed by means of a history of the journeys of its chief explorers, and this history is summarised from the geographical point of view in a description of the continent itself. Geo-

graphical facts are elucidated in paragraphs interspersed among the historical sections; for example, Dampier's references to land and sea breezes leads to an explanation of this phenomenon; Tasman's mention of the tides to a paragraph on various tidal phenomena; while, in addition, paragraphs on the declination of the compass, the Maoris, and coral polyps, are all included in the chapter on the exploration of the coasts of Australasia. Obviously a book for older pupils.

Industrial Studies: Europe. By Nellie B. Allen. 409 pp. Coloured maps and illustrations. (Ginn.) 3s. 6d.—This American publication reviews industrial Europe from the American point of view, and harks back for comparisons to American occupations and businesses of the same type as those which are found in Europe. The teacher will find its freshness of outlook invigorating.

THE connecting links between the garnering of some raw material and its final appearance as an article of trade have not as yet been adequately treated in connection with the teaching of geography. A beginning in this direction is made in a series entitled "Rambles Among our Industries," which is published by Messrs. Blackie and Son, Ltd. Wool, leather, iron, ships, paper, pottery, are the subjects of separate books in the series; each book includes among its eighty pages many excellent and useful illustrations, several of which are in colour. We recommend teachers to examine a specimen book of the series; the price is 9d. The author, Mr. W. J. Claxton, has produced very readable books, which should appeal to children.

THE "Rambler Travel Books" are similar in style, size, and price to the series named above. In the specimen on Africa, Mr. Lewis Marsh has gathered a set of cameos of travel from the best traveller's books, and the child will delight in reading these brief gems of description.

THE text and diagrams of Prof. Herbertson's "Preliminary Geography" have been revised for the third edition which has recently been issued by the Clarendon Press.

Mathematics.

Outdoor and Indoor Experimental Arithmetics. Teacher's Book. By H. H. Goodacre, E. F. Holmes, C. F. Noble, and P. Steer. xii+377 pp. (Bell.) 3s. 6d. net.—The desirability of combining the teaching of arithmetic with practical work of some description is now generally acknowledged, and the book before us is one of the latest of several excellent volumes which have been published within the past few months, describing courses of experimental arithmetic. It is the joint production of the headmaster and three of the assistant masters at South Park School, Ilford, and we may therefore presume that the subject-matter has been thoroughly well discussed before being put into print. In addition, the very interesting photographs show the boys (and girls) actually performing the experiments described. The course covers five years, and the work in each year is divided into five sections, dealing respectively with the determination of length, of area, of volume, of weight, and of time. In order to work the course one lesson a week not exceeding an hour's duration is required. The authors have made a point of excluding exercises of no real practical utility, those which they include being designed to establish an abstract principle or to give a practical proof of a theoretical calculation. Moreover, they bear directly on other subjects of the school course; a very important consideration in view of the congested state of the curriculum. The metric system as well as the

English system of measurement is taught. Special apparatus is required for some of the experiments, and this is described in an appendix. We can well believe that such a course as this must enlist the interest of the pupils, and they must be very dull not to learn from it many things of permanent value.

A New Apparatus for Teaching Arithmetic.—M. W. Lermantoff, privat-docent at the University of St. Petersburg, has sent us a specimen of a new apparatus which he has devised for teaching arithmetic by experiment. Its object is to allow the theory of Prof. Selivanov—that arithmetic should be regarded as an act of finding the member of the series of natural numbers which furnishes the solution of any proposed problem—to be realised in concrete form. The apparatus is very simple; it merely consists of two strips of linoleum, about 3 ft. in length, and a pair of wooden dividers. On one of the strips is printed twice over the first ten numbers, spaced at equal intervals, these intervals being marked more exactly by eyelets. On the other strip is printed in a similar manner a hundred equally spaced marks of division, the first and every tenth one being numbered. There is an eyelet between each pair of divisions. The marks and figures being in white on a black ground are easily visible to a large class. By putting the ends of the dividers on any pair of eyelet-holes, and moving them afterwards into other positions along the strip, a pupil is easily able to verify for himself all the results of operations with natural numbers. For example, he gains a clear idea of the nature of the remainder in division, and this leads to an explanation of fractions as numbers, having another smaller unit. The apparatus appears to us likely to be as effective as it is simple. Prepared in the first instance for M. Lermantoff's grandchildren, it is now used in several of the schools of St. Petersburg.

Science and Technology.

Incandescent Electric Lamps. By D. H. Ogley. 107 pp. (Longmans.) 2s. 6d. net.—This instructive little book explains briefly and clearly all the main points relating to the construction and use of incandescent electric lamps. The treatment of the subject is such that the non-technical reader will be able to follow the text readily. The earlier chapters explain the principles of illumination and its measurement, photometry, etc.; these are followed by an account of the manufacture of carbon and metal filament lamps, and their characteristics. The final chapters discuss the different systems of lighting available. The book is well illustrated.

Sound. By J. W. Capstick. 296 pp. (Cambridge University Press.) 4s. 6d.—The text-books on sound which hitherto have been available are either very elementary or too mathematical for the average student. Dr. Capstick has provided a text-book which fills the gap, and will serve as an introduction to the more elaborate treatises of Prof. Barton and of Lord Rayleigh. In several parts of the subject the treatment is distinctly original and lucid, more especially in regard to stationary transverse waves and to the quality of musical notes. Additions which are novel, and particularly useful to students of music, are the two chapters on consonance and on musical instruments. A good selection of questions, with answers, is added at the end of the volume.

A Course of Practical Work in the Chemistry of the Garden. By D. R. Edwardes-Ker. 40 pp. (Murray.) 1s. 6d. net.—Mr. Ker's little manual deals with the chemistry of plants, soils, manures, fertilisers, and sprays in a practical and lucid fashion. Although more particularly intended for teachers and students of horticulture, gardening and rural science, it would

be a useful adjunct to the reference library of every chemical laboratory, seeing that it deals with a branch of applied chemistry that is too frequently disregarded. Many of the experiments detailed in this book might with advantage be used as exercises in the teaching of chemistry and botany, but some familiarity with the general principles of chemistry is necessary before the best use can be made of the author's scheme of work.

Miscellaneous.

Perse Playbooks. No. 4. With a Preface by Dr. Rouse, and an Essay on Method by H. C. Cook. 183 pp. (Cambridge: Hefler.) 3s.—Perse School and its experiments need no bush; but it is pleasant to find a master with so whole-hearted a belief in himself, his boys, and his method as Mr. Cook. For those who are unacquainted with the ways of the school it may be said briefly that self-government by boys is strongly advocated, that healthy noise in lesson-time (even if the noise is that of a pseudo-medieval fight) is not discouraged, except by adjoining masters; that freedom, lolling, equality, open criticism of all and sundry, including the master, are always welcome. George Junior flourishes until he is found to be too full of original sin, when he is squelched. Apply this to English, find your enthusiast like Mr. Cook, who has discovered a method as old as the hills, and you have the results seen in this delightful volume. Instead of essays (save the mark), on happiness or patriotism you get dainty little bits on squirrels, the dying day, the dying duck, clouds, the bale fire, gipsies, and the very admirable and rightly praised piece, "Steeple Norden." We have Mr. Cook's word for it that these little gems are not corrected, and certainly spelling is a very strong point with the Perse boys; whether it is part of the method to print the names of the young authors we know not. But let us congratulate them, though indeed much work like this, *mutatis mutandis*, can be seen in any school where an enthusiast with a large amount of reading and with a little money reigns. What the editor does not perhaps see is that on every page the mark of Mr. Cook, his reading, his library, his way of thought is set and sealed; though we hope he would abjure the too precocious "Miss Campbell's." Happy the school with a master who can so impress his own love of literature and his own sense of the fitness of words on his boys. But does Mr. Cook seriously think his method as it is here outlined is possible for the average school and the average teacher? We trow not; but we sincerely hope that many masters will read the essay and perpend.

Dr. Rouse's preface is not clear; but the learned writer is known for his fighting qualities, and he holds an enchanting brief for his school. Unfortunately his henchman is even more Miltonic than he; and it is not the way to win sympathy with a method if we use Milton's Billingsgate to attack possible opponents. To call known people obtuse quack-phoneticians is distinctly rude, and to refer in a note to the "first fool who follows this suggestion of mine" is both rude and double-edged. The blue pencil was required for the following, "Those slouching snobs turned out in such numbers by our public schools." "I shall never again confront my class with the verse of Scott," simply means that Mr. Cook has inoculated his class with an unreal, unboyish, and superior dislike of "Breathes there a man" and the death of Marmion. These details, however, may be only part of the enthusiast's apparatus. Mr. Cook should, in quoting Shelley, quote correctly.

The Directory of Women Teachers and other Women connected with Higher and Secondary Education, 1914. 159+239+152 pp. (The Year Book Press.)

7s. 6d. net.—This second annual issue is a vast improvement on that of last year. The second part, which consists of an alphabetical and biographical directory, has increased greatly in size, a direct result of discontinuing the fee for the insertion of a name. The general information given in the first part of the volume follows the broad lines which the "Schoolmasters' Yearbook" has made familiar. We have no doubt that the subtitle "A Reference Book of Secondary Education for Girls" will become increasingly appropriate year by year. The directory deserves a place on the shelves of all workers in secondary education.

Pitman's Shorthand Dictionary. (Centenary edition.) xxxvi+336 pp. (Pitman.) 3s. 6d. net.—This edition contains the fully vocalised outlines of more than 62,000 words. The pronunciation has been checked throughout by Sir James Murray's "New English Dictionary"; the shorthand characters have been rewritten, and the longhand portion reset. The inclusion of an analytical introduction, explaining the treatment of particular groups of words, should prove of great assistance. Students and teachers of Pitman's shorthand will find the dictionary a useful volume for reference.

EDUCATIONAL BOOKS PUBLISHED DURING MAY, 1914.

(Compiled from information provided by the publishers.)

Modern Languages.

- "Renard le Fripon." Edited by Marc Ceppi. Illustrated. 100 pp. (Edward Arnold.) 1s.
- "The School French Grammar." By Ernest Weekley. viii+227 pp. (Clive.) 2s. 6d.
- Heinrich von Kleist: "Prinz Friedrich von Homburg. Ein Schauspiel." Edited by G. M. Baker. 240 pp. (Oxford University Press.) 3s. net.
- George Sand: "François le Champi." Edited by C. Searles. 314 pp. (Oxford University Press.) 3s. net.
- Rosegger: "Das Holzknechtshaus." Edited by M. Goebel. 78 pp. (Oxford University Press.) 2s. 6d.
- "Florian's French Grammatical Readers." With Questionnaires, Grammar, Exercises, and French Notes. Series B. "Nouvelles Genevoises." By Rudolphe Töpffer. iv+202 pp. "Le Capitaine Pamphile." By Alexandre Dumas. iv+208 pp. "Contes Choisis." By Balzac, P. L. Jacob, Souvestre, and De Musset. iv+204 pp. (Rivington.) 2s. each. These three volumes of Series B can now be supplied with vocabulary.
- "Single Term French Readers." Six elementary books of graduated difficulty. With full vocabularies, special and general vocabularies, grammar headings, French-English and English-French. Suitable for a full term's work, allowing time for revision and examination. Book III. Edited by B. Minssen, (Rivington.) 1s.
- "French Unseens." Junior Course. For Students preparing for the Oxford and Cambridge Junior Local Examinations, and other similar Examinations. Selected and arranged by A. R. Florian. iv+78 pp. (Rivington.) 1s. 4d.
- "French Unseens." Senior Course. For Students preparing for the Oxford and Cambridge Senior Local Examinations, Civil Service Examinations, Oxford and Cambridge Joint Board Higher Certificates, London University Matriculation, Northern Universities Matriculation, and other similar Examinations. Selected and arranged by A. R. Florian. iv+92 pp. (Rivington.) 1s. 6d.

Classics.

Livy: "The Revolt and Fall of Capua: Being Selections from Livy XXIII.-XXVI. (Cambridge Elementary Classics.) Edited by T. C. Weatherhead. xlii+168 pp. (Cambridge University Press.) 2s.

"P. Terenti Phormio." (Pitt Press Series.) By John Sargeant. xxiv+130 pp. (Cambridge University Press.) 3s.

"An Elementary Latin Grammar." By the Rev. E. E. Bryant and E. D. C. Lake. 116 pp. (Oxford University Press.) 1s. 6d.

English: Grammar, Composition, Literature.

"Précis Writing." By W. Murison. Part I. xvi+138 pp. 2s. 6d. Part II. xvi+196 pp. 3s. Part III. xvi+264 pp. 3s. 6d. (Cambridge University Press.)

Bunyan: "Pilgrim's Progress." Part I. Edited by E. Venables and M. Peacock. 228 pp. (Clarendon Press.) 2s. 6d.

Lamb: "Tales from Shakespeare—Second Series." (School English Classics.) Edited by A. R. Weekes. xxiii+120 pp. (Clive.) 1s. 4d.

"The Garden of Literature." Compilations of Fairy Stories, Legends, Folk Lore, particularly from Teutonic and Celtic sources. Book I. "Golden Leaves." 160 pp. 1s. Book II. "The Magic Arbour." 160 pp. 1s. Book III. "The Bower of Faëry." 208 pp. 1s. 4d. (Collins.)

"Then and Now Stories." Illustrated. Junior. No. 1. "Children of Then and Now." 64 pp. Sewed, 3d.; cloth, 4d. Intermediate. No. 7. "Story-Tellers of Then and Now." 80 pp. Sewed, 4d.; cloth, 5d. Senior. No. 13. "Life in England Then and Now." 112 pp. Sewed, 5d.; cloth, 6d. (Macmillan.)

"How and Why Stories." Illustrated. Junior. No. 1. "Children of the Fields and Woods." 64 pp. Sewed, 3d.; cloth, 4d. Intermediate. No. 8. "The Magic Garden." By Elsie Blomfield. 80 pp. No. 9. "Wind and Weather." 80 pp. Sewed, 4d.; cloth, 5d. each. Senior. No. 13. "Madam How and Lady Why." Abridged. By Charles Kingsley. 112 pp. Sewed, 5d.; cloth, 6d. (Macmillan.)

"Here and There Stories." Illustrated. Junior. No. 1. "Children of Here and There." 64 pp. No. 2. "Ships and Men." 64 pp. No. 3. "Man's Work." 64 pp. Sewed, 3d.; cloth, 4d. each. Intermediate. No. 7. "Holidays Here and There in the Homeland." 80 pp. Sewed, 4d.; cloth, 5d. Senior. No. 13. "Here and There in America." 112 pp. Sewed, 5d.; cloth, 6d. (Macmillan.)

History.

"Marie Antoinette." By Alice Birkhead. 192 pp. (Harrap.) 1s.

"Sir Walter Raleigh." By Beatrice Marshall. 192 pp. (Harrap.) 1s.

"Historical Atlas of India, for the Use of High Schools, Colleges, and Private Students." By Charles Joppen, S.J. 33 Maps in Colour. (Longmans.) New Edition. 2s. 6d. net. Pocket Edition. 3s. 6d. net.

"A Sketch of General Political History from the Earliest Times." By A. D. Innes. With Maps. viii+420 pp. (Rivington.) Bound in limp cloth with cut edges, in one Volume 3s. 6d., or in Two Parts, 2s. each. Part I. "The Earliest Times to 1470." Part II. "1470 to 1904."

Geography.

"Black's Geographical Pictures." Edited by S. M. Nicholls. Series II. "Crustal Movements: Depression and Elevation of the Crust." Packet I. "1. Tilting and Crumpling of Strata. 2. Anticline

and Syncline. 3. Crustal Fold. 4. A Normal Fault. 5. A Rift Valley. 6. Depression." Packet II. "7. Depression and Elevation. 8. Earthquake Depression. 9. Fracture of Walls. 10. Upheaval of Rails. 11. A Tidal Wave. 12. Diagrams." (Black.) 6d. per packet.

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A Simple "Fall" Apparatus.

THE need for a simple and direct method of demonstrating to junior students the fact that a freely falling body moves with a constant acceleration, has frequently been felt by teachers of science in schools, as was illustrated by a letter in the May issue of THE SCHOOL WORLD.

The apparatus described below has been in use by the writer for some five or six years, and has been of great service in making clear the laws of falling bodies to elementary students. It possesses the advantages that the whole apparatus is simple; an experiment is quickly performed; the motion of the falling body is traced absolutely from rest; from a single experiment it is easy to show with considerable accuracy that (a) the velocity is proportional to the time; (b) the distance fallen is proportional to the time squared; (c) the acceleration is constant, each of these being shown directly and independently; no assumption is made beyond that of the constancy of period of a vibrating spring; if the period of the spring is known, the value of *g* can be obtained with fair accuracy.

The essentials of the apparatus are shown in the diagram (Fig. 1). The "falling plate," AB, consists of a board, 2 ft. by 4 in. by ¾ in. It is supported by

a thread, with a loop passing under two screw-hooks in the upper edge of the board. The thread passes over long smooth nails at F, G, H, and terminates in another loop, which is placed over the brush-holder C, carried by the spring CD. On gently releasing the board, its weight, acting along the thread, deflects the spring slightly towards H. The spring is held in a clamp ED, screwed to the vertical back-board, and carries a small brush. The spring can be pressed over a little towards H, to give greater amplitude. A sheet of paper is previously pinned to the face of AB; the brush is now inked, and the thread burnt by a taper applied between G and H. Board and spring start moving at the same instant, and a curve similar to the one shown in Fig. 2 is obtained. A frequency of from 15 to 20 is suitable for the spring, and this can be readily adjusted by means of the clamp.

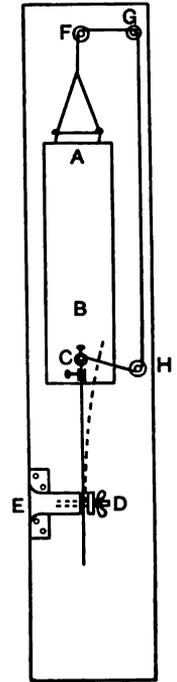


FIG. 1.

The displacement, velocity, and acceleration of the falling body can now be obtained from the curve, for any stage of the motion; calling the period of the spring, for convenience, one second, the displacements after 1, 2, etc., seconds are given by AB, AC, AD, etc.; the corresponding velocities, however, are not given by AB, BC, etc., but by GH, HK, etc., since GH represents the distance traversed in one second, at the middle of which the body was at B, i.e., had been falling for one second; similarly, the velocity after two seconds is given by HK, and so on. The accelerations are given by GH, HK - GH, etc.

The following results are taken from an actual experiment:—

<i>t</i>	<i>s</i>	<i>v</i>	<i>a</i>	<i>s</i> ² / <i>t</i>	<i>v</i> / <i>t</i>
1	1.6	3.35	3.35	1.60	3.35
2	6.6	6.7	3.35	1.65	3.35
3	14.9	10.1	3.40	1.66	3.37
4	26.6	13.4	3.30	1.66	3.35
5	41.8	16.85	3.45	1.67	3.37

It will be seen that these results show clearly that the acceleration is constant, that *s* is proportional to *t*², and that *v* is proportional to *t*, the two latter facts, though not independent of the first, being more usefully illustrated directly, for junior students, than deduced from the first, or *vice versa*.

The value of *g* can also now be at once found, if

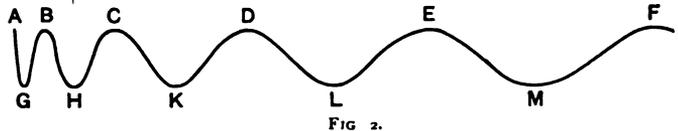


FIG. 2.

the period of the spring be known; a frequency of from 15 to 20 is suitable, giving, on a two-foot board, curves easily measured with sufficient accuracy with a metre-scale, reading all lengths to the nearest millimetre, or at most, half-millimetre, as in the example given. In this case, the spring had a frequency of 17.14, and using the value of the acceleration obtained from the greatest displacement (41.8 cm., *t*=5), we have

$$a = \frac{2s}{t^2} = \frac{83.6}{25} \text{ cm. per "t" per "t,"}$$

where t is the period of the spring, or

$$g = \frac{83.6}{25} \times (17.14)^2 \text{ cm. per sec. per sec.}$$

$$= 982.3 \text{ cm. per sec. per sec.}$$

In the example quoted, the frequency was measured by means of an auxiliary spring, fitted with inked brush also; it was adjusted so as to vibrate sufficiently slowly to admit of counting and timing with a stop-watch; its period was then compared with that of the spring in use by allowing the falling plate to move slowly down, both brushes making a trace on it. A comparison of the curves gave the ratio of the periods.

Various further illustrations of uniformly accelerated motion can be taken from the results; the equations $s = \frac{1}{2}at^2$, $v = at$, $v^2 = 2as$, for motion from rest, are at once verified, while by starting measurements from various points on the curve, the more general equations, $s = ut + \frac{1}{2}at^2$, $v = u + at$, $v^2 = u^2 + 2as$, can be readily shown to be applicable.

It is perhaps worthy of mention that the apparatus was worked out, and in use, before the Fletcher trolley was brought to the writer's notice. The trolley has added immensely to the science teacher's resources in the way of experimental illustration of motion, and the apparatus here described can only claim to deal with one case, but that case is of such importance that a simple method of demonstrating its features may prove of use.

A. H. COOPER.

Grove Park School, Wrexham.

Apparatus for Showing Equality of Expansion of Gases.

I HAVE for some little time used an arrangement for showing the equality of the expansions of gases which is similar to that described by Mr. E. T. Bucknell in the May issue of THE SCHOOL WORLD.

Two thin-walled tubes about 20 cm. long and 15 mm. in diameter, are fastened together as indicated in the accompanying diagram, the lead serving to make the whole sink with the open end downwards in a gas jar of water.

One of the tubes is filled completely with water, and the other is left half full. The apparatus is then inverted in a gas jar nearly full of water. This gives a tube half full of air. The other tube is then filled to the same level with coal gas by means of a piece of bent thermometer tubing. To do this it is necessary to raise the apparatus until the open ends of the tubes are 6 or 8 cm. below the surface of the water.

Most of the cold water in the jar is then siphoned (or poured) out, and replaced with hot water. On doing this the equality of the expansions is apparent.

Thermometer tubing is very satisfactory for filling purposes, because the flow of the gas can be controlled easily.

F. RECORD.

The Central School, Hastings Street, Derby.

English for the Cambridge Local Examinations.

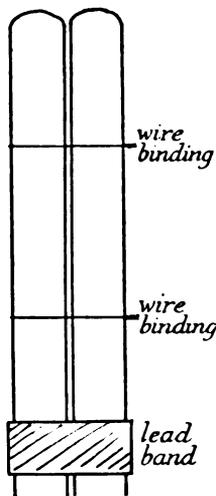
I HAVE just received an outline of the course of English in which senior Cambridge Local candidates will be examined in 1916; it includes Burke's "Speeches on American Taxation and Conciliation with America." Last year's choice of "Comus" will still be fresh in the minds of teachers, particularly, I

imagine, in the minds of those who had to explain the meaning of the poem to mixed classes of girls and boys. However noble and beautiful we grown-up people may consider such works as these of Burke and Milton, the Cambridge Local examiners ought to be human enough to see that such books are not calculated to give boys of sixteen a love of literature, and that they are more likely to lead to the view that English classics are dull, heavy, and uninteresting. There are certain parts of our school work which ought to be difficult and must be pursued whether they rouse the love and enthusiasm of our pupils or fail to do so. But English literature is not one of these, and if it does not awaken in the pupil feelings of love and appreciation, then either the course or the teaching is a failure, and a very unnecessary failure, when we consider the wealth of beauty which English literature offers to the men who choose examination courses.

This year our juniors are studying "Historical Ballads and Poems." I should be loath to think that this book was considered by the Cambridge examiners to be the best possible collection. It includes the vapid rhetoric of Mrs. Hemans, and neglects some of our finest historical poems; in its notes it explains the obvious, and sometimes passes over real difficulties in silence; the depth of the editor's scholarship enables him to state that Bothwell was the "second" husband of Mary Queen of Scots.

All the books referred to above belong to those on which the examination will be "of a general, not a detailed character." It would be unjust not to state that they are often admirably chosen, but they are always too few. Boys in forms one year, or even two years, below Cambridge Junior standard, are in some secondary schools, perhaps in most, reading a far wider course of English literature than they are required to do when they reach an examination class, where they invariably find the narrow, much revised, little course required for Cambridge Junior or Senior a much less pleasant experience than they have had in the English classes of former years. This is perhaps the most serious fault in the arrangements for examinations which have lately altered very much for the better, and show some tendency to accept the conclusions of modern teachers. That is, however, an additional reason why a dissatisfied schoolmaster should speak out; perhaps the protest may not fall on deaf ears.

R. S. S.



The School World.

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

MATHEMATICS FOR NON-SPECIALISTS.

By D. B. MAIR, M.A.

I.—Principles.

THE motives which give rise to mathematical activities have been well classified as the wonder motive, the utility motive, and the systematising motive.

The SYSTEMATISING MOTIVE depends on that orderly instinct in the human mind which leads it to review its accumulated knowledge and arrange the various portions in due relation to one another. Mathematical knowledge holds a unique position in that the whole body of it may be deduced from a limited number of assumptions. It used to be thought that Euclid had given a complete enumeration of the assumptions involved, and reduced most of them to their ultimate elements; only the Parallel Axiom did mathematicians of former days try to improve upon. Recent investigations, however, have disclosed innumerable assumptions made by Euclid without recognition or acknowledgment, and have at the same time shown that the discussion of the foundations requires as acute and as mature an intellect as is required by the highest developments of the subject.

Clearly, then, the work can no longer begin with the erection of a structure upon the ultimate axioms. It was a mistake to rely upon the instinct of order to enable the pupil to realise the exact relation of every newly added brick to the portion already constructed. The pupil cannot build upon ultimate axioms, and as a preliminary to systematic arrangement he must have some body of knowledge to arrange. While it is open to discussion whether the systematisation should be undertaken at the university or at school, it must in any case be the work of the specialist, and lies outside the range of the non-specialist's school course.

WONDER MOTIVE.—For the normal boy mathematics is full of beauty and matter for wonder. It is unfortunately true that in many boys the subject entirely fails to excite wonder. This we take to be due to the selection of unsuitable material or to an unsuitable method of presenting material which is in itself appropriate enough, for we are assured by many teachers of the subject that in their classes even boys of mediocre ability show real appreciation of the beauty of the subject. Beauty or wonder is in some ways a useful, in others a dangerous guide. On one hand, anything in which the class see no beauty and which they find completely dull is probably better omitted. (The case of the specialist or technical student is different; he must master a certain range, no matter how dull he may find parts of it.) On the other hand, the seductiveness of a subject may lead us to give up to it time which can ill be spared from other things. Continued fractions, for instance, are an enticing subject which may easily absorb much time. They had also real value for purposes of approximation until their supersession for that purpose by the decimal fraction. Another attractive subject which we believe has never had any utility value, and of which the study to the present day is wholly the effect of the wonder motive, is the theory of numbers.

In many cases we have to consider seriously whether a subject is really worth its place in the course or whether it is there because of its beauty or its past usefulness. Past usefulness cannot justify its retention. Beauty may, in a case in which the beauty of the subject on trial is greater than that of the subject which will replace it. But we must always remember that absence of mind is the besetting sin of the mathematician, and that it comes in great part from absorption in abstruse studies. We must, therefore, not hastily allow beauty to win the

day; we must weigh against it the greater sympathy with mankind which comes of a more utilitarian study. Continued fractions and the theory of numbers I would certainly exclude. The non-specialist must not touch them, and many specialists are probably also better without them. Mathematicians of the first rank are, of course, a different matter; we can well accept the absence of mind which puts the watch in the boiling water and holds the egg to time it, for the sake of the mathematical genius which accompanies it.

UTILITY MOTIVE.—So far we have made no great progress towards determining the material of the non-specialist's school course. We would select the material in the main on utilitarian principles. We do not mean bread-and-butter principles; the mathematics of the non-specialist has few bread-and-butter applications. We mean to say that contact with human life should be maintained so far as possible. When our studies are taking a direction without this contact we must ask ourselves if this particular work is going to be used later in mathematics or in another subject for the solution of a human problem. If it is, we must decide whether to deal with it at once or to postpone it and deal with it when it is wanted for the human problem. If it is not, we ought (with the rarest exceptions) to cut it out to make room for more important things.

To condemn this utilitarian criterion is to exalt absence of mind. I do not know how to bring home to the individual mathematician his absence of mind. We mathematicians are a curious race. We all agree that, taken as a whole, we are the most absent-minded class in the world; and yet each of us is apt to pride himself on his resourcefulness in emergency. Each of us thinks himself an exception. Yet we cannot all be exceptions while absence of mind remains the mark of the class. In any case, we are agreed about mathematicians as a class. The training to which our generation was subjected made us absent-minded as a class, and it is our duty to remove the slur from the mathematicians of the future by giving them a more suitable training. And in this matter what is true of the training of the mathematician is true, though in a lesser degree, of the mathematical training of the non-specialist.

My plan, then, is to be utilitarian, to choose our material for its human interest. It is sometimes objected that such a course will supply a training inferior in value to that given by the traditional course. I meet that with a direct negative. The value of mathematical training lies in its assistance towards accuracy of judgment. The two main ingredients in a judg-

ment are the reasoning and the premisses. In both respects the utilitarian course is superior for the conduct of life. For logical reasoning it is more helpful because of the similarity between the life problems to be solved and those the boy has been practised upon. The superiority is greater in the matter of the premisses; on the utilitarian plan the boy is trained to observe life and know some facts about it; on the traditional plan he is taught that concrete facts are of no consequence and reasoning is everything. The superiority of the utilitarian plan becomes even more obvious when we remember that false conclusions are generally due to neglect of premisses and rarely to false reasoning.

II.—*Particulars.*

GEOMETRY.—In the earlier stages the staple of mathematical education is geometry. All attempts to make a complete list of the assumptions on which geometry is logically based have proved futile, and we are thus debarred from following Euclid's order of treatment. Moreover, his plan was pedagogically wrong. If a subject is presented in systematic form a beginning is inevitably made with some part difficult of comprehension by the child. The right course is to begin with the parts easiest to understand. The best beginning is from the conditions that determine a triangle and the condition of the parallelism of two straight lines. These properties will not be proved, but will be assumed as the basis of future reasoning. There will be some discussion of them in order that the pupil may fully appreciate their meaning; attempts will be made to construct triangles from various data; the parallelism condition will be verified by measurement.

From this beginning we proceed to establish the chief geometrical properties, in most cases using experiment and intuition as preliminaries, and passing on to logical proof. The angle-sum property is excellent to begin logical reasoning on. There is sufficiency of substance in the property, it is a striking one, and it is by no means obvious. On the other hand, the construction of an equilateral triangle is too slight to reason about, the justification too obvious; and the majority of Euclid's propositions must for the same reason be omitted at the school stage. Though necessary for a complete logical system, their substance is too thin and the reasoning too subtle for the apprehension of a beginner.

The conditions of the similarity of two triangles may either be included among our unproved assumptions, or they may be logically deduced from our other assumptions. The latter plan necessitates some postponement of

their treatment. The properties are probably already known from the representation of objects by scale-drawings, and only require to be made precise and formally stated. Further, the logical deduction requires some discussion (however slight) of incommensurables, a subject little suited for the non-specialist. On the other hand, the inclusion of the similarity conditions among our assumptions frees us from all these difficulties, and in scale-drawing provides from the earliest stages a fruitful point of departure for developments of human interest. We decide, therefore, to add the similarity conditions to our list of assumptions.

The material in plane geometry which we would include in our course is that of Euclid's Six Books. We mention Euclid not in order to prescribe all that the Six Books contain, but rather by way of excluding everything that they do not contain. Many beautiful and elegant properties are to be found in "Sequels to Euclid" and "Higher Geometries," and, if time allowed, "Geometrical Conics" might also be considered. With the limited time available it is, however, better to omit all these and carry the pupil on to other subjects which combine equal discipline with a broader outlook. Our course will be confined to the main properties covered by the Six Books, and will exclude the many theorems which are unsuitable for the non-specialist by reason of the subtlety of their reasoning and the obviousness of their results.

Some matters deserve more emphasis than Euclid accords them; for instance, the number and nature of the conditions that will specify the position of a point or the form of a figure, considerations of symmetry and the folding of diagrams, loci, and, above all, the conception of a figure as deformable with elements of varying magnitude. Reasoning in three dimensions has great educative value, and pupils should frequently deal with problems about solid bodies, so that they may be called upon to do two-dimensional thinking in three-dimensional space.

ALGEBRA.—The principle of maintaining contact with human life has special value in algebra, just because so much of the algebra taught at present is lacking in human interest. On this principle algebra becomes a handmaid to geometry, a handmaid who obtains by calculation results for which geometry would otherwise rely upon ruler and compasses alone. The handmaid has a few independent activities, as in the solution of equations and the graphical representation of varying quantities, but even for these activities she finds as many applications in geometry as elsewhere. And she must not be given too free a hand, even in her independent activities; with a free hand, what

endless quantities of artificial equations and graphs does she inflict on the long-suffering pupil! These artificial graphs and equations are to be condemned and avoided as devoid of human interest, and as close relatives to manipulation, which is the curse of mathematical education.

The small degree of manipulative skill required at any stage can well be acquired when the need for it has arisen. As often treated at present, so much time is spent on this soul-destroying manipulation that the pupil never reaches the stage at which he has to apply it. Some manipulation is taught in preparation for work on the highest common factor and the lowest common multiple, but these are themselves mere manipulation without human application, and can themselves be omitted.

We imagine the fault to lie in part with the time-table. Tradition assigns as much time to algebra as to geometry, and many a master fills in the time with manipulation who, with a free hand, would be dealing with human geometrical problems.

The method of locating a point by Cartesian coordinates should be known, but definite propositions on it should be avoided. For instance, it should not be proved that the graph of a linear equation is straight. Nor should too many linear functions be graphed, lest the work become as deadening as manipulation, and lest the pupil conclude that all graphs are straight.

ARITHMETIC.—The country has not decided what it wants done with arithmetic. The elementary schoolboy is fed upon all sorts of arithmetical provender, much of it interesting and digestible for stockbrokers, but uninteresting and meaningless for a boy. He does, however, become a rapid and accurate calculator. In many a secondary school, on the other hand, the subject is neglected, and the boy leaves without that accuracy in simple calculation which is essential in most walks of life. Our plan is to treat the subject as a second handmaid to geometry. Outside of simple money problems, if human contact is maintained the subject soon develops into mensuration, which is closely related to geometry. Other geometrical problems also provide many opportunities for arithmetical calculation. This plan gives the boy all the mental training the subject affords and all the knowledge that is useful to him, and has the further merit of continuing arithmetical work throughout the school.

TRIGONOMETRY.—Geometry's third handmaid is trigonometry, which extends the power of calculation over an increased number of geometrical problems. The non-specialist should

know the definitions which put the right-angled triangle within his grasp. Oblique triangles may be dealt with either by appropriate sub-division into right-angled triangles, or by the cosine formula, $a^2 = b^2 + c^2 - 2bc \cos A$, and the sine formula, $a/\sin A = b/\sin B = c/\sin C$. The forms specially adapted for logarithmic calculation should not be included; the time which they would take can be better employed.

At the present time most non-specialists stop at this point or earlier. Nor can the mathematical master venture to ask for more time. On the contrary, headmasters show a tendency to ask him to give an account of his stewardship, with the prospect of taking away from him that which he hath. And we fear the facts justify the headmasters. If the mathematical studies are to retain their present importance in the time-table (and properly treated they thoroughly deserve to), the basis of mathematical education must be broadened and the "blighting shadow of $x+y$ " removed. As already indicated, time will be saved by treating arithmetic, algebra, and trigonometry along with, and as auxiliary to, geometry. For the broadening there are three subjects of high educational value, the inclusion of some one of which is worth the greatest effort. No one will at first think of adding more than one, but, as time goes on and our skill in distinguishing wheat from chaff increases, it may be possible for the individual non-specialist to make acquaintance with two of them, or even with all three.

CALCULUS.—The calculus is one subject which may be added to broaden the non-specialist's range. The mathematician has considerable skill in the differentiation and integration of algebraic forms. It is not this technical skill which we would have the non-specialist acquire. It is the ideas of the subject that we would give him. We would give him these ideas by means of problems from human life, from his own surroundings. We might very well give him the ideas without the mention of a single algebraic form. But we do not deny the usefulness of one form (or so) as an illustration of differentiation and one for integration.

STATICS.—Another subject to be used for broadening is statics. It is to be treated experimentally and graphically. The trigonometrical treatment is unsuitable for beginners in that it imposes two sets of difficulties at once, those of statics and those of trigonometry. Moreover, all the new principles are included in the graphical treatment, and no additional broadening is gained by the use of trigonometry. It is essential to begin with experiment. Dynamics should not be taken before

statics, and is in any case less fit for experimental treatment.

MONGIAN GEOMETRY.—The two subjects already suggested for the broadening of the basis of mathematical education have often been advocated. The third which I wish to suggest is generally relegated to the engineer and ignored for general education by schools and universities. It is the system of geometry invented by Gaspard Monge, the system of representing three-dimensional figures on paper by means of plan and elevation. The educational value of work in three dimensions is universally acknowledged, hence the many attempts made to teach Euclid's Eleventh Book. These attempts fail, except for the boy of mathematical talent, because of the subtlety of the reasoning and the obviousness of the conclusions. In the method of plan and elevation we have the possibility of work in three dimensions free from these drawbacks. The work must, to be successful, be in close contact with life; the ideal method of introducing the method is in connection with a carpentry class, the members of which will show in plan and elevation the article which they are about to execute in wood.

THE WORK OF A SCHOOLMISTRESS IN A FRENCH SECONDARY SCHOOL.

By HELEN ST. AUBRY.

A FEW words are perhaps needed in explanation of what a French secondary school is, as the name in English is rather misleading. The French secondary schools, called "lycées," were founded by Napoleon, and they correspond to our high schools.

The education they give, known in French as "secondary education," is the best to be obtained in France, and its standard is exceptionally high. A correspondingly high standard is naturally required of the teachers, and it is only by natural talent, supplemented by hard work, that it is possible to obtain the diplomas necessary for teaching in a lycée. The lycées belong to the State, which, represented by the Minister of Public Instruction, is the teachers' sole master and employer. The headmistress of the school has no power either to appoint or to dismiss a teacher, nor can she force her to alter her method of teaching if this fails to meet her approval; but if in any way dissatisfied with a member of her staff, she can notify the education authorities, who immediately inquire into the matter. It is chiefly by her influence that the headmistress of a lycée commands. This is often considerable, and will sometimes alter the entire tone and standing of the school.

A few of the teachers in the secondary

schools gain their diplomas at the world-famous university of the Sorbonne, but by far the greater majority go to the almost equally famous training school of Sèvres. At this school, called the Ecole Normale Secondaire of Sèvres, no fees are charged. The expenses of the three years' training which it gives are defrayed by the State; in return for which the students are bound, except in the cases of marriage or serious illness, to teach in a secondary school for at least ten years. Entrance to Sèvres is obtained only by a difficult competitive examination. The school has two sides, one literary, the other scientific. Every year there are about sixteen vacancies in the literary side, and fourteen in the scientific. The number of candidates, who apply from all over France, naturally varies, but it always far exceeds the number of vacancies. At the end of two years' study the intermediate examination of the "licence" is taken, and at the end of the third year the final examination of the "agrégation," which duly qualifies for teaching in a secondary school, and a post is immediately found. The candidates for Sèvres must be at least eighteen years old to enter, and not more than twenty-four. The majority of girls enter about the age of twenty, so that at twenty-three they are ready to start on their career as teachers.

A short time before the final examination, the students from Sèvres usually visit the lycées at Paris and Versailles, in order to listen to classes and to give lessons under the supervision of the teachers already there. Most of the students have been educated at a lycée, and are therefore acquainted with its customs and routine, but this is the first introduction as a future teacher, and it is often a rather trying ordeal. The pupils are always requested to make their task as easy as possible by quiet behaviour and special attentiveness, but whether it is the holiday spirit already abroad (these visits take place in June and July) or whether it is only the spirit of mischief, which is usually at work in the French school-girl, it is certain that the girls manage to extract a fair amount of amusement out of the visits of the "Sévriennes," often at the expense of the latter!

Very different is the reception which the young teacher receives when she returns to the lycée a few months later with her final diploma of the agrégation. She has now the title of professor, which is given to all teachers in the secondary schools, and as such is edged round by certain forms of etiquette which create a barrier between her and the pupils. The professors are always treated with great respect. The girls have to salute them with an inclination of the head whenever they

meet them in the school, and it is forbidden to speak to them when lessons are over, unless the professor addresses the pupil first. If an undermistress is unable to keep order in a class between the lessons, the mere whisper that a professor is at the other end of the corridor will ensure immediate silence. This etiquette which exists in the lycées has both its good and its bad points. Most of the pupils acquire a genuine feeling of respect for their teachers, and give much attention to the lessons they receive. On the other hand, anything approaching friendly relations, except in very rare circumstances, is never established between a professor and her pupils, and if a girl likes her teacher she is apt to worship her as an altogether superior being.

There are six classes in a lycée, with an average number of thirty girls each. The hours of work are 8.30 to 11.30, and 1.30 to 3.30. Special evening classes go on until 6.30, but the ordinary school day ends at half-past three. There is a very large staff of professors, as each of these only teaches one or two subjects in which she has specialised, and there are two or more teachers for most subjects, the classes being divided between them. In addition to the lady teachers, there are gentlemen professors in the higher classes, but comments upon these do not come within the range of this article.

The curriculum of a lycée embraces a vast number of subjects, such as grammar, literature, languages, ancient and modern history, geography, ethics, psychology, arithmetic and higher mathematics, chemistry and physics, botany, zoology, geology, physiology, domestic economy, hygiene, drawing, needlework, and a few other subjects which are only taught in the higher classes. The chief teacher in each class is the "professor of French," who gives grammar and literature which includes composition, and then there are the professors for the other subjects. One professor will frequently teach both history and geography, and another will take chemistry and physics, but it is not unusual for a mistress to teach only one subject. The subjects mentioned above are, of course, not all taught in one class. Thus zoology, botany, and geology are taught respectively in the first three classes; ethics, chemistry and physics, domestic economy and hygiene, begin in the third class, and are continued through the school; physiology and higher mathematics start in the fourth class, psychology in the fifth, and the remaining subjects are taught in all the classes.

The programme of each year's study in the different subjects is arranged by the edu-

cation authorities. The professor has to complete this programme in the year, but the time spent over each part, and the manner of teaching it, is left to her discretion. The methods of teaching generally used are intended to cultivate originality, and to make the pupils capable of expressing themselves easily and clearly, both in speaking and writing. The lessons, which are called "cours," usually take the form of lectures, and last one hour. The professors lecture for about half that time, the remainder being employed in interrogations. There are two points to which the teachers attach great importance: the pupils' note-books, and the manner in which they answer the interrogations.

In the first two classes, where the average age of the girls is twelve and a half and fourteen, the professors dictate notes after the lectures, or at least give headings and suggestions, but in the other classes the pupils have to take their own notes during the lecture. The teachers frequently examine the note-books, and give marks for those which show the greatest accuracy and the best style. They also encourage the pupils to illustrate their books with drawings, photographs, or picture post-cards, and the notes are written on the right-hand pages of the books only, the left-hand pages being left blank for this purpose. There are series of picture post-cards issued in Paris of nearly all the famous historical characters, the chief battles and events of history, and of the celebrated paintings which hang in the European picture galleries. These cards are sold at a penny each, and they add greatly to the interest and value of the note-books. Note-books of scientific subjects, such as chemistry, physics, etc., are illustrated with drawings, and the geographical book with maps, which must be free-hand drawings as the use of tracing paper is not allowed. When there are international exhibitions, such as the Brussels Exhibition in 1910, the best of these note-books are chosen and sent to the school department of the exhibition, along with other specimens of the pupils' work. The books are returned to their owners at the close of the exhibition, and there is naturally keen competition among the girls for the honour of having their work exhibited at a public exhibition.

When the professor has finished her lecture she proceeds to question the pupils. Each interrogation lasts about ten minutes, and a pupil is rarely questioned more than three or four times in any subject during the term. The interrogation may be on the lesson given at a previous time, or on a lesson which has been given some time before. As a rule, only

one question is asked, which embraces a good portion of the subject, such as in history: "What do you know of the war of 1870?" or in geography "Tell me all you know of the course of the Rhone." The pupil is expected to stand up and speak for ten minutes or so on the subject without any assistance from the teacher, stating briefly and clearly its chief points, and giving, as it were, a miniature lecture. The teacher always takes into account the manner and style in which the pupil has answered the interrogation, as well as the actual knowledge displayed when giving the marks. The pupils are not questioned in any set order. The mark-book with the list of names in alphabetical order is in front of the teacher, but she questions the girls just as she pleases, so that unless the latter always study their lesson well they are apt to be taken unawares and to receive a bad mark. Occasionally, perhaps once or twice during the term, the professor, without any warning, will give a written interrogation. The term examinations do not take place at the end of the term as in England, but during the term. It is endeavoured to arrange them so that each class may have one a week, but it not infrequently happens that a class is without any for a few weeks, and then has two or three in one week. At these examinations the same method is used as for the ordinary oral interrogations. Except in arithmetic and mathematics, one or two questions only are given, which cover the larger part of the subject studied.

Throughout the school the professors try to cultivate originality, and they encourage the pupils to think about the chief topics of the day, frequently taking ten minutes at the beginning of a lecture to discuss such matters with them. They also encourage as much as possible the spirit of patriotism, interesting the girls in all that their country does, explaining their responsibilities as future citizens, and teaching them to honour the army and the flag.

Once a month the professors have a meeting, with the headmistress in the chair, known as the meeting of the "Tableau d'Honneur." The object of this meeting is to discuss the work of the school generally, to bring forward any special cases which need particular attention, and to propose the names of pupils for the Tableau d'Honneur. This last is not anything tangible, but is an honourable mention of a pupil's name given as a recompense for general good work and progress. The fact that a pupil has obtained the Tableau d'Honneur is mentioned in her report book each month, and in her special report at the end of each term, while at the end of the year a

special prize, called the prize of the Tableau d'Honneur, is given to those pupils who have obtained this distinction not fewer than six times. The first requirement necessary for a pupil to obtain the Tableau d'Honneur is that she shall not have been absent from school more than three days in the month except in case of illness, when a doctor's certificate must be shown. Secondly, she has to be proposed by at least three professors. Thirdly, if one professor opposes her receiving the Tableau d'Honneur, that one opposition is sufficient to debar her from it for that month. Professors do not oppose without good cause, but if a pupil has had a nought for an oral or written interrogation during the month, that is more than sufficient cause for an opposition. Many professors do not oppose a pupil's name when it is read out, but at the same time are not satisfied enough with her work to propose her, in which case they do not vote either way. The Tableau d'Honneur is a distinction which is obtained only by the minority of the pupils as a rule, and is therefore the more eagerly coveted. At the beginning of each month the pupils are informed whether or not they have received the Tableau d'Honneur for the previous month, who proposed them, who opposed, and who did neither, so that they may know which of the professors are satisfied with their work and which are not.

In this way the years go by, and the school routine continues without much interruption or variation. The professors become extremely proficient teaching the same subject for many years, and not infrequently become renowned authorities in their special branch of learning. The title of professor, moreover, always carries with it a good social position and an entry into the best literary and artistic circles.

After a professor has been a number of years in the lycées, if she shows special abilities she will be appointed under-headmistress and then probably headmistress. The highest position attainable in French secondary education is that of headmistress of the Sèvres Training School, and the women who fill that post occupy one of the most responsible and distinguished positions possible for a French woman to hold in public life. And another honour is attainable by the professors of a lycée, and that the greatest which the Republic can bestow: the little red ribbon of the "Légion d'Honneur." Only the few receive this distinction, but it is there for those who can win it, and surely it is not too great an honour for those who devote their lives to the training of the future women of their country.

HOMEWORK AND OVERPRESSURE.¹

By E. M. BANCROFT, B.A.

Headmistress of the Chelmsford County High School for Girls.

THE question of homework and overpressure has recently thrust itself into glaring prominence before the public view. The correspondence columns of the Press have been dark with headlines such as "The Nightmare of Overwork." The doctor, the parent, the teacher, each has presented his point of view. Even the children themselves have been gravely consulted, and the somewhat biased essays contributed by twelve-year-olds, and solemnly produced by the promoters of the Children's Welfare Exhibition, are regarded by many as the expert and final literature on the subject.

It is needless to emphasise that in girls' public schools, from their beginning, traditional precautions have been taken against overwork which have not been considered necessary in the case of boys. There are two main reasons for this:—

1. The evil effects of overpressure upon girls are more obvious, if not more certain. Nature has been less generous in providing girls with that thick, protective shell which enables so many of their brothers to resist any injudicious pressure on the part of their elders. The majority of girls and, I think, a minority of boys, are encased in no such armour, and they will yield to overpressure when it is brought to bear upon them.

2. The home has always claimed a greater share in the life of girls than in that of boys. Accordingly, in the days of the first high schools, lessons of the ordinary curriculum were, as a rule, confined to the morning, while the afternoon was left free for optional lessons and for preparation. Thus it was comparatively easy to find time for study without unduly loading the evening hours at home.

To-day, however, the problem is not so simple. New educational conditions have brought new dangers, and, as ever, the price of safety is eternal vigilance. First of all, the school curriculum has become more crowded. Our conceptions of a liberal education are ever widening, and our ideals slowly but surely change. Thirty years ago, when it was an imperative duty for the leaders of the movement for the higher education of girls to emphasise their demand for sound mental training in girls' education, it was inevitable that certain subjects, hitherto considered peculiarly feminine, should for the time recede into comparative insignificance. When conventional opinion still believed that to cook,

¹ A paper read at the Conference of the Incorporated Association of Headmistresses of Public Secondary Schools on June 13th, 1914.

to sew, to paint and sing a little, was all that it behoved a woman's education to include, it would have been dangerous to admit cookery into the high school curriculum. But the peril of that age has passed. Cookery itself has ascended from the kitchen into the class-room; it has assumed the robes of an experimental science.

In other ways we see the reaction against a too purely intellectual type of education. Subjects which were at one time more or less optional now take an important place in the compulsory curriculum; *e.g.*, we are recognising year by year the enormous value of art and class singing lessons, and we no longer relegate them to optional afternoon hours, nor do we allow them to be lightly dropped. A similar change has taken place in the institution of compulsory games. The Saturday mornings, too, once sacred to study, are encroached upon for swimming lessons or frequent matches. There is no doubt that we offer a lavish abundance to our pupils. We strive to make them ready to meet life at many points. The only difficulty when riches increase is to find due space for all.

But other changes greater still have marked our recent history. Schools have rapidly arisen in large numbers over the face of the country. Imperial and county or municipal grants have lowered the rate of fees, while the highway leading from the elementary schools to the secondary has been broadened so that each September it is thronged with youthful travellers. The result of this is that the modern secondary school pupils are no longer exclusively drawn from homes of comparative ease and leisure. They come also from cottages where hardworking parents of small means and scanty leisure can do little to supplement the intellectual side of their children's education.

This extension of educational advantages has brought about various conditions, all of which trend in the direction of overloading the hours of our children's day.

(i.) It has been found generally advisable, especially in the county or municipal schools, to meet the wider curriculum, and to give greater help and guidance to the girls, by substituting lessons for the hours of afternoon study. This has tended to throw the whole burden of preparation on to the evening hours at home.

(ii.) An increasingly large number of girls from distant villages attend the schools established under the local education authority. This means that considerable time and strength are used each day in long bicycle and train journeys.

(iii.) Girls who attend school from homes

where no servants are kept and where the house-work is done entirely by members of the family must take some limited share in household duties. Their time for home study is therefore curtailed. If no allowance is made for this, one of two evil alternatives must be the result—either the girls are overworked, or they grow up aloof from the life of the home, accepting service and giving none. They are thus encouraged by the system of the school to look on their homes as convenient hotels, where their mother's place and duty is to wait upon them, while they themselves are exempted from giving a helping hand by a certain divine right of intellectual superiority. No result, of course, could be more disastrous, and a margin of time, therefore, should be allowed in order to admit of the willing performance of a few small domestic duties.

(iv.) Many of the free pupils and others who intend to enter commercial life, in their anxiety to earn as soon as they leave school, avail themselves at the age of 15 or even younger, of the evening classes in shorthand and book-keeping provided by local authorities. This work is superadded to their school preparation often without the knowledge of the headmistress.

It is easy to see, therefore, in face of these considerations, how imperative it is to calculate to a nicety how much mental work should be done by girls at night, when, moreover, they bring to their work bodies and minds already half-wearied by the long and active day, however pleasant its eager hours may have been. For few would deny that to risk the danger of draining the resources of strength and nervous force which will be so sorely needed in the days that are to come is to inflict a serious wrong upon those who in their early years are dependent upon our forethought.

In the case of mixed schools of girls and boys, in the same classes, the danger is increased, especially where the enduring power of the girls is gauged by a headmaster, and where the girls' work is regulated by that set to boys, who are physically stronger and have far fewer claims upon their time.

To what conclusions, then, are we forced? Are we driven to one of two alternatives—either to overwork our girls, compelling them to live upon the capital of their reserve force, or to clip the wings of our aspirations and to decline to a lower level of work, narrower in range and poorer in quality, than that at which we have hitherto been aiming? Personally, I do not think that either alternative is inevitable.

First of all, I will state my conviction that to abolish homework altogether is neither

necessary nor advisable, for the following reasons:—

(i.) With our present curricula, and even with a diminished number of examinations, school hours would not afford adequate time for preparation in which the children can be thrown entirely upon their own resources. The only alternative would be to lengthen the school day, which would be to protract the continuous period of work, and to send the girls in winter on their homeward journey in the dark.

(ii.) The tendency in too many homes is to allow excessive outside distraction. It is not an evil, therefore, that the spirit of dissipation should encounter a moderate check upon the home leisure.

(iii.) Some work, such as the writing of essays, for which material is gathered, learning by heart, quiet and thoughtful reading of literature, is done more effectively at home than in school.

On the other hand, I think that the most careful restrictions should be laid down and strictly enforced.

1. The amount of homework in each subject should be fixed, limited, and graduated according to age.

2. Early hours for closing work should be insisted upon.

3. No outside work should be allowed without the knowledge (and I should like to say—if it were only possible—the sanction) of the headmistress.

4. Individual time-tables stating the regulated amounts should be sent home.

5. Time books should be regularly kept by the elder girls.

I suggest the following as an approximately maximum scale of homework with an afternoon session on four afternoons a week, closing at 4 p.m.:—

Age	Max. preparation each evening	Average homework a week	Latest hour of work	Total hours of work a week at school and at home
10-12	—	1 hour Wednesday Saturday	—	22
Under 13	½ hour	3½	7 p.m.	25
„ 14	40 min.	6	7.30	27
„ 15	1 hour	6½	8	27½
„ 16	1 hour	7	8	28
„ 17	1-1½ hours	8½	9 p.m. ²	29½
Above 17	1½ hours	10	9 p.m. ²	31

² 9 p.m. should be considered a maximum, not a usual hour. Work so late is rarely, if ever necessary.

It is difficult to fix the latest hour of work by rigid rule. Some adjustment must be made in special cases.

I find on random reference to my sixth form time-book that a typical girl who is preparing for the Cambridge Higher Local in two groups has, during the last three weeks, done an average of exactly 10 hours home preparation a week.

On 7 nights her latest hour has been 8.30
 „ 6 „ „ „ 8
 „ 7 „ „ „ 7.30

In fixing a maximum scale, apart from the actual question of injurious excess, there is another consideration to be taken into account. A margin of time is most valuable in affording opportunity for girls to find and develop their own natural tastes; in fact, to do a little of that *self-education* which I fear our modern system tends to discourage.

Though I believe that in education we are making progress, and, holding that belief, I can but have a spirit of hopefulness and cheer in doing my daily work, yet at times my heart fails me when I seem to find that the modern girl often lacks power of initiative, of quick adjustment, and the lively spirit which meets difficulties with gay assault. We must cherish the educational impulse that stirs spontaneously

At Chelmsford we have established various voluntary clubs which meet from 4 to 5 p.m. twice or so a week, for art or choral work. These originally sprang into being at the spontaneous suggestion of the mistresses responsible for these subjects. They have now become part of the life of the school, though still voluntary in their character. Girls who find that they can easily spend more time than that prescribed in compulsory homework attend one or more of these clubs if they wish to do so. In this way the limited compulsory work is supplemented in the case of many girls by work undertaken with the more zest because it is purely voluntary.

The problem, however, still remains. By what economy can we hope to make a strictly limited amount of homework adequate to our needs?

(i.) First, I think we are still inclined to place an illusory trust in mere *quantity* of work, instead of realising the enormously greater mental value of concentrated effort for a shorter time. Moreover, we have failed to be aware of the deadening effect of overwork at night, and especially of the positive disgust and staleness felt in the elaborate correction of previous homework before the new is begun. Freshness and untired vigour are too valuable to lose; the power of concentration is worth an effort to secure.

(ii.) Secondly, homework is frequently worthless because it is badly set. For duller girls especially, it is important that the homework should bear a definite and carefully considered relation to the work explained in class. Again, it is not worth while to set as homework that which can be done more effectively as oral work in class. The modern type of lesson in which the pupil is called upon to give rapid and constant co-operation with the teacher, rather than with a patient receptivity, makes it possible to reserve a narrower margin of work for home hours. Preparation hours in school may supplement those at home. When there seems little time for this, it is well to devote a definite lesson at regular intervals, either to preparation or to test work in the subject.

(iii.) Thirdly, a full solution of our problem is closely bound up with the question of curriculum. To a certain extent, change of work is rest; but it is also undeniably true that an undue multiplicity of subjects is fatiguing and harassing. For some years the question of a simplified curriculum has been looming on the horizon. I feel sure that here lies hope. I yield to none in a high estimation of the value of the study of mathematics, yet I look forward to the day when it will not be necessary to force a comparatively high standard in both algebra and geometry upon all girls, however unmathematical, who are preparing for entrance examinations to various careers.

We must keep a liberal curriculum, one which shall make our children realise that the world is full of diverse and manifold riches; one, moreover, which shall aim at forming, to use Plato's words, "a well proportioned and a gracious mind"; but I am surely safe in saying that we have not yet reached the perfect harmony of subjects in which no note is predominant or superfluous.

(iv.) And lastly, we should make homework more effective, and at the same time more economical, if we could bring about a more intelligent understanding and cooperation on the part of parents. I think, on the whole, parents are inclined to look more jealously upon the homework of their girls than on that of their boys. For old tradition still emphasises the greater importance of a boy's education. Moreover, when homework is keeping the boy out of mischief it is keeping the girl out of the performance of deeds of usefulness. But it is certain that until the parents realise the true why and the wherefore of homework, *i.e.*, the value of a piece of work done by the child's unaided powers with no possibility of leaning on a teacher—we can only expect a grudging sympathy.

There is an old proverb which suggests the

anomaly of the position of a man who keeps a dog and barks himself. I have known parents who have felt the injustice, as they say, of paying schoolmasters to teach their children, whilst they themselves must turn to and teach them at night. If only we could persuade all parents to withhold their well-intentioned but misguided coaching! We teachers are prepared to do the teaching, but it is the parents who can effectually help us:—

1. By allowing no trivial excuse to interfere with the claim of homework.

2. By ensuring quiet and undisturbed conditions.

3. By refraining from doing the children's work for them.

4. By seeing that the time limits are not materially exceeded. This is especially important in the case of feebler girls, who are apt to drag their work on with little concentration. Such girls should not, of course, be penalised if they have honestly worked for the prescribed time, but have not been able to finish the full task.

5. By securing adequate rest for their children through insisting on early bedtime. Late hours inevitably bring a slackening of brain-power next day.

When the home and the school, the two guardians of the children, can work together in mutual sympathy and confidence, it is certain that we shall go on to discover more and more the things that make for the best upbringing of the children committed to our joint care.

PSYCHOLOGY AND THE TEACHER.¹

By BENJAMIN DUMVILLE, M.A., F.C.P.

THERE is much diversity of opinion with respect to the value of a knowledge of psychology to the teacher.

(1) A great many very good teachers not only admit a complete ignorance of the subject, but are often disposed to glory in it. And they can do so with some show of reason because they can point to comparatively inferior teachers who *have* been through a course of psychology.

(2) No less a person than Prof. James, probably the greatest of American psychologists, declares that "To know psychology . . . is absolutely no guarantee that we shall be good teachers."² And he goes on to affirm that all the psychology that a teacher need know "might almost be written on the palm of one's hand."³

(3) Mr. Raymont, the Vice-Principal of the Goldsmith's Training College, seems to be

¹ From an address delivered to the Willesden Head Teachers' Association.
² James, "Talks to Teachers," p. 9. ³ *Op. cit.*, p. 13.

following in the steps of James when he says in the preface to his "Principles of Education": "It is my firm conviction that the dependence of education upon psychology has been vastly overrated. There has been too marked a tendency to regard educational theory and applied psychology as synonymous expressions."

(4) I have heard of an inspector who said that psychology consisted in stating in very difficult and involved language what we all understand quite clearly when stated simply.

(5) It has also been pointed out that we cannot stop to think of psychology in the midst of our teaching. To attempt to represent to ourselves the complicated processes taking place in the minds of the pupils would so overwhelm us that a state of mental paralysis would result. The teacher attempting such a thing would be in a similar position to the centipede described by the poet:

The centipede was happy quite
 Until the toad—in fun—
 Said, "Pray, which leg comes after which,
 When you begin to run?"
 This wrought her mind to such a pitch,
 She lay distracted in a ditch,
 Considering, "How to run!"

(6) Evidently the Board of Education does not consider a knowledge of psychology essential, for in its latest syllabus it makes a study of the outlines of that subject alternative with a study of the history of elementary education in England during the nineteenth century.

I propose to consider these objections to psychology, and to make some reply to them.

First, then, of those many good teachers who know so little of psychology. It must be remembered that psychology is a knowledge of human nature, and that, although these teachers have not an abstract or scientific knowledge of child mind, their deep sympathy with children involves a concrete or empirical knowledge of child nature which stands them in good stead. This intuitive insight into child mind is perhaps of even more importance than the abstract knowledge which is usually called psychology. But it does not follow that those who possess it would not be still better teachers if they supplemented the gifts which they already have with a more scientific acquaintance with child mind.

As for those teachers who *have* studied psychology, yet remain inferior as teachers to their more ignorant colleagues, many reasons can be advanced for their failure. In the first place, they may not possess the sympathy with children to which I have already referred. There is, further, such a thing as having

knowledge and not using it. We are told that knowledge is power. But it is only so when it is applied to the doing of something. I remember a nurse who showed me triumphantly, on her arrival to take charge of my wife, a thermometer for taking the bodily temperature. I arrived home one evening to find that my wife had been ailing all day. The nurse stated that she did not know whether the case was serious enough to require the doctor. I inquired whether she had used her thermometer. She had forgotten all about it. So with some teachers. They may know a good deal, both of psychology and of other things; but they do not bring it to bear on the difficulties which confront them day by day.

We must next bear in mind that there is psychology *and* psychology. Much of the psychology of the past consisted of vague philosophising on the constitution of mind, *a priori* statements with respect to certain faculties, definitions of technical terms, confusing classifications of emotions and sentiments, and a mass of more or less incomprehensible discussion which was certainly of little or no value to the teacher, or, for that matter, to anyone else. A great deal of this vague and erroneous psychology still persists in many modern text-books. And it is not surprising that teachers who have studied these derive no benefit from them in their teaching.

Lastly, there are many other factors which go to make a successful teacher beside a knowledge of psychology. In addition to the sympathy with children which we have mentioned, there must be a thorough knowledge of the subject to be taught, enthusiasm in the teaching of it, the power of controlling and directing the activities of children, and—last, but not least—a full measure of health and strength to support the arduous labours of the schoolroom.

Coming now to James's belittling of psychology for teachers, we may note that it was rather inconsistent of him to publish a book on the subject which sells for 4s. 6d. If the essentials can be got on the palm of your hand, a penny pamphlet would have been nearer the mark.

Mr. Raymont's depreciation of the importance of psychology is more apparent than real. Those who read his excellent book will find that it is intensely psychological, especially when he comes to deal with the process of teaching. I am inclined to think that the overrating of which he complains has never existed. I cannot imagine anybody so stupid as "to regard educational theory and applied psychology as synonymous expressions."

Surely no one will deny that such questions as the aims of education, the subjects to be taught, the organisation and management of schools, depend on many considerations other than psychological. We are not, however, diminishing, but rather enhancing, the importance of psychology, but putting it in its proper place; for we are showing just where it can be of greatest use.

The objection of the inspector that psychology is merely the stating in involved phraseology of what we all know quite clearly has, I think, been answered in dealing with the intuitive knowledge of human nature which all good teachers possess. But to know and deal with the facts of child nature in this concrete way is not the same thing as to comprehend them scientifically. We all know and can deal with such a thing as a worm. To the ignorant person, however, it is mere skin and squash, while to the biologist, it is a complex and interesting organism.

We have next the objection that one cannot be bothered with psychology while actually giving a lesson. Prof. James puts the matter very definitely. He says: "I cannot too strongly agree with my colleague, Prof. Münsterberg, when he says that the teacher's attitude towards the child, being concrete and ethical, is positively opposed to the psychological observer's, which is abstract and analytic. Although some of us may conjoin the attitudes successfully, in most of us they must conflict."⁴

It is certainly difficult to psychologise while one is teaching. Even the most able thinkers are hesitant and doubtful, and consequently humble in their attitude, when confronted with psychological problems. But, however much the teacher may be conscious of his shortcomings when reflecting on his work, the actual lesson is not the time for humiliation. It is necessary for every teacher to face his class with full confidence and assurance. If he is to inspire respect and obedience in the children, he must give the appearance of thorough mastery, both of his subject and of his class. Even the least intelligent teacher has the right, nay, the *duty*, to adopt a cocksure attitude when standing before his class. And no superior official, whether inspector or headmaster, should ever so far forget himself as to attack, or in any way lessen the dignity of, a teacher while he is still before his pupils.

But this cocksureness in public may very well give place to a more humble attitude in private. The teacher who does not feel his shortcomings is not likely to make much im-

provement. Although, therefore, the psychological attitude may paralyse the teacher if adopted *during* his teaching, it may well be assumed during the intervals between the actual teaching. Instead of trying to *conjoin* the two attitudes, we can cause them to *alternate*. And, in this way, one will help the other. It is, therefore, rather in *preparing* for our work than in the actual conduct of it that psychological reflection will be of help.

Often this reflection will change completely the whole intended course of a lesson or series of lessons. Speaking for myself, I can truthfully say that any teaching which I do now is totally different from that which I did twenty-five years ago, before I had studied psychology.

With respect to the Board of Education's new syllabus, in which psychology is made alternative with the history of education in the nineteenth century, I may perhaps draw an analogy between the work of the teacher and that of the doctor. The action of the Board of Education is similar to that of a medical school which would allow prospective doctors to study *either* anatomy and physiology *or* the history of medicine in the nineteenth century. I leave it to you to decide as to which type of doctor you would call in to deal with a case of illness in your home.

It is not, then, sufficient to know the subjects which one proposes to teach. It is equally necessary to know one's pupils. Not merely in an external way, as concrete individuals, but in an analytic or scientific way, as living and developing organisms.

But, having arrived at this conclusion, we are confronted by a new problem. Psychology is passing from the stage of mere observation and speculation to that of experiment. And the field of experiment has become so vast that no individual, however capable, can become a master in all departments of it. There has sprung up a body of men of first-rate ability who have devoted their whole time and energy to this work. They have undergone a long course of preparation, in which mathematics, physics, and the technique of experiment play a part no less important than psychological reading and reflection. I need only mention, among Englishmen, such names as McDougall, Myers, Spearman, and Brown to indicate the type of man to which I am referring. These men have devoted their lives to the experimental study of psychology. How can the teacher, with the engrossing work of education on his hands, hope to do likewise?

Yet some teachers seem to have aspired to this ideal. A society called the "London

⁴ James, *Op. cit.*, p. 13.

Teachers' Pedagogical Research Society" has just been formed with the idea of thrashing out all problems relating to education by experiment at first hand.

Now it is interesting to note the motive which has been largely responsible for this movement. Quite a number of letters appeared lately in the pages of the *London Teacher*, the organ of the London Teachers' Association, upon this subject. The most salient point of agreement was a rebellion against criticism and dictation of principles from those who are not practical teachers, and a desire to raise the professional status, and incidentally the remuneration, of the teacher. It was affirmed that if the teacher himself investigated all matters connected with his work, he would be in a position to lay down the law himself, to brook no interference, and to gain an amount of respect and importance which he has never yet achieved.

All this sounds very plausible. But it should be pointed out, in the first place, that the people who have at present the right to criticise and dictate to the teacher with respect to his work are no more acquainted with psychology, or any other scientific foundations of education, than the teacher himself. There are few inspectors and directors of education, still less members of education committees, who are thoroughly conversant with the present state of psychology. Mr. Ballard, one of the inspectors of the London County Council, stated only last January at the London County Council's Conference of Teachers that an inspector who, like himself, studied psychology, was quite a curiosity. And the same remark applies, I think, to the inspectors of that more dignified body, the Board of Education.

Since, therefore, those who at present exercise authority in the sphere of education are without a large share of that knowledge for which some ambitious teachers pine, it is scarcely probable that, even if the practical teacher could come into full possession of it, he would thereby usurp the powers of those who now govern him.

But, further, it is an impossible feat—at any rate for the ordinary man or woman—to be at one and the same time a first-rate teacher and a first-rate researcher in psychology and pedagogy. Let us once again revert to the analogy of the doctor. The family doctor, if he is a thoroughly efficient practitioner, makes use of many methods of treatment which are due to the experiments and researches of others. He cannot hope to engage in those experiments and researches himself. In the first place, he has not the necessary training.

And, in the second place, he has not the necessary time. In so far as he attempted to do such work, he would lose touch with his particular task. That task is to understand and deal with the various individuals who confide their health to his care. Any competent medical man will tell you that no two individuals are exactly alike, and that the more one knows of the peculiarities of a given patient the more successful will one be in treating that person. The family practitioner, therefore, has all his work cut out to study the various concrete individuals who come to him, and to adapt his knowledge of medical treatment to suit the needs of each of them. In a sense, he is a more important man than the researcher. For the latter only *produces* knowledge, while he—the practitioner—is entrusted with the situations in which that knowledge is *used*. The researcher contributes one or more of the many tools which his skill employs in the art of healing. He can no more afford to turn aside to construct those tools for himself than a great pianist could spare the time to become a manufacturer of pianos. It is obvious, indeed, that, just as the pianist would spoil his delicate touch by arduous woodwork, so the family doctor would lose his versatility and smartness of judgment if he devoted a large part of his time to lengthy researches.

Just the same thing applies in education. The teacher uses knowledge obtained by many toilers, his chief task being to understand the individual pupils committed to his care, and to deal with each of them to the best of his ability. In so far as he becomes a thorough-going researcher, he tends to lose the judgment, skill, and tact which are so necessary for his special work.

I have attended the lectures of some of our prominent researchers in psychology and education. Almost invariably these lectures have been poor exhibitions from the point of view of skill in teaching. On more than one occasion, I have witnessed the spectacle of a distinguished experimental psychologist lecturing to an audience of teachers, scarcely any of whom understood a tithe of what was being said. The fault was not with the teachers. Those who attend such lectures are usually among the most intelligent in our profession. The fault lay entirely with the lecturer, who was absolutely incapable of presenting his subject to the uninitiated.

At this point one feels tempted to ask a pertinent question. If a knowledge of psychology is helpful to the teacher, how is it that these great exponents of the subject are frequently such poor teachers? The answer to

this question has been partially given in the foregoing. In these days of specialisation, one man produces a tool; another man uses it. In the hands of the man who makes it, its purpose is not achieved. But that is no argument against its utility.

Many of these researchers, indeed, are so possessed by the passion of discovery that they lose sight both of the whole subject of which their particular study forms a part and of the purpose for which all scientific knowledge has come into being.

This is not a mere speculative statement. I myself heard one of the most distinguished of our English experimenters speak scornfully of those who attempt to give a summary view of the whole field of psychology. "We experimenters," he said, "are so busy finding knowledge that we have no time to write a text-book." And his whole attitude indicated that he considered the man who attempted to give a conspectus of the subject for the use of teachers far inferior to the individual who devoted all his energies to the discovery of a small portion of the truth. From the practical point of view, however, the former is as valuable a member of society as the latter. For he is ministering most directly to the end for which the knowledge is created. In gathering together and passing on the knowledge in a form which can be assimilated by the practitioners, the teachers, he is enabling that knowledge to become power.

We see, then, that the teacher's first duty with respect to psychology is not to add to it by researches of his own, but to make himself acquainted with the results already obtained, especially with those which are likely to help him in his difficult task. As Prof. James says, "The best teacher may be the poorest contributor of child-study material, and the best contributor may be the poorest teacher."⁵

Prof. James, however, as we have already seen, goes a little too far. He not only absolves the teacher from all obligation to make positive contributions to psychology, but he reduces the amount which the teacher ought to assimilate from the writings of others to an infinitesimal minimum. He is not, however, very consistent; for in another place he writes as follows:—

We know in advance, if we are psychologists, that certain methods are wrong, so our psychology saves us from mistakes. It makes us, moreover, more clear as to what we are about. We gain confidence in respect to any method which we are using as soon as we believe that it has theory as well as practice at

its back. Most of all, it fructifies our independence, and it re-animates our interest, to see our subject at two different angles—to get a stereoscopic view, so to speak, of the youthful organism who is our enemy, and, while handling him with all our concrete tact and divination, to be able, at the same time, to represent to ourselves the curious inner elements of his mental machine. Such a complete knowledge as this of the pupil, at once intuitive and analytic, is surely the knowledge at which every teacher ought to aim.⁶

No statement of the case for psychology could be clearer or more emphatic than this. It is therefore obvious that every teacher who aspires to make himself thoroughly efficient should obtain a good grasp of the fundamentals of psychology, and should, further, endeavour to keep in touch with the developments of the subject which are continually occurring. The latter is, of course, impossible without the former. For, unless one has a clear view of the outlines of the subject, and a knowledge of its terminology, one cannot read with great profit the articles which appear in the various psychological and pedagogical journals.

In conclusion, I should like to emphasise the fact that, though a knowledge of psychology will be helpful to the teacher, it is far from being the whole mental outfit of the successful teacher, even in the matter of becoming acquainted with child nature. Psychology includes only the general laws of human nature. The different factors which go to make that nature vary tremendously in individual cases. No one can be highly successful in dealing with children who does not make a study of each one individually, so that variations of treatment are possible. Many teachers, indeed, who have never studied psychology as a science are successful because of the keen interest which they display in each of their pupils. If one had to decide between a good knowledge of genetic psychology on one hand and a lively interest in children as individuals on the other, the latter would probably be the more valuable choice.

Let not, however, those who have a good working concrete knowledge of individual children, and feel themselves capable teachers, despise the further light which psychology will throw on their task. Although they may be among the most efficient in their profession, that is no reason why they should not still further improve themselves. To say of oneself, or of any other person, that education is finished is to announce the reign of stagnation and decline.

⁵ James, "Talks to Teachers," p. 14.

⁶ James, *op. cit.*, p. 11.

THE "STRAW" HAT TRADE.

By ALBERT JORDAN, M.Sc.
Geography Master, Luton Modern School.

LUTON is the largest town in Bedfordshire, its population being estimated, at the end of the year 1913, at 54,720. It has come under public notice recently on account of its unsuccessful application for the status of county borough; and it has come under the notice of teachers on account of a question set in the geography examination of the London Matriculation Examination last year.

Many of the leading geographical text-books refer to Luton as the town where straw plait is made, as the centre of the straw-plaiting industry, etc. Two text-books known to the writer are, however, quite clear as to Luton's trade. In Mr. A. W. Andrew's text-book (Arnold), there is a good reference; but the best account is in Dr. Morley Davies's "Geography of the British Isles" (Macmillan), on pages 79 and 81. In view, therefore, of the erroneous statements published in so many school text-books, it has been thought that the following information as to the trade of Luton may be interesting, as well as useful, to teachers and compilers of text-books, who wish to keep their text-books up-to-date.

Straw-plaiting has been the occupation of a number of people in the villages round Luton, at least since the time of James the First. Most of the plait was made up into bonnets and hats at Dunstable and Luton. The trade increased considerably when the Great Northern branch line was built from Hatfield to Luton more than fifty years ago. Later, the Midland Railway Company's main line was constructed from Bedford to the St. Pancras terminus *viâ* the Lea gap, in which Luton stands; and this helped forward the straw trade at Luton, making that town of more importance than Dunstable. The locally produced plait was brought to Luton, Dunstable, St. Albans, Hitchin, and other places, and sold in the streets; and later the largest building in Luton, the Plait Hall, was erected for the storage and sale of the plait.

Owing to the removal of the import duty on plait some forty years ago, Swiss and Italian plait were imported for the Luton hat trade. Then followed the importation of plait from China, and later from Japan. It will be understood that the importations of these foreign plaits affected, to a great extent, the local straw-plaiting industry, until at the present time it is estimated that the straw plait produced in England does not reach 5 per cent. of the total used. It is impossible to get statistics relating to the production of English plait, but the following figures relating to the

value of Japanese plait and the total value of foreign plait imported into England will tell their own tale.

Value in Pounds Sterling of the Imports of Plaiting of Straw and Other Materials.

Year	Japan (including Formosa)	Total
1908	216,240	605,729
1909	276,855	898,239
1910	351,705	1,081,877
1911	323,116	926,665
1912	673,854	1,442,886

The details for the year 1912 are as follows:—

Plaiting of Straw and other Materials.

Country of Origin	lbs.	£
Germany	37,473	2,772
German Possessions in the Pacific	2,966,350	191,170
Belgium	1,375,324	189,080
France	762,255	171,505
China (exclusive of Hong Kong, Macao, and Wei-hai-Wei)	3,049,660	199,137
Japan (including Formosa)	8,362,193	673,854
U.S.A.	34,305	2,645
Other Foreign Countries	16,288	3,307
Total from Foreign Countries	16,603,848	1,443,470
British India	69,480	3,210
Straits Settlements and Dependencies (including Labuan)	119,637	5,543
Other British Possessions	8,150	663
Total from British Possessions	197,267	9,416
Total	16,801,115	1,442,886

A few quotations from the recently published "Final Report of the First Census of Production of the United Kingdom (1907)," will show the extent of the "straw" trade in Luton, Dunstable, St. Albans, London, and other centres in the year 1907. In that year there were made 1,434,000 dozen hats and bonnets, trimmed and untrimmed; and the value of these was £1,139,000. There were exported 536,000 dozen of these "straw" hats and bonnets; on the other hand, 28,000 dozen "straw" hats were imported. The Census officials state that the firms filling up returns produced £382,000 worth of hats and bonnets, using £142,000 worth of straw plait and chip braid. Assuming that the same ratio held for the whole trade, it follows that to produce £1,139,000 worth of hats, the value of all the plait and braid used in the censal year must have been about £423,000. From the Board of Trade returns it is known that in 1907 the value of plaiting of straw and other materials was £405,000 at port of landing. Thus not 5 per cent. of the plait used in 1907 was made in the United Kingdom.

According to the Census returns for 1911, the number of people engaged in the manufacture of straw plait is 822 (65 females and 757 males) in Bedfordshire, 96 (61 females and

35 males) in Hertfordshire, while the total is 967 (162 females and 805 males). On the other hand, the number of people engaged in the "straw" hat manufacture is 11,980 (8,283 females and 3,697 males) in Bedfordshire, 1,400 (1,106 females and 294 males) in Hertfordshire, while the total is 13,863 (9,714 females and 4,149 males). It is probable that these figures do not represent the total number of females engaged in the "straw" trade, for a considerable number of married women do "straw" work in their homes.

The "straw" trade of Luton may be summarised as follows. Plait is brought to the London docks, largely by the P. and O. and Nippon Yusen Kaisha liners; thence to Luton by Midland and Great Northern railways. At Luton the plait is bleached and dyed. The greater part of the plait is made up into women's hats and men's "boaters" at large warehouses, many of which use motor power; but a considerable amount of work is still done in private houses. Some of the locally bleached and dyed plait is exported to other countries. The greater number of the workers in the "straw" trade are women and girls; many of the men find employment in the large engineering works of Luton.

It should be mentioned that Dunstable, St. Albans, and London have a number of "straw" hat factories; and that during the slack season in the "straw" trade (June to October) Luton manufacturers produce considerable numbers of felt hats.

RICHARD MULCASTER.¹

By GRIFFITH G. WILLIAMS, B.A.

THE Renaissance, as it has often been pointed out, took on a very different form in England and Italy. It is not my purpose to inquire into the smaller differences, but speaking broadly, it is true to say that the movement begun by Petrarch was a whole-hearted return to the study of letters. The Italians felt very really that they were the true successors of Rome, the inheritors of a Roman tradition, and the repositories of a literature which stood for the future of humanity.

Readers of Richard Garnett's "Twilight of the Gods" will remember how he makes the Mantuans, in their effort to obtain peace, appoint the shade of Virgil as their Grand Duke, and when the Gonzagas invited Vittorino da Feltre to instruct the young princes, they must have had much the same motives as Miss Horniman when she endowed the Repertory Theatre.

In England there were at least two great influences present when Erasmus brought the cup of Elixir—a diluted cup at best—to this country; I mean education for chivalry and education for the Church.

Chivalry as a system of instruction dates from the early Middle Ages, and it had grown up side by side with the narrow training of the monastic orders. The whole idea was pre-eminently suited to the practical genius of the English nation, and it prevented the Renaissance from assuming too intellectual a shape.

The other influence, namely education for the Church, also dates from the beginning of the Middle Ages, and the first document of much importance that we have is the famous 107th letter of S. Jerome to Laeta dealing with the education of her little girl. "The pupil should only be allowed herbs, and now and then one or two small fishes; she should not take baths for fear of adding fuel to a sleeping fire, and—best of all—when she sees her granddather she must leap upon his breast and, whether he like it or no, sing Alleluia in his ears."

From these small beginnings it passed on through the Benedictines and Franciscans, until it was carried to England and found its great champion in Alcuin of York.

Thus from 800 A.D. onwards an educational system was growing up in England consisting first of Cathedral and then of grammar schools. These grammar schools were not, as is sometimes supposed, the invention of the Reformation; they had long been in existence, and it has been amply proved by all writers of note that their aim definitely was to provide suitable men to hold office in the Church. This was their end, and the interpretation they put upon it was largely coloured by the practical influence never absent from the English concept of education. In short, the schools were means to train poor boys to be parsons; they were distinctly an institution for the people, and they laid more stress on moral than on intellectual attainments.

The book which came nearest to the spirit of the Italian Renaissance was Sir Thomas Elyot's "Governour"; but even that consists mainly of a dissertation on the various practical virtues of benevolence, justice, patience and the rest, together with an inquiry into the extent to which dancing inculcates the different kinds of prudence. This being the character of the English school system, we are not surprised to find that it passed through the same vicissitudes as affected the common people during the fifteenth century.

In Henry V.'s reign it became a source of

¹ A paper read before the Dean, Canons, and Students of Christ Church, Oxford, at the Commemoration, June 24th, 1914.

complaint that the suppressing of religious houses had destroyed schools, and that "an extraordinary dearth of learning had ensued"; and in 1477 "four grave clergymen and parsons of parishes in London sent a petition to Parliament that they might be allowed to set up schools in their respective churches and appoint schoolmasters."

So that if Erasmus expected to find anything like a republic of letters here in England he was vastly mistaken. Of course, he gathered round him his own circle, but the serious, practical temper of the English educationist must have contributed largely to his irritable old age. I often think that Colet, for instance, must have been extraordinarily exasperating; one of those men one meets so often in the teaching profession who think you cannot be a man without being a marionette, in earnest without being earnest.

The result was that the Renaissance-Reformation movement, whatever its ulterior effects may have been, by its effect on the church almost blotted out education in England. The state must have been something like that described by Shakespeare in his dialogue between Jack Cade and Smith:—

"How now; who' there?"

"The Clerk of Chatham. He can write and read and cast account."

"Oh, monstrous."

"We took him a-setting of boys' copies."

"Here's a villain."

Henry himself had his daughters well educated, and did what he could, but his efforts only seem to show up the general ruin.

"All kinds of men," we read, "left their trade to turn preachers."

"Is not this thing very indecent, uncomely, and unfitting, when the shepherd is no wiser than his sheep; when the minister excelleth his parishioners nothing at all in knowledge, doctrine, wisdom, etc., but is rather inferior to them in the science of those things which principally appertain unto his office?"

There is a slight improvement in Edward's reign, but the cry is still the same. Ascham, in one of his letters, writes: "The sources of learning from which the universities are supplied are dried up"; and, in 1550, Latimer exaggeratingly says: "There are in the universities ten thousand students less than twenty years ago."

Certain it is that in Edward II.'s reign there were three hundred halls at the university; in Edward VI.'s there were eight; and with the accession of Mary things went from bad to worse. Ascham, in the "Scholemaster," speaks of "Those hevie tymes and that grievous change that chanced Anno 1553

when mo perfite scholers were dispersed in one month than many years can reare up again."

Richard Mulcaster was born in 1533; he lived through the reign of the powers of darkness, and himself heralded in the new day-spring, dying in 1611, the year of the Authorised Version.

In 1548 he went with a scholarship to King's College, Cambridge, but migrated to Oxford, where he was elected a student of Christ Church in 1555, and in the next year licensed to proceed in arts.

The next time we hear of him is at Merchant Taylors' School, where he was elected first master. His reign here was very troublesome, and after a long quarrel with his governing body he resigned at the age of 55, quoting, or himself inventing, the phrase:—

"Servus fidelis, perpetuus asinus."

After this he was high master of St. Paul's and rector of Stanford Rivers in Essex, where he died in 1611, close on 80 years of age, and five years before Shakespeare.

Perhaps nothing is so annoying to the student of education as the way in which each editor claims that his own particular man has anticipated all the discoveries of later thinkers. Ultimately it would appear that Plato, perhaps even the Chinese, were the only real pioneers in the subject that ever existed.

I am not among those who would claim that the whole Montessori method is contained in Mulcaster's "Positions." I do claim that Mulcaster is, if not the most original, certainly the most far-sighted educationist that ever lived.

When Rousseau says in the "Emile" that he sees a time of revolution ahead, people gasp at the extraordinary insight which could so anticipate events. In the "Positions" and the first part of the "Elementarie"—for they are complementary books—I think we have the germs of five of the great modern educational doctrines.

First, then, there is the fact which he announces, that every child ought to be educated. Not that every one shall be a scholar, far from it. The rich boy is not to have too much learning. "For he that never needeth by supplie of friendes, never strayneth his wittes to be friende to himself, but commonly proves retchlesse, till the black ox tread upon his toes, and neede make him trie what mettle he is made of." In short, extremes must be avoided, but we have no excuse for not giving every boy a chance. For this, reading, writing, drawing, and music will be enough to lay the foundations, together with a suitable training in gymnastic. True learning is practical.

"The highest degree whereunto learned valour doth prefer is a wise counsellour."

Secondly, Mulcaster made a curious suggestion for reform at the universities. We should divide up the Faculties more. There should be colleges of Divinitie, Law, and Physick, so that students, instead of following these subjects here, there, and everywhere, should be brought together according to their vocations. This may seem far-fetched; as a matter of fact, it is uncannily modern. The whole system of continuation schools rests on the fact that you must make the training radiate from the vocation, which the student is to follow; that if you make a shoemaker learn his history next to a barber, the whole interest and value goes. Mulcaster may have made more timely suggestions; he never made a more far-seeing prophecy.

Thirdly, we find the whole system of the training of teachers advocated for the first time in the "Positions." "Is the training of young mindes and the training of their bodies so mean a point of cunning?" Teachers must be trained and a reader appointed to supplement books; Mulcaster fixes on the word "reader" with a felicity almost pathetic, when we remember that we have had to wait three hundred years for the reform.

Fourthly, Mulcaster advocates for the first time any real education of women, basing his contention on four grounds. First, the manner and custom of the country; secondly, the duty we owe them; thirdly, their own forwardness, which God by nature would never have given them to remain idle or to small purpose; and fourthly, the excellent effects, when they have had the helpe of good bringing up. I believe I need say no more on the triumph of women's education, which our age has seen. Mulcaster speaks of those "Timons, who will say: What should women do with learning?" We scarcely meet those Timons nowadays, and we only need the degrees for women at our older universities to make the dream of three hundred years ago a *fait accompli*.

But if in these four ways Mulcaster has shown himself a pioneer, it is perhaps in the fifth that his service has been greatest. Mulcaster's whole work and writing is a ringing defence of the English tongue for education and general purpose. At the very beginning of the "Positions" he tells us that our first impression is always in English, before we do deliver it in Latin; and almost the whole of the "Elementarie" is a descripton, wonderful in its agreement with modern theories, of how language arose, and an appeal to contemporary writers not to be content with Latin, but to try what can be achieved in our own native tongue.

To me there is something sad about Mulcaster. He is an educationist, a writer, and an Englishman; but he lacks just the brilliance which made Ascham or Rousseau welcome to the general ear. However, the history of education is only now being pieced together. Pestalozzi has come to his own; it should be the task of a so-called scientific age to reinstate a writer whose faults are due to the blight of an age, rather than to any individual incompetence.

PERSONAL PARAGRAPHS.

THE Cambridge lists issued since the publication of our last number accentuate the remarks made last month with regard to the schools from which the successful candidates come. Of the twenty-five wranglers, nearly two-thirds were educated at schools other than the great public schools; only three schools—Haileybury, Christ's Hospital, and Bradford Grammar School—have two representatives each among them. One of the wranglers was at a higher grade school at Stoke Newington. Among the schools that had one pupil in the list were William Ellis's Endowed School, Owen's School, Islington, and Latymer Upper School.

* * *

THE publication of a letter in the *Daily Mail* from the mother of the boy who was expelled from Eton, together with the letter from the headmaster to her, called forth from the leaders of the Duty and Discipline Movement a letter commending the headmaster for upholding the high standard of the sense of duty among Etonians.

* * *

AMONG a very large number of school speech days, that of Felsted stands out this year owing to the fact that it is celebrating its 350th anniversary. The headmaster emphasised the remarkable coincidence that the present presidents of both the Oxford and the Cambridge Unions were old Felstedians.

* * *

THE death took place in Aberdeen, on June 27th, of Dr. George Ogilvie, who was, from 1870 to 1898, headmaster of George Watson's College, Edinburgh. Dr. Ogilvie was one of five brothers who were concerned very closely with Scottish education during the latter half of the nineteenth century. He was educated at Fordyce Academy, Aberdeen Grammar School, and King's College, Aberdeen. He taught for some years, before going to Edinburgh in 1856 as headmaster of Daniel

Stewart's Hospital, but left in 1870 to become headmaster of Watson's College, which, under him, rapidly became one of the leading Scottish schools.

* * *

MR. HAROLD NICHOLSON, modern language master at Manchester Grammar School, has been appointed headmaster of Watford Grammar School. Mr. Nicholson was educated at the Merchant Taylor's School, Crosby, and King's College, Cambridge. He left a mastership at Merchiston Castle School to go to Manchester Grammar School in 1907.

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THE REV. R. W. CLARKE, second and house-master at Sir William Borlase's School, Marlow, has been appointed headmaster of Market Bosworth Grammar School, Leicester. Mr. Clarke was educated at Christ's College, Brecon, and Jesus College, Oxford. For two years he was a master at Kingsbridge Grammar School, and for two years at Walsall Grammar School. He then went to Stratford-on-Avon in 1898, and was headmaster of Alcester Grammar School from 1906 to 1909. Recently the conditions at Market Bosworth have not been ideal, and it is hoped that under Mr. Clarke the school will enter upon a more satisfactory stage in its history.

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MR. W. W. PARKINSON, of Emanuel School, Wandsworth Common, London, has been elected by the City Corporation headmaster of the Freemen's Orphan School, Brixton, in succession to Mr. R. E. Montague. Mr. Parkinson was educated at St. Edmund's School, Oxford, from which he went to Emanuel in 1901.

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MR. W. J. WALKER, senior mathematical master at the County School, Wrexham, has been appointed headmaster of Woodhouse Grove School, Apperley Bridge. Mr. Walker was educated at Stourbridge Grammar School and Balliol College, Oxford, and took an Oxford Teachers' Training Course in 1904. He then became a master at Whitgift School, Croydon, and at Bedford Grammar School before going to Wrexham in 1908.

* * *

MR. J. G. BARR, second master of Tottenham County School, has been appointed headmaster of the new secondary school to be opened by the Middlesex Education Committee at Hendon. Mr. Barr, who was educated at University College, Liverpool, is a graduate of the London University.

MR. H. B. WIDDOWS, classical master of Sunderland Bede Collegiate School, has been appointed headmaster of the Secondary School, Whitley Bay. Mr. Widdows, who was formerly at Watford Grammar School, has been a keen and active member of the Assistant Masters' Association.

* * *

THE REV. W. C. EPPSTEIN has resigned the headmastership of Reading School, owing to the decision of the Town Council to amalgamate the School with the Kendrick Secondary School for Boys. Mr. Eppstein was at Hinckley Grammar School and St. Lawrence College, Ramsgate, before becoming headmaster of Reading in 1894.

* * *

A KNIGHTHOOD has been conferred upon Dr. W. P. Herringham, Vice-Chancellor of the University of London.

* * *

MISS RUTTY, one of the pioneers in the higher education of girls, died at a nursing home at Folkestone after an operation. Miss Ruddy was second mistress under Miss Benson at Oxford, and under Miss Porter at Bradford. She was then appointed first headmistress of the Plumstead and Woolwich High School for Girls. In 1880 she was appointed first headmistress of the Girls' High School at Burton-on-Trent. There she completely transformed the character of the school; the numbers increased, new buildings were added, and when she retired in 1913 the school was one of the most successful high schools in the country. Many of her pupils have gained distinctions at Oxford and Cambridge.

* * *

THE competition for the Ashburton Shield at Bisley was keenly contested. Sedbergh won by five points; Eton, Harrow, and Edinburgh tied for second on the actual scores, but on account of the better scores at the longest range Eton was declared second and Harrow third.

ONLOOKER.

The English Nation: Industrial and Social History. By P. Meadows. xii+254 pp. (Bell.) 2s.—This is one of four volumes, published or to be published, dealing respectively with western Europe in general and with the English nation in particular under three headings. The history in this volume is good, but the special feature is that at the end of each short chapter are given extracts from contemporary sources, and two or three questions based largely on those sources and requiring thought for their answer. A good idea; we hope it will prove successful as it deserves to do, at least with the more intelligent pupils.

THE GULF STREAM.¹

IN the Atlantic, Indian, and Pacific oceans, over whatever regions the trade winds circulate, the surface of the water over and upon which they blow is impelled in about the same direction as the breeze, with a velocity that depends upon the impetus the water has already received, and the strength of the air-current which prevails at the time.

The strength of a trade wind varies geographically, seasonally, and at the same time irregularly, from that of a light breeze, which is just sufficient wind for "working" a sailing vessel, to that of a gale, in which a considerable reduction of sail becomes necessary, even when the vessel is running with the wind aft or on her quarter. As a rule, however, the strength of a trade wind does not much exceed that which by experience has been found most advantageous for sailing when it is a "leading wind" and all sail is drawing. This is called a "moderate breeze."

As regards the Atlantic, the expanses over which the north-east and south-east trade winds blow are fairly well represented by the areas to which they are confined in the months of June and December respectively, the former being for the most part characteristic of the six months October to March, the latter to the six months April to September (see Fig. 1).

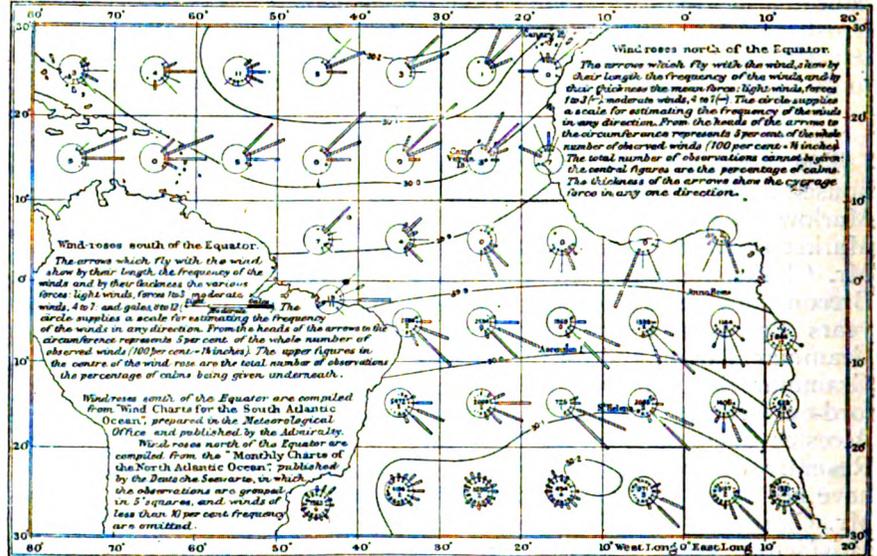
The currents set up by these steady winds are slight, confined to the surface, and intermittent in the higher latitudes in which they prevail; but they gain in strength, volume, and constancy as they flow towards the equator to form part of that mighty ocean stream, the Equatorial Current.

Although the trade winds must be regarded as the prime agents in the production of the currents over which they blow, yet the true places of origin of the

Equatorial Current are to be found in higher latitudes than those in which the former commence (Fig. 2).

Many theories have been advanced to account for ocean currents in general and for the Gulf Stream in particular. Their causation has been attributed by various writers to:—(1) Differences in the temperature and density of the sea in widely separated

WIND CHARTS OF THE INTERTROPICAL BELT OF THE ATLANTIC OCEAN
JUNE.



DECEMBER

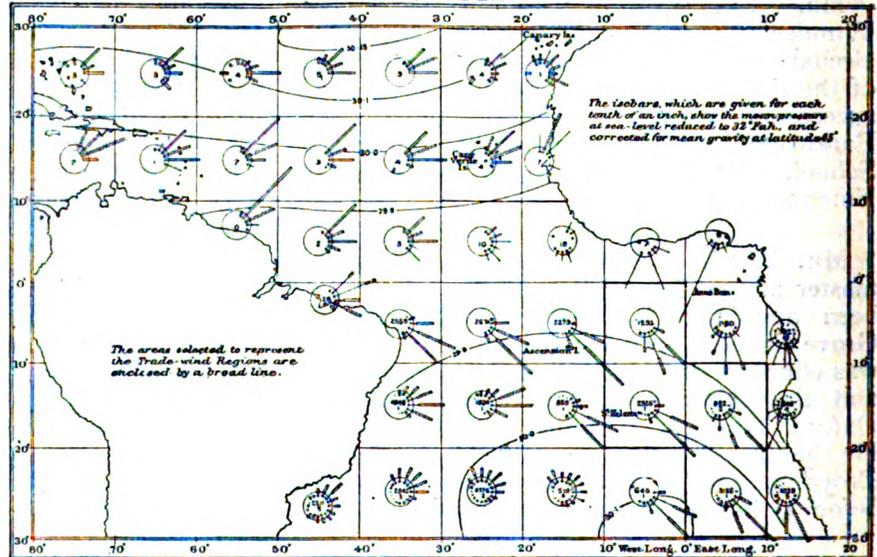


FIG. 1.

geographical positions. (2) Differences in level due to inequalities in different regions of evaporation and precipitation; and to the outflow of great rivers. (3) To convection currents. (4) To the rotation of the earth on its axis. (5) To the direct action of persistent winds.

Wind is the prime cause of all currents; persistent

¹ From a lecture delivered before the Royal Geographical Society on May 21st, 1914, by Commander M. W. Campbell Hepworth, C.B.

winds the motive power to which all the great ocean streams may be assigned. If any one be in doubt as to the fact, let him place tracings of maps on which the direction of the principal currents of the globe in the different months or seasons of the year are indicated, over maps on the same scale on which wind distribution, referable to the same months or seasons, is shown; and it will be seen how closely the currents follow the direction of the wind, and how quickly the former respond to changes in the direction of the latter.

In this connection the course of the Equatorial Current of the Indian ocean, on the western side of

caused by wind is gradually imparted to the water layer below it, and when the wind persists in the same direction for long the motion is transmitted from layer to layer to a considerable depth.

Under the influence of the trade winds, the currents when nearing equatorial regions probably extend to a depth of from 200 ft. to 400 ft.

Although the principal currents are produced and maintained by the action of persistent winds, their direction is largely controlled by the rotation of the earth on its axis and by variation in temperature and in density, also in evaporation and precipitation in different geographical positions; but these exert only

slight local modifying effects. Moreover, as regards the Gulf Stream and its causation, it was found by the officers of the United States Coast Survey that the Atlantic Ocean at Sandy Hook was 3 to 4 ft. lower than the waters of the Gulf of Mexico at the mouth of the Mississippi. This difference of level, which is said to have been ascertained by accurate measurements, doubtless is caused by the heaping up of water in the gulf by the Equatorial Current; and the power requisite for maintaining the constant flow of the Gulf Stream through the Strait of Florida must in a large measure be attributed to this agency.

The north-east and south-east trade winds drift currents, following the course of the wind, gradually turn more and more to the eastward, and increase in volume, in breadth, and depth as they flow towards the equator until they unite and form the equatorial current.

For convenience, the northern portion of this

MONTHLY CURRENT CHARTS—ATLANTIC OCEAN. APRIL.

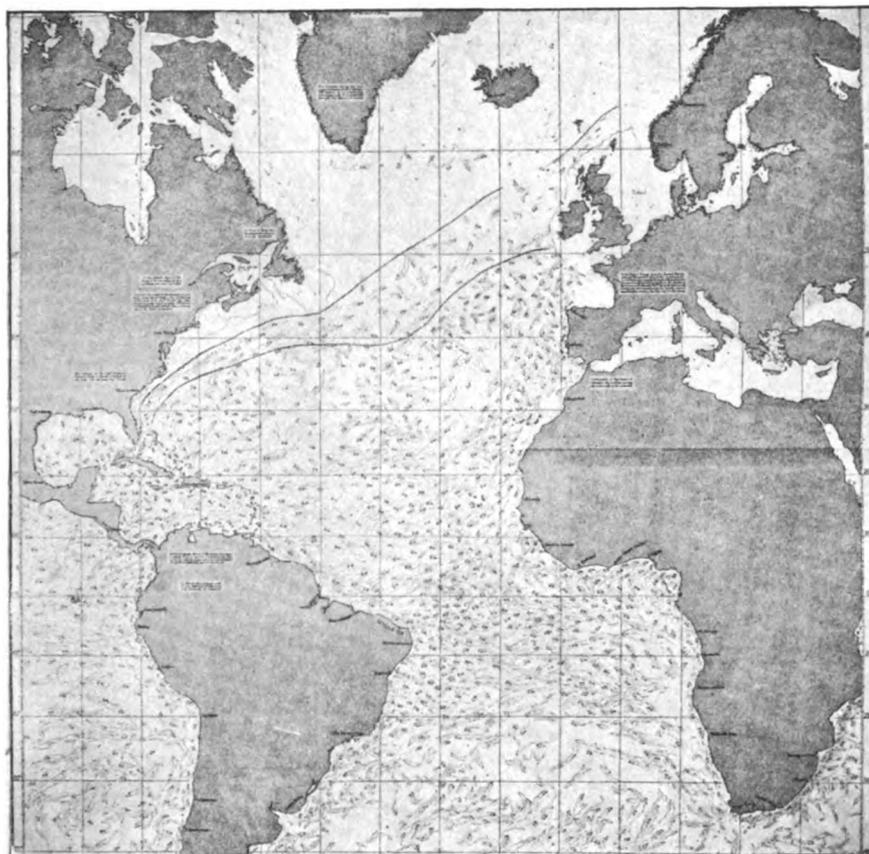


FIG. 2.—The course of the Gulf Stream from Cape Hatteras north-eastward is indicated by fine lines.

the Arabian sea, may be cited as a striking example. During those months in which the north-east monsoon prevails, the current in that region turns to the southward and joins the Mozambique Current, but as soon as the change in the direction of the wind occurs, and even before the south-west monsoon is established, the current swings round and flows in the new direction of the wind, to the northward and eastward.

All winds by friction cause some movement of the water surfaces over which they blow, while the waves, and even the wavelets they raise, add impulse to the motion; the stronger the wind, the greater being its effect at the time. This surface movement

great ocean river, which, as has already been shown, owes its origin mainly to the north-east trade wind, is called the North Equatorial Current, while the southern portion, which is derived mainly from the south-east trade wind drift current, is called the South Equatorial Current; but there is, in fact, no definite dividing line, except that during the six months of the year, June to November, the heaped-up waters of the two currents overflow between the 3rd and 13th parallels of north latitude, east of about the 50th meridian, and turn to the eastward, thus becoming a counter current, which subsequently joins a south-eastward setting branch of the north-east

trade wind drift current, and a north-eastward setting branch of the south-east trade wind drift current, when the combined current flows eastward, immediately south of and parallel to the Guinea Coast (Fig. 3).

Pursuing its course to the south-eastward, and eastward, with an average annual velocity of about 17 nautical miles a day, the greater portion of the North Equatorial Current pours into the Caribbean Sea, through the passages between the Windward Islands, while the northern edge of the current runs to the north-westward immediately to the northward of the West India Islands and between Cuba and the

Bahamas until it joins and considerably augments the Gulf Stream flowing out of the Strait of Florida. As they proceed northward, the former has a higher temperature than the latter, and a lower rate of motion. The South Equatorial Current as it flows north-eastward and eastward with an average annual velocity of about 23 nautical miles a day, also divides into two branches. The northern, and by far the more extensive branch, skirts the north-east coast of Brazil, and unites with the main branch of the North Equatorial Current, the southern edge of which has been diverted by the Guayana coast. They then pass into the Caribbean Sea. The combined currents, running with a mean annual velocity of about 23 nautical miles a day, are there impelled towards the coasts of Honduras and Yucatan, and the main body of the stream flows directly through the Yucatan Channel into the Gulf of Mexico. The southern branch of the South Equatorial Current, obstructed by the land at Cape St. Roque, flows to the south-west along the Brazilian coast. Issuing from the Yucatan Channel, part of the main stream runs into the Gulf of Campeachy, thence making the circuit of the Gulf of Mexico, and part turns north-eastward, both meeting between the Tortugas bank and the north coast of Cuba and flowing into the Gulf of Florida.

Between the Dry Tortugas and Havana, the locality in which the current is known first by the name of "Gulf Stream," the channel is 95 miles wide; between Kay Sal bank and Sombrero Kay it is 54

miles. The narrowest and shallowest part of the channel is off Cape Florida, where it is no more than 44 miles wide; and between Jupiter inlet and the north-east edge of the Little Bahama bank it is 47 miles in width. After escaping into the Atlantic from this narrow channel in Florida Strait, which is 330 miles in length, the Gulf Stream, reinforced by the northern branch of the North Equatorial Current, speeds northward and north-eastward, following the contour of the coast, and hugging the bank of soundings on its western side, where the stream is strongest, so far as Cape Hatteras.

North of Cape Hatteras the stream curves away

MONTHLY CURRENT CHARTS—ATLANTIC OCEAN. AUGUST.



FIG. 3.—The course of the Gulf Stream from Cape Hatteras north-eastward, and the region of Equatorial Counter-current, are indicated by fine lines.

from the coast of America, and spreads fan-like to the north-eastward. Its northern edge passes from 60 to 80 miles southward of Nantucket shoals, and from 120 to 160 miles southward of Nova Scotia, while a branch of the cold Labrador current, following the coast, flows to the south-westward inshore of it sharply defined by its greenish hue, the Gulf Stream being a deep blue colour. Part of this branch usually flows into the Gulf of St. Lawrence, through Cabot Strait on its northern side. Another branch of the current skirts the edge of the Great Bank of Newfoundland on the eastern side, in some months also flowing over the Bank, and, coming into collision with

the Gulf Stream, continues its course to the southward for the most part under the stream. Still another branch of the polar current, at least during some period of the year, curves round the Flemish cap.

The separation of the Arctic Current from the Gulf Stream is also marked by temperature, the former having a temperature lower than the latter by from 10° to 25° F. or more, the temperature gradient being so steep that the division has become known as the "cold wall": it has also a much lower salinity. Near the coast of the United States, surface layers of warm and cold water are found running side by side. The cold Labrador current, which is variable in strength, but is said to attain at times a velocity of from 20 to 30 miles a day, flows along the coast, partly on the surface inside of the Gulf Stream, partly as an undercurrent below the stream, but occasionally coming to the surface. It has been traced so far south as the Tortugas, while at Sombrero Kay the cold wall was strongly marked at depths varying from 70 to 100 fathoms, warm water flowing over the cold and reaching to the shore.

At the south-eastern and southern edge of the Great Bank of Newfoundland, the Gulf Stream, as already stated, comes into direct conflict with the Labrador Current, which, flowing southward, has skirted on its eastern edge and in some months invaded the bank; and this current helps to deflect the course of the stream to the eastward. Not only is the progress of the stream greatly retarded by this conflict, but a great deal of its heat, which since its emergence from the Strait of Florida it has been steadily losing, is parted with, also much of its salinity. Between the 30th and 40th meridian the stream divides; one branch of it, which circulates eventually round the Sargasso sea, turns to the eastward, south-eastward, and on nearing the coast of Europe to the southward, ultimately joining the north-east trade wind drift current, as before mentioned. This branch washes the coasts of Europe, skirts the African coast on its eastern side, and bends to the westward, towards the Azores on its western side.

The other branch, gaining renewed energy from the prevailing south-westerly winds, flows north-eastward, enters the Bay of Biscay, the English Channel, and, passing through the Strait of Dover, invades the southern portion of the North Sea as far north as the Dogger bank. The greater volume of the stream, however, continues to flow northward, and, arriving off the north of Scotland, is bent to the east by the earth's rotation. It then passes into the North Sea and Norwegian Sea, through the Faroe-Shetland Channel, over a partial submarine barrier known as the Wyville-Thomson ridge, and floods the northern part of the North Sea as far south as the Dogger bank with relatively warm saline water. It also flows between Faroe and Iceland over the northern extension of the aforesaid submarine ridge into the Norwegian Sea. This relatively warm, high-salinity water fills the greater part of the Norwegian Sea, and a portion of it penetrates to the Baltic, through a channel, which fringes the southern coast

of Norway called the Norwegian Channel, and onward through the Skager Rak, the Kattegat, and Belts. The other portion passes northward into the Arctic, mainly as an undercurrent, and its presence has been detected in the Greenland Sea under the ice-covered Polar stream, and in one spot off the west coast of Spitsbergen it again comes to the surface. It invades the Barents Sea as an undercurrent, and is said to raise the temperature of the bottom layer from 1° C. (34° Fahr.) in June, the cold season of the water, to 5° C. (41° Fahr.) or more in November, the summer of the water.

During the progress of the Gulf Stream northward from the most southerly position in which the cold bands of the Labrador current meet, in places, and mingle with the warmer and more saline waters of the stream, the latter is continually parting with some of its heat and salinity, also with much of its energy; and in that locality where the stream comes directly into contact with the main body of the Arctic Current, and largely from the force of the impact, both stream and current are diverted from their respective courses, the loss of energy, heat, and salinity of the former is in the opinion of the majority of oceanographers so enormous, and the admixture of Polar and Atlantic water so considerable, that very little, if any, of the Gulf Stream, as such, can be traced much farther north-eastward. They believe that, in its stead, or reinforcing what little of the original stream remains, a relatively warm saline current is set up and maintained by the prevailing south-westerly winds. It is this stream or current, named by them the Atlantic Current or North Atlantic Drift Current, or the European Current, which they say washes the coasts of Europe, fills the seas and channels adjacent to our islands, and makes its way into the Barents and Greenland Seas.

Others assign to the Gulf Stream a longer life, and contend that not until it has attained the 40th meridian of west longitude are its characteristics lost, but that thence the stream which flows north-eastward bears no relation to that head of water which was acquired in the Gulf of Mexico from the joint Equatorial Currents; but that the power necessary for the continuance of the stream comes from the prevailing south-westerly winds only.

From both of these theories I venture to differ; and to express the belief that the warm, relatively high salinity water which undoubtedly exercises an ameliorating effect upon the climate of our islands and upon that of north-western Europe generally, is mainly of equatorial origin, and is directly attributable to the agency of the Gulf Stream.

Whether the relatively warm saline stream or any part of its waters which flows north-eastward from the region south of the Great Bank is derived from that stream which issued for the most part from the Gulf of Mexico, or, as some aver, is an independent stream which takes its origin in the former locality, is a question which must remain unsettled until the results of further investigations are available. This, at the least, we know, that from the Strait of Florida northward and north-north-eastward to the edge of

the Bank; thence north-eastward, as well as eastward, across the ocean, aided, no doubt, by the prevailing westerly and south-westerly winds, there exists throughout the year a continuous flow of warm saline or relatively warm saline water to the north-easterly branch of which these islands owe much of their salubrity.

The salubrity of our climate is, of course, largely due to its comparatively mild and even temperature. The relatively small annual range of temperature that obtains normally results from our insular position; the warmth we owe also in a large measure to the surrounding sea, which receives much of its heat from that ocean stream, the course of which we have been following.

There appears to be no justification for the assumption that important changes have taken place in the circulation of the North Atlantic during historic times. The velocity and volume of the Gulf Stream exhibit modifications that are non-periodic as well as seasonal—modifications that may occur during any month of any year. When the Stream is abnormally active, its resistance to the Labrador current is probably carried farther north than usual, with the result that its north-easterly branch pursues its course in higher latitudes than obtains normally, and its relatively warm saline waters penetrate to the north-westward of their average limits. When, on the other hand, the Gulf Stream is weaker than is usual, according to the season, the converse happens; the north-easterly branch of the Stream commences its new course after its collision with the arctic current, in lower parallels than those in which it commonly starts, and possibly, the easterly branch is augmented at the expense of the former; so that the influence of the Stream may be restricted in two ways.

An investigation has been undertaken at the Meteorological Office, by the writer, having for its object a comparison of the changes in the strength of the trade winds of the Atlantic with average results, and of changes in the surface temperature of the North Atlantic with normal values. There was found to be some evidence to prove that departures from the average strength of the two trade winds during a series of months, and at times during even so short a period as one month, were roughly reflected in deviations from the normal through the agency of the Equatorial current and Gulf Stream in the average distribution of surface temperature in the North Atlantic in the corresponding series of months or month, as the case may be, of the succeeding year, notwithstanding the existence of many other causes affecting the temperature of the surface water, which must tend towards masking the appearance of such connection.

Proof may, therefore, be claimed, resting on a chain of evidence, that many of the climatic changes to which our islands are subject owe their origin to modifications in the trade winds of the Atlantic, communicated through the agency of the Equatorial current and its giant offspring the Gulf Stream.

HISTORY AND CURRENT EVENTS.

IN Lytton's novel, "The Last of the Barons," the author has a character, probably of his own invention, who has made a practical steam engine. That engine, according to the story, is destroyed as the work of the Evil One, and the memory of it forgotten. How many such persons existed in the Middle Ages, groping in the dark for the beginnings of modern science, regarded by their contemporaries as wizards, feared, and, whenever possible, destroyed and their work suppressed? Such are the thoughts suggested by the celebration this year of the 700th anniversary of the birth of Roger Bacon. Born just before the granting of Magna Carta, he was unknown, or in so far as known, suspected and feared by his generation, and only now has it been thought worth while to inquire how far he progressed in his ideas. It is a striking illustration of the endless possibilities of human genius and of the ignorance which is too great to allow such possibilities their opportunity. "Men born out of due time."

FOR a hundred years the apostles of international peace have been working, in and out of season, to persuade the Governments of Europe and European countries to refrain from warfare and to submit their disputes to arbitration as individuals submit their quarrels to the jurisdiction of the law courts. They have not been entirely unsuccessful, but they must confess that their success has been small, that armaments have increased, not diminished, and that they have found no remedy for forcible measures in those matters on which they feel keenly, viz., commerce and religion. Must we look to new organisations to bring about the "golden age"? Must the Governments under which the peoples are at present grouped pass away before new manifestations of the human spirit? If so, when shall we look for the signs of the new age? The Salvation Army has been holding a world congress in London, the Young Women's Christian Association has been doing the same in Stockholm, Social Democracy professes to know no distinction between nations or Governments. These have "come without observation" until recently. Is it from any of these or such like that salvation will come?

THIS summer our attention has been directed once more to the Austro-Hungarian Empire. Francis Joseph is now eighty-four years of age, and a serious illness of his set men's minds thinking of what would become of his subject dominions at the passing of this monarch whose years seem to date from ancient times, times which have long taken their place in history. How weak that Government is may be judged from the fact that the author of a learned work on the Hapsburg monarchy has been condemned in Austrian courts for a single sentence in that book, and his work has been confiscated as dangerous. Strong Governments can afford to tolerate honest criticism. As literary expression is denied to those who disapprove of Austrian methods, other means are found, and last month all Europe was horrified at the murder of the heir-apparent to Francis Joseph. It was not long ago that we directed attention to the character of Francis

Ferdinand, and we may find a reason for the crime in the hatred of Orthodox Slavs for the ultra-Catholic, and in their fear of what he might do in the probable early event of his accession to his uncle's thrones.

MEANWHILE, we note that the heir of Francis Ferdinand, so far as the Austro-Hungarian monarchy is concerned, is not any of his sons, but a nephew, and this for the reason that his marriage was "morganatic." Thus Francis Joseph will probably be succeeded by a nephew of a nephew of his, and the Austro-Hungarians are said to be glad that as the marriage of the new heir-apparent is not "morganatic," there is a probability that the crowns will in future descend in a straight line. Yet we generally regard "caste" as an institution peculiar to India, a superstition from which Europe is free. The consequence is that there is much intermarriage between the "crowned heads" of Europe, and the danger is constantly threatening which overtook the Hapsburg house in Spain at the end of the seventeenth century. Quite apart from the slight on beloved and honoured wives, is it not time that this "caste" should seek new blood?

ITEMS OF INTEREST.

GENERAL.

THE fourth International Congress for Popular Education and Instruction is to be held in Leipzig from September 25th-29th in connection with the International Book-Trade and Graphic Art Exhibition. The principal subject is the education of boys and girls of the masses from the age of fourteen to twenty, *i.e.*, between the time of leaving school and the usual age of eligibility for military service. The arrangements of various countries in this department of education will be discussed. The principal lectures will be delivered by Prof. Stanley Hall, of Worcester, Mass.; M. Buisson, Paris, formerly French Minister for Education; Prof. Meumann, Hamburg; and others. Separate sections have been arranged for:—Juveniles and Books; the Lecture System, Popular Universities, Settlements; Juveniles and Art, Museums, and Theatres; Juveniles and the Kinematograph; Juvenile Physical Culture; the Care of the Neglected and Abandoned. All particulars will be sent free of charge on application to the general secretary of the congress, Mr. Paul Schlager, Leipzig, Eutritzscher Str. 19.

THE Kent Education Committee has arranged a holiday course for teachers in educational handwork subjects at the Technical Institute, Folkestone, from August 29th to September 19th next. The school is intended to provide facilities for those who desire to fit themselves as teachers of educational handwork in schools of different grades. Students will be expected to take one practical subject, and to attend the lectures on the pedagogy of handwork. Unless a sufficient number of students is enrolled in a subject a class will not be held in that subject. Mr. James T. Baily, superintendent of manual training in Rochester, Chatham, and Gillingham will act as principal of the school. Among the subjects for which it is proposed

to make provision may be mentioned: kindergarden handwork, clay and plastic modelling, paper and cardboard modelling, light woodwork, woodwork, and metal work. A large, well-equipped house close to the school and the sea has been secured as a hostel where students can obtain board and lodging at 26s. a week inclusive. Intending students seeking advice respecting subjects of instruction and so on, are invited to apply to Mr. Jas. Quick, director for further education, Technical Institute, Folkestone.

THE Central Bureau for the Employment of Women and the Students' Career Association has appointed a special committee called the Higher Professions Intelligence Committee. The committee is expected to have a great effect upon the opening up of further careers for educated women. It is intended to collect information on the higher professions for women, with special regard to new openings; to focus such intelligence at one centre which shall be easily accessible; to supply information to the Students' Careers Association, together with suggestions as to training, with a view to the selection of suitable candidates for such openings. The committee will also study the conditions, economic and other, affecting the newer professions, and disseminate the results when desirable.

IN the Empire Day Essay Competition this year, the Lord Meath Empire Day Challenge Cup and League of the Empire personal prize of five guineas, for all pupils of the Empire between the ages of fourteen and twenty, was won by George Cooling, Boys' Grammar School, Brisbane, Queensland. The Lord Meath Empire Day Challenge Cup and League of the Empire personal prize of three guineas, for all pupils of the Empire under fourteen years of age, was won by Walter McGregor Albury, Boys' Central School, Nassau, Bahamas. Essays were received from England, Scotland, Ontario, Nova Scotia, Manitoba, Alberta, Saskatchewan, Newfoundland, New South Wales, South Australia, Victoria, Queensland, New Zealand, Cape Province, Natal, Orange Free State, Bechuanaland, Bengal, Madras, Central Provinces, Jamaica, Barbados, Straits Settlements, Gibraltar, British Guiana, Gold Coast Colony, and the Bahamas.

THE report of the Teachers' Training Syndicate on the annual grant to the Syndicate is published in the *Cambridge University Reporter* for July 10th. In June, 1906, the annual grant of £100 a year which the Syndicate had received from the University since 1880 was increased to £200 a year, on the grounds that such a grant was necessary in order to carry on the work of the training college under its management. This increased grant of £200 a year was renewed for five years in June, 1909, and the Syndicate now recommends that it be again renewed for five years from June, 1914. The grant of £200 a year from the University barely enables the Syndicate to carry on the work of the training college by supplementing the grants paid in respect of students by the Board of Education. Without such aid it would be impossible to carry on the work of the secondary-school depart-

ment of the college, which, to be done efficiently, involves expensive supervision and direction of students. The Syndicate therefore asks that the Senate will continue the assistance without which the work cannot be carried out satisfactorily.

ACCORDING to the newspapers, Sir Starr Jameson will be the president, Sir Percy Fitzpatrick the chairman, and Mr. H. E. Morgan will act as honorary organiser of an educational demonstration of an entirely novel kind to be held in London during October. The object of the demonstration will be directed to stimulating the right type of emigration to the Union of South Africa and Rhodesia. The aim will be to show in the clearest way how the individual settler can earn a livelihood in South Africa and Rhodesia and under what conditions he will work and live. Capable exponents will explain in which localities particular agricultural and other products can best be grown and how much capital is necessary for starting in any particular industry. Parents will be placed in possession of definite facts when considering what is best for their sons who contemplate going abroad. During the continuance of the demonstration, which will be open for a month, it is intended that lectures shall be delivered every evening by various authorities, who will demonstrate the possibilities of life in South Africa and Rhodesia, and will offer suggestions as to the proper training to equip settlers for a life overseas.

THE July issue of the *Eugenics Review* contains an article on education and eugenics by Mr. M. W. Keatinge, the reader in education in the University of Oxford. The essay may be recommended to teachers as well worth their thoughtful consideration. He argues the question as to what are the best conditions of selection and how education can further them. He urges that two things are needed: the production of offspring on a larger scale than is actually necessary to carry on the affairs of the community, and the existence in considerable numbers of persons who differ widely from one another in respect of inborn characteristics. He asks, and attempts to answer, the question, "What can education do to promote both these conditions?"

It is the first business of education, Mr. Keatinge says, to supply knowledge and disseminate ideals. The restriction of offspring in the professional classes, in so far as it is intentional and is not due to other causes, is largely due to a false standard of comfort and to ignorance of what is true culture. The introduction to modern society of truer and saner standards is the work of education. Once this work is done, we are told, financial pressure will be relieved, and the large family again be seen among our professional classes. The second desideratum for selection is the existence of strong variations and sports. In this direction the action of education has generally been harmful. The great public schools, for instance, turn out boys of one type, even though this type is excellent. This result requires modification; and some ways in which more desirable work may be accomplished are indicated in the article.

MESSRS. GALLENKAMP AND CO., LTD., of 19 and 21, Sun Street, Finsbury Square, London, E.C., have sent us a copy of their new illustrated *Catalogue* (List No. 52, 194 pp.), of *Charts, Diagrams, Lanterns and Lantern Slides, and Botanical and Hygiene Models*. As the list brings together some of the most important publications of this character which have been issued by various publishers and makers, it will be of considerable value to teachers and science lecturers. The list of botanical models is particularly comprehensive. It includes, in addition to models of the type already familiar in many of the better-equipped schools, an excellent series of wall diagrams in relief, and also movable diagrams explaining flower mechanism and pollination. Useful diagrams and lantern slides illustrating many other branches of science, as well as various industries, are also listed. The catalogue is so full and so well arranged and classified that of its kind it forms the most convenient reference list we have yet seen.

SCOTTISH.

UNDER the new Finance Bill, it is expected that grants amounting to £536,000 will come to Scotland for educational purposes. In view, however, of the political situation, and also of the condition whereby these grants are made dependent on the passing of provisions for the separate rating of land, there is a good deal of scepticism in regard to these grants ever materialising. Education authorities are thankful that no such conditions attach to the £70,000 which is Scotland's equivalent for the £515,000 that is going to England during the current financial year. This sum will more than compensate for the serious fall in the Education (Scotland) Fund during the past two or three years.

A DEPUTATION representative of the Scottish School Boards waited upon the Secretary for Scotland at the House of Commons and put before him their views as to the allocation of the additional grants for education to be made to Scotland during the present financial year. It suggested that the £70,000 should be divided into two equal portions, one half to be devoted to providing additional grants per pupil in average attendance, and the other half to be distributed among the most necessitous districts. The Secretary for Scotland said that he would not approve of any scheme of allocation which might have the effect of binding the hands of the Education Department in dealing with the much greater sums expected to be available during the next financial year. He proposed that the money available this year should be distributed in the same way as the present educational grants, viz., through the Education (Scotland) Fund. They would thus avoid creating any vested interests, and leave the way clear for an unprejudiced consideration of the whole question next year.

THE second report on Medical Inspection in Scotland is an extremely unsatisfactory document in so far as it refers only to the condition of things up to the end of July, 1912. Two-year-old reports have little more than the interest of two-year-old magazines. They are already ancient history; how-

ever valuable they may be intrinsically, one cannot get up any enthusiasm regarding them. The report shows that substantial progress has been made in organising the medical service throughout the country, and in coordinating it with the general public health service.

THE annual general meeting of the Scottish School Boards Association was held this year in St. Andrews. The President, the Rev. Dr. Smith, in his opening address said that in recent years, owing to the new duties imposed on School Boards, heavy additional financial burdens had been placed on the ratepayers of the country. It was satisfactory to find that the Committee on Local Taxation held it proved that there was substantial need for a readjustment of the burden of local expenditure as between the Treasury and the ratepayer. It recommended that the contributions from the Treasury should bear a fixed proportion to the total expenditure, so that if new services were required of the local authorities, the central body would have to pay their due share for the same. Dr. Smith severely criticised the provision whereby the securing of these grants was made conditional upon the passing of proposals for the separate rating of land. It was obviously unfair that a change which was admittedly long overdue, and had passed out of the sphere of things disputed, should be tied to a proposal that was certain to lead to prolonged and heated debate in Parliament. A resolution was also unanimously adopted declaring that no lasting or satisfactory solution of Scottish educational problems would be found until Scotland was enabled to legislate on educational affairs for her own people.

IRISH.

THE Intermediate Education Bill for Ireland duly received its second reading, and perhaps before these lines appear will have passed the House of Commons. If so, some points, which the second reading debate left obscure, will probably have had more light shed on them. Some time ago Mr. Birrell issued a paper containing the conditions on which he proposed to allocate the grant of £40,000 when the Act became law. Registration was to be introduced, schools were to employ a certain number of registered lay teachers in proportion to the number of the pupils on the Intermediate Roll, some security of tenure was to be enforced, and a minimum salary was prescribed. Mr. Birrell, in his speech, insisted that the one object of the grant under the Bill was to improve the position of the lay assistant-teachers. There should therefore be some condition making it essential that all the grant should go to these teachers. And this is all the more essential, as he has abandoned one of the important features of his scheme, and no longer makes a minimum salary compulsory. This was indeed the striking feature of the debate, and general astonishment was expressed in Ireland that Mr. Birrell should have stated that he was obliged to abandon the minimum salary as being unfair to small schools. Is it then his view that in a small school a qualified registered teacher will be reasonably paid a smaller salary than £120 a year?

FROM Belfast there comes not merely the noise of "wars and rumours of wars," and it is gratifying to note that the Queen's University has decided to elect for the next session a professor of education at a salary of £600 a year. This is the beginning of a "school," which will be of great service in the north of Ireland under a scheme of registration.

THE Intermediate Examinations for 1914 are now a thing of the past, and in the course of August the results will appear. The distinguishing features this year were the increased time allowed for mathematical papers and the setting of pass and honour questions in mathematics on the same paper. It is to be hoped that the same time will be given next year to the papers in languages, at least to the honour papers in Latin and Greek, as two hours are altogether too short for a paper containing composition, unprepared translation, history, and grammar. The middle grade Latin honours paper contained a passage of twelve lines for Latin prose composition, four pieces of unprepared Latin from Cæsar, Livy, Virgil, and Catullus, two history questions, and six or seven lines of oratio obliqua to be turned into oratio recta. The answering of such a paper in two hours is a race against time.

THE Department has during the past month issued the programme of the Killarney School of Housewifery, illustrated by photographs, and stating the subjects of the course with rules and regulations. The school year is from August 16th to June 30th. The admission fee is £1; candidates are admitted on probation for a fortnight, and then, if suitable, are allowed to continue at a fee of £8 per term. The school year consists of two terms. The Department also announces that in September not more than three scholarships will be awarded tenable at the Training School for Lace and Sprigging Teachers, Enniskillen. Their value will be £25 each, tenable for one year. The examination will be from September 8th-10th.

THE Alexandra College, Dublin, announces the introduction in October next of a new department for training students for posts as games and gymnastic mistresses. The course will last for two years, and will be on the lines of Ling's system of Swedish gymnastics, and instruction will be given in (i) the theory of gymnastics; (ii) the practice of gymnastics; and (3) practice in teaching under supervision.

WELSH.

At the half-yearly meeting of the Joint Board of Legal Education for Wales, the opinion was expressed that at present legal training in the Principality was too much in the hands of the University Colleges, and that it should be placed in a greater degree under professional control. It was proposed that a Board of Legal Studies should be established in Cardiff, to consist of representatives of the three local law societies, the University College, and the law students. This board was to have complete control of the courses of instruction, and the Joint Board was asked to set it up and put it into operation in time for the next session. It was, however, pointed out that the University was the legally appointed body

to provide this instruction, and could not abandon its powers; at the same time the college authorities would welcome the suggestions of a local professional committee. In the end it was decided that a conference of the law societies and the college should be held in Cardiff to consider the matter.

DENBIGH COUNTY COUNCIL has resolved to send a deputation to the Board of Education asking their sanction for an exchange of schools between Abergele and Colwyn Bay; it is proposed to transfer the Abergele Intermediate School to Colwyn Bay and the Colwyn Bay Higher Elementary School to Abergele.

At a recent meeting of the Pontypridd Education Committee it was reported that the Welsh classes started for teachers were being exceedingly well attended. This would appear to give a hint as to the probable result of compulsory continuation classes—for the Pontypridd Education Committee has resolved that in future all teachers appointed by it must speak Welsh! Considerable protest has been raised against the resolution, many persons thinking that while Welsh teaching should be encouraged in every way, it is too much to require that non-Welsh-speaking teachers should be barred from employment. Some direct personal questions have been addressed to the members of the Education Committee as to their own command of the language and use of it in their homes. The secretary reported to the Committee that according to statistics obtained two years ago, there were in the area, which has a population of 45,000, 2,514 parents with a knowledge of Welsh, of whom 693 conversed in Welsh with their children; 1,460 children attended Welsh and 4,984 English Sunday schools.

A LONG discussion took place at a recent meeting of the Flintshire Education Committee as to the necessity for officials and teachers who applied for posts being required to speak Welsh; it was remarked by the surveyor that he could not recall the case of a workman unable to speak English; for this purpose ability to speak Welsh was only a theoretical advantage. Later in the same meeting the only applicant who did not speak Welsh was the one deemed fittest for the post, and was duly elected. On the other hand, Carnarvon County Council recently decided to transact its business in Welsh, English being described as a foreign tongue. It was, however, decided to allow members to speak in either language.

THE question of finance, especially as it affects the teachers in both elementary and secondary schools, becomes increasingly urgent. Teachers are loudly demanding that a considerable share of the new grants be devoted to the improvement of their position instead of merely to the relief of rates. The Glamorgan County Association of the N.U.T. has unanimously passed a resolution expressing determination to maintain the emoluments of the teachers at a standard comparable with the standard of progress in school buildings, and calling upon the South Wales authorities, and especially the Glamorgan County Council, to make provision out of the rates and out of the extra funds provided under this year's Budget for the immediate improvement of the salaries of all grades of teachers.

THERE is no doubt that while many members of education authorities require much enlightenment as to the needs of their teaching staffs, there are many others who are in full sympathy with their demands, which they are obliged to refuse because they have not the means to satisfy them. In the course of his remarks at a meeting of the Carnarvonshire Education Committee on June 18th, Mr. Maurice Jones urged greater expedition in dealing with the county school scheme, with a view of settling the finances of the secondary schools. The salaries of some of the secondary-school teachers were inadequate. It was unfair that graduates should be paid only £100 a year, less than was paid to elementary-school teachers. The local governors could not advance the salaries without being personally responsible for any overdraft on the bank. Under present conditions progress was being retarded in the secondary schools. At the same meeting the Pwllheli Intermediate School governors asked permission to send a deputation to interview the County Education Committee with regard to the finances of the school.

IN April, 1910, the governors of Barmouth Intermediate School advertised for a science master at a salary of £130, rising by annual increments to £160, "on the attainment of which sum the question of further increase may be further considered." The master appointed began at £160 because of his qualifications and previous service, and his testimonials show his work to have been highly satisfactory; in fact, no allegation has been made to the contrary. However, he received notice from the governors that from January, 1914, his salary would be reduced to £130, "having regard to the present state of the school finances." But it is reported that at least one other salary was raised, and that the governors have even carried money from revenue to capital account.

RECENT BOOKS FOR STUDENTS OF EDUCATION.

(1) *Schools and Employment in the United States.* (Special Reports on Educational Subjects, vol. xxviii.) 225 pp. (Wyman.) 1s. 6d.

(2) *The Schools and the Nation.* By Dr. G. Kerschensteiner. Translated by C. K. Ogden. 351 pp. (Macmillan.) 6s. net.

(3) *Education and the New Utilitarianism, and other Educational Addresses.* By Alex. Darroch. 166 pp. (Longmans.) 3s. 6d. net.

(4) *The Childhood of the World.* By Edward Clodd. New edition, rewritten and enlarged. 240 pp. (Macmillan.) 4s. 6d. net.

(5) *School and Life: a Brief Record of the Life and Work of Maria E. Findlay.* 188 pp. (Geo. Philip.) 2s. 6d. net.

(6) *Dr. Montessori's Own Handbook.* By Maria Montessori. 136 pp. (Heinemann.) 3s. 6d. net.

(7) *The Montessori Method and the American School.* By F. E. Ward. 243 pp. (The Macmillan Company.) 5s. 6d.

(8) *Education and Psychology.* By Michael West. 341 pp. (Longmans.) 5s. net.

(1) THE latest volume of "Special Reports on Educational Subjects," published under the authority of the Board of Education, consists chiefly of a report, written

by Miss Winefrid Jevons, on the relation of schools to employment in the United States. This report is timely in a double sense. For not only is industrial education now attracting attention in England, but in many respects the conditions in America have a greater resemblance to our own than those of neighbouring Continental countries. In both the system of apprenticeship has languished, and in both there is an admitted lack of skilled workmen. And the difficulty of securing efficient training in the shop has directed attention to the provision of more formal and systematic instruction elsewhere. Naturally the appeal is to the schools. Both in this country and in America opinion is much divided as to what the schools can or ought to do in the matter of industrial training. But American conditions lend themselves to free and varied experiments, many of which are described in this helpful report.

(2) Some time ago we noticed a small volume by Messrs. Best and Ogden on the problem of the continuation school, and now we are glad to see Mr. Ogden in the field again with a good translation of Dr. Kerschensteiner's "The Schools and the Nation," a book in which, we scarcely need say, the same general theme is pursued. As in his previously translated works, the author holds that general education and training for a trade should not be artificially separated. Vocational training, as he understands it, is not restricted to mere technique, but is expanded and liberalised so as to become "the door to the education of the man." In the collection of papers and addresses of which the present volume consists, this view is ably explained and defended, both in its general bearings and with reference to particular educational problems. The book well deserves the distinction conferred upon it by Viscount Haldane, who contributes an interesting preface. It may be added that Dr. Kerschensteiner has a close knowledge of, and a warm sympathy with, English social life, and that from our point of view this circumstance enhances the value of his writings, all the more because the English and German educational systems have grown out of very different social conditions.

(3) A book which looks like a collection of miscellaneous essays is usually the despair of a reviewer. But the contents of Prof. Darroch's new book are not really such a jumble as would appear at first sight. The opening essay expounds the educational implications of the pragmatist philosophy. "Social utility" is the ultimate criterion by which all school courses and school methods are to be tested. We remark parenthetically that this conclusion has probably been reached by many persons who never heard of pragmatism. However, this principle, the "new utilitarianism," is in succeeding chapters applied by the writer to various problems, including moral education, the education of women, the place of the domestic sciences in the education of girls, and the meaning and educational value of history. The book would have been far more valuable, and would have had a far better chance of being widely read, if the author had rewritten the scattered addresses of which it is composed with a view of making their unity of aim more apparent. As it is, he leaves it to his reader to make the book a consistent whole.

(4) There are very good reasons why a notice of Mr. Edward Clodd's "Childhood of the World" should appear in a column devoted to books on the theory and practice of education. For the doctrine of parallelism between individual and racial development, a doctrine of which the educational implications were pointed out by Spencer more than fifty years ago, has in recent times dominated a good deal of experimental work, especially in the education of young children.

The inventions and occupations that characterise the childhood of the world have suggested suitable activities for the childhood of the individual. Many teachers of the young, therefore, and for a different reason many teachers of older children, will be glad that when it appeared to Mr. Clodd that, on account of the enormous advance of knowledge concerning primitive man since this book was written forty-one years ago, the book ought to be mended or ended, he decided upon the former alternative. We wish this deservedly popular book a new lease of life.

(5) There is a certain appropriateness in connecting the reappearance of Mr. Clodd's book with the appearance of a brief record of the work of the late Miss M. E. Findlay, a remarkable member of a remarkable family. For the keynote of much of her best work was struck when she said to the Child Study Society, "I am going to ask you to admit that in regard to . . . the training of the young child as determined by the social conditions into which he is born, we must draw our conclusions largely from the history of the development of primitive peoples." The papers on "Anthropology and Education," "Design in Art Training," and "Literature for Young Children," were thoroughly well worth preserving in permanent form, quite apart from the desire of those who knew and respected Miss Findlay to possess a memorial volume. In particular, to those teachers who are dissatisfied with forms of "manual training" which issue in mere technical skill, and require no intelligent mind behind them, we cordially commend these thoughtful papers.

(6) The two books of Dr. Montessori hitherto rendered into English, the "Montessori Method" and the "Pedagogical Anthropology," are too large and expensive, and in the latter case too abstruse, to meet the wishes of the majority of people, whether teachers or others, who desire to make further acquaintance with her system than the newspapers and popular journals enable them to make. Hence the publication of this shorter manual. In a preface note the writer refers to certain books "which may appear to the general reader to be authoritative expositions of the Montessori system," and states that the present is the only authorised manual. To those who have read the larger works, there is, of course, not much that is new here. We need only say that the exposition is clear, and that the book is well illustrated. Considering the public attention that the system has already won, we cannot doubt that this book will have a large sale.

(7) Notwithstanding Dr. Montessori's warning against unauthorised expositions of her system, English and American teachers who cannot visit Rome are naturally desirous of knowing how the system strikes their more fortunate compatriots who have been enabled to study it on the spot. Books that attempt to describe and evaluate the "Montessori method" are becoming so numerous that only the specialist can possibly keep pace with them. Yet we would bespeak the attention of teachers of young children to Miss F. E. Ward's careful, well-informed, and sympathetic effort to show what the system is capable of in an American, and, we would add, in an English school. A chapter of "first impressions" is followed by an exposition of "freedom, the underlying principle." Then comes a series of chapters in which Mme. Montessori's views of the teaching of language, number, and handwork are explained; and, lastly, the system is compared with "other agencies of early education." To use what we believe to be an American expression, the book is "well made."

(8) Mr. West has given us, in his "Education and Psychology," what is in effect a treatise on education,

cast in the form of a text-book of educational psychology. In the past this mode of exposition has not always been attended with happy results, but we are bound to say that the present attempt is a considerable success. In following his plan of giving a simple outline of psychology, and applying it "at every point to the problem of schooling," the author has not fallen into the error of using unnecessary technical terms, or into the error of dealing with psychological topics which are unimportant from the educator's point of view. More significant still, the author is too well-informed to have been beguiled into the fallacies of the "faculty psychology"—the besetting sin of those who have written on psychology with piecemeal applications to educational problems. The style of the book is popular without being cheap. We notice on page 48 a confusion between the terms metabolism and anabolism.

BOOKS FOR THE ENGLISH LESSON.

- (1) *The Bee and other Essays*. 416 pp. (Oxford University Press.) 1s. 6d.
- (2) *The Two Boyhoods and other Select Passages*. By John Ruskin. 197 pp. (Dent.) 1s.
- (3) *Anthology of English Prose*. Edited by S. L. Edwards. 400 pp. (Dent.) 1s.
- (4) *Anthology of Verse*. By A. J. Wyatt and S. E. Goggin. 361 pp. (Clive.) 2s. 6d.
- (5) *A Library of English Prose. The English Mail Coach, Companions of Columbus, England in the Sixteenth Century*. About 100 pp. each. (Blackie.) 10d. each.
- (6) *Selected Short Stories of the Nineteenth Century*. 486 pp. (Oxford University Press.) 1s.
- (7) *Intensive Studies in American Literature*. By Alma Blount. 332 pp. (New York: The Macmillan Company.) 5s.
- (8) *Chaucer and his Times*. By Grace E. Hadow. 256 pp. (Williams and Norgate.) 1s.
- (9) *Elizabethan Drama and its Mad Folk*. The Harness Essay for 1913. By E. A. Peers. 188 pp. (Heffer.) 3s. 6d.
- (10) *A First Book of English Literature*. By Prof. G. Saintsbury. 283 pp. (Macmillan.) 1s. 6d.
- (11) *How and Why Stories*. (Macmillan.) 3d., 4d., and 5d.
- (12) *Far Afield*. 248 pp. (Edward Arnold.) 1s. 6d.
- (13) *Boys who Became Famous*. By F. J. Snell. 191 pp. (Harrap.) 1s.
- (14) *Bevis of Hampton*. By W. S. Durrant. 160 pp. (Harrap.) 9d.
- (15) *More Nature Myths*. By F. V. Farmer. 150 pp. (Harrap.) 9d.
- (16) *The Book of Stories for the Story Teller*. By F. E. Coe. 288 pp. (Harrap.) 2s. 6d.

(1) GOLDSMITH does not suffer from being over-edited for schools; and yet, none deserves less that the young should grow up in ignorance of his prose. He has indeed done himself an ill service by his brilliant play, and the more illuminating Bee, and Beau Nash, take a second place to the Vicar and Moses. The essays, however, are quite as well-suited to the school as the more polished but perhaps less human Addisoniana. Goldsmith goes with Dickv Steele, and is, as every boy should know, one of the most lovable of all essayists. The present edition contains the admirable life of Richard Nash, Esq., and his wonderful epitaph; but a good deal of other characteristic work will be found in it. It is excellently printed and very cheap.

The title of (2) is somewhat misleading, for the book is a Ruskin anthology. Apart from all his teaching, his intentional eccentricities, and curious self-criticism, Ruskin is as great and good an introduction to wonderful English as de Quincey; and none can say how many people have been led to books by the "Mail Coach" and "Joan of Arc." In this "Everyman" will be found the fine cloud, rainbow, and mountain passages which abound in the greater and still expensive works. Ruskin is, of course, fit for higher and not lower forms; but when read and marked and learnt by heart, the choice being left to the boy and girl, he is found to induce thought. His point of view may vex and his autocracy may annoy; but the view is there, distinct. And as yet he has not filtered quite down to the very people to whom his teaching would be exactly what they are looking for. Writers like Ruskin arrive when the grass has been growing over their graves for fifty years.

Another "Everyman" is a most welcome "Anthology of English Prose" (3). The editor boldly claims to have done something new, and the claim seems justified. In a preface which bristles with contestable points it is laid down that in this small volume we can trace how the *Chronicle* and Gibbon, Fielding and W. J. Locke, Hakluyt and Stevenson are linked together. Everywhere we see development, and above all floats the blue veil of romance. Therefore, while we find all our old favourites here, we look in vain for those too often printed specimens which the academic critic tells us to admire, and instead we meet with Pet Marjorie and Mrs. Kenwigs and Jeanie Deans, and the Gull's hornbook. But why do not the compilers of anthologies such as this lure their readers on by commencing with the present century and going on towards the Middle Ages, ending up with the more difficult Alfred and Alfric or the Ancren Riwle?

There follows an "Anthology of Verse" (4). The editors are well known and are on the whole conservative; but a second edition has enabled them to insert some pieces not generally seen, e.g., parts of "The City of Dreadful Night," "The Garden of Proserpine," "Love in the Valley," and Noel's "Merry-go-Round." Short biographical sketches are added. The remark on the possibility of beginning an anthology of verse with to-day's work and proceeding to "Sumer is icumen in" applies, if it can apply, here also.

Three volumes of "A Library of English Prose" are before us (5). We do not know if Messrs. Blackie mean to reprint any others of the English school texts; but we cannot find that the present reprint of Holinshed or of Irving's Columbus differs either in introduction, glossary, or text from its fellow in the other series often noticed in these columns. The newer series, however, whether it will overlap or no, is altogether an improvement on its cheaper comrade. Several well-known books are promised, and these, as well as the former series so much like them, are edited by Dr. Rouse.

Dr. Hugh Walker contributes a long preface to this little volume (6), but does not touch on the work of Brander Matthews, in the same line. The short story is a thing by itself; and though we welcome a collection from English writers, we must sorrowfully admit that we are outdone both in France and America. Still, what we have, we have; but here four American writers find a place, and fourteen out of the thirty stories are not British. The idea is new, and the choice fresh and stimulating. The Squire story, Christopherson, Saint-Pe, Mr. Whittaker's Retirement, and Malachi's Cove, though all by well-known writers, will probably not be recognised at first glance by most readers; all the others are nearer

friends. There is, if we take in translations, room for ten such little volumes, and people would probably buy what has already received a sort of half-way imprimatur.

(7) American books are so closely approaching ours, or ours theirs, that it is rare to find a volume with very distinct marks of its origin. At any rate, this is true of school books, with the exception of books on composition. But here to leave the title for a moment we meet at once with a "rhetorical introduction." If a reviewer branded an introduction as rhetorical probably the author would write and complain. According to our idea, the short introduction has nothing rhetorical in it. But what is intensive study? It is, if we leave out the chapters on metre, figures of speech, etc., the rules to be followed in attacking a masterpiece. These are stated in so clear a way that the reader can easily follow them; but into the deeper questions of what actually produces the effects gained by masterpieces Dr. Blount does not go. The book, therefore, will be of use mainly to the young teacher or to the solitary student; it is none the worse for being elementary. It demands quite as much as Mark Pattison ever did, a good working memory of the text. A class conscientiously following the outlined study of "My Lost Youth" could not fail to have learnt a good deal. The reason for the illustrations (Shakespeare's birth-room is figured in the chapter on stanza and rime) is perhaps not clear; some of them do seem to elucidate the poem studied, but not all. We have very little of this kind of work—common sense guidance to a first appreciation.

No. (8) is one of the last of the "Home University Series," now so well known. Miss Hadow is a most well-stored writer, from whose pen Chaucer receives the glory due unto his name. She gives a rapid outline of the times, treats of Chaucer's sources, and then abruptly takes us to his character drawing, his humour, and his views on men and women. The little book ends with a chapter on the poet's influence and with some of Skelton's exaggerated doggerel. It seems that it is rather too much to claim that Chaucer's tales always fit the character of the teller, and no argument will make the portentously dull tale of the jolly monk, the beautiful tale of the "Wife of Bath," and the fine tale of "The Pardoner," suit the people into whose lips they are put. Again, it seems to us that Miss Hadow has not made out the case when she says that Chaucer cannot wed sound to sense. The Knight's tale and the Pardoner's supply many instances. Once more we should have been glad to have something more than Dr. Skeat's *ipse dixit* on the vexed question of the sounding of the final "e" at the end of lines. To begin with, anyone who has tried the reading aloud of a hundred consecutive lines according to Dr. Skeat's orders is likely to find them intolerably wearisome, and wearisomeness none of Chaucer's admirers will ever allow to be possible. But more: the learned *Globe* editors will have none of this dictum. So much depends on this final "e" at the close of the line that it would be well to have said much more about it. Perhaps no editor will be quite ready to admit that Chaucer or Shakespeare or Tennyson ever stole work that another's brain had hammered into an already beautiful shape; it is the fashion to say that the great cannot steal. The theft, if successful, is no theft; but Chaucer always admitted that he was not original. These are but passing notes on an admirable and interesting book by a good guide.

All serious readers of drama must at some time or other have been troubled with the presentation of madness on the stage. The stage has created a mad-

ness of its own; and we doubt if attendants in asylums at any date would be greatly struck by the likeness of Shakespeare's or any other of the older dramatists' mad folk to the sad people who have come under their care. It is the fashion to say that all Shakespeare's characters are true to life, just because they are Shakespeare's; and if his madmen are not real, then real madness will have to reform its ways. Yet it must be remembered that the study of madness, melancholia, and even mania was easier in Elizabethan times than in our own. Mr. Peers divides his essay (9) into nine parts, the subjects of which are the presentation of madness from the point of view of history and literature; the maniac; the imbecile; melancholy; delusions and hallucinations and the pre-tenders; there are added an introduction and a conclusion. He thinks that Shakespeare was far in advance of his contemporaries in his studies of the mad; that he is kind in his treatment, never exposing madness to the laugh of the groundlings; and that he is as good as a modern physician could wish him to be in his delineation. There are people who will tell you that neither Lear nor Hamlet nor Constance was either mad or near the line; so easy is it to find matter of dispute in Shakespeare; but there can be no doubt about poor Ophelia, and even here, possibly his mad masterpiece, it is doubtful if the sure touch of Ford or the surer touch of Beddoes has been reached. It sounds heretical; but those who have even for a brief space studied at close quarters the people we call mad will, we think, agree that madness is represented, if this is necessary, partly by sudden and not continued mad action, and partly by sudden and not continuous mad talk. But no one will agree on this subject. Every man his own madman; and we can imagine readers getting quite angry at hearing Mr. Peers call Lear's Fool half-imbecile. An interesting bibliography is added.

Comparing Prof. Saintsbury's "First Book" (10) with the short history lately noticed, one's first question is: Why was it written? Presumably for younger readers; yet it is not easy. That it is a different book, as the author maintains, we may readily allow; but both books seem to be for the advanced, or, at any rate, the semi-advanced student. Prof. Saintsbury is as interesting here as everywhere, and the additions to each chapter are new and suggestive. It is suggestive, too, that the writer at the fifth lustrum of his literary reading claims so much for equivalence in early English and for its effect on Shakespeare; that he thinks Lancelot and Guinevere far higher than Tristram and his two Iselts; that he almost passes over Chaucer's immense debt to France, and consequently our debt; these are a great critic's favourite themes. All the book is full of what we have learnt to claim as a right from the professor, and can do nothing but help. A chronological conspectus and a glossary are added. A curious variant of the writer's former version of Deor's refrain occurs; probably neither is intended as a translation, and certainly neither comes near the old English; and it is strange to hear Prof. Saintsbury talking of the "Ode on the Recollections of Immortality." Thirty pages are devoted to "the first Romantic Period," but no hint is given to the beginner of the limits of the second or third Romantic Periods. If we must label, let us be clear in our labels.

Among children's books which require notice are "How and Why Stories" (11). They are an attempt to explain in the old-fashioned way known to other generations the why and wherefore of some of the phenomena of the world. Kingsley's famous little

book, abridged, forms the senior volume, and the series is paralleled by "Here and There Stories" from the same publishers. These are shorter, and take travel, ships, and occupations for their subjects. The price is 3d., 4d., and 5d.; all the books of both series are beautifully printed and fully illustrated.

"Far Afield" (12) also deals with travel, but its distinctive mark is that it is entirely modern. That is to say, its extracts are from those books which as yet have not penetrated to the school library. No boy, however desirous of adventure, could fail to be intensely interested in these narratives, ranging as they do from gorilla hunting to the unveiling of Lhasa and the attack on the Legations. There is certainly room for several volumes compiled on the same lines.

Of a different character but quite as welcome is "Boys who Became Famous" (13). There is a want of books on historic boys, and any gleanings of the early history of such great men as had any boyhood at all are welcome. Some familiar names occur; but Cartouche, Cruickshank, and Mark Twain will probably be strangers to the schools. The story of de Quincey's boyhood might have taken in the elder brother and the street fights. There is a great deal about boys yet to be gleaned from the pages of out-of-the-way histories, but unfortunately the boys whose childhood is so fascinating do not always become famous. Hugh Miller, though, might have found entry to this book, even if only for the cock-fighting; and either of the young Platters would have charmed the boy of to-day.

"Bevis of Hampton" (14) and "More Nature Myths" (15) belong to the series which contains so many tales well done. It would be an agreeable and probably quite a useless task for a teacher to index and write a companion volume to the thirty books Messrs. Harrap have produced; they range from Jason to Fenimore Cooper and from Chaucer to the Kalevala. And when they are read they are like last year's snows. But taken as a basis of an interesting method, revised occasionally, compared with one another, they would make an admirable groundwork for the attack on literature itself. This is the main use of a series, and probably schoolmasters would, if allowed to buy their own tools, often demand the whole of a good series in order to use it as a series, i.e., to put it to the use for which it was intended. The book on myths is an excellent introduction to folklore, and Bevis leads to the "gate of all good adventure."

So far, Americans have outdistanced us in their collections of stories for little children; but the best collections are those made by the individual teacher. For the over-worked person who cannot get to libraries, Mrs. Bryant, Miss Lynam, and the present writer (16) provide. The stories, many of which are old friends, are well adapted for their purpose, being admirably told, and containing just as much moral as would please Mr. Archibald, i.e., none at all. But story-tellers are beginning to see that "morals" will not do. This book looks as though it were intended for the child to read; but it is high time that a quite serious bibliography of the material suitable for story-telling were compiled and placed in every teacher's library. We hope it may not be left to an American to carry out what Miss Lynam and Prof. St. John have but lightly touched. There are forty-three stories in Miss Coe's book, and there is plenty of choice. We do not know on what authority the editor assigns the *Hobvahs* to C. S. Bailey. At any rate, Mr. Jacobs, of folklore fame, gives the name of S. V. Proudfit as the preserver of this admirable tale. Even to preserve it was an achievement.

THE BRADFIELD GREEK PLAY.

The Alcestis of Euripides: The Greek Text with English Verse Translation Parallel. By Sixth Form Boys of Bradfield College. 47 pp. (Oxford University Press.) 1s. 6d.

THIS is the Oxford text which was used for the performances last June. The English verse translation was done in sections by different boys as a holiday task, and shows a very good standard of work:—

"How can we fetch our lady back,
Wandering o'er the wave?
Not though we fare to Lycia's strand,
Nor Libya's arid wastes of sand,
Will it avail to save."

And again:—

"Of all the gods to her alone
No image stands, no altar-stone;
Their blood no victims pour.
Be not the goddess' awful sway
More burdensome upon my way
Of life than heretofore!
For whatsoever Zeus purposeth,
With her aid he accomplisheth;
The metal of the Chalybes
She quells, and by the stubbornness
Of man she sets no store."

reproduce the spirit of the original in a way of which any schoolboy may be proud. Equally good is the sympathetic translation of the slave's description of the doings of Alcestis before her death, of Admetus's invocation to his wife to visit him in dreams, and of several other passages which we cannot here quote. But all can buy the translation for themselves.

We saw the performance on the last day, and appreciated it very much. But it is to be regretted that the old pronunciation is still employed. We read on the programme:—"The question of the pronunciation of the Greek has been taken into consideration, but it has been felt that, however much the usual practice of ordinary English scholars may be untrue to ancient or modern Greek, yet any departure at present from the 'English' vocalisation would rob the representation of much of its familiarity, and therefore of its attractiveness, to the majority of the audience who have been educated in English schools and universities."

We blush for the Bradfield authorities in giving such a basely utilitarian reason as the above. The play is surely a religious performance in which no account whatsoever should be taken of the audience. We will not argue with them on this level, but even here they have by no means a sound case, considering how long the Classical Association has been recommending the restored pronunciation and the number of schools which have adopted it. When Bradfield does follow its conscience we shall look with interest to find an improvement in the delivery of the lines. At present the iambic ictus is stressed far too much, and, on the whole, the Greek accent was correctly pronounced only when it happened to coincide with the iambic metre. Consequently—and it is a significant fact—the accent was much better in the choral parts than in the speeches.

If the Bradfield authorities make up their minds that they are out not to please their audience, but to give a highly artistic performance, they will not long continue to produce a play in which the beauty of the language is totally ignored. Then they may find that they are also pleasing the part of their audience which alone matters; at present there is danger that a thing so valuable as this should, owing to these deficiencies, totally "miss fire" with those who matter most.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

La Guerre de Cent Ans. By E. A. Woolf. 112 pp. (Dent.) 1s. 6d.—This is a reader presenting a portion of French history in a manageable form, edited after the new method, and written in a fairly simple style. The book starts with the story of the claim of Edward III. to the Crown, and gives an outline of the history of the period. Into this period fall Crécy, Poitiers, La Jacquerie, Azincourt, Jeanne d'Arc, events and people likely to interest any young student of French, and French history. Each section is accompanied by notes, and followed by reform exercises of the usual type. Subjects for free composition are given, dealing with the matter already studied. A student who works through this book will improve his knowledge of the language and history of France.

French Essays and Essay Writing. By J. P. R. Marichal. vii+156 pp. (Dent.)—A helpful book, suitable for those who have worked through a simple series of exercises. The atmosphere is distinctly French, and the introduction contains many useful hints. Among other good points must be reckoned the "Sujets développés" and the "Sujets à traiter," of which a large number is given. So large a choice of suggestions for essays is offered, indeed, that there should be no difficulty in keeping a class busy for some terms. Excellent passages for preliminary study have been sought out. It might be thought hard to provide material for essays such as "Décrivez les bruits qu'on entend sur la place du marché," or "Décrivez le bruit d'une usine," or "Les bruits dans une grande gare"; but a reference to pp. 50, 51 will show that our author has overcome the difficulty. The book is intended to cover the ground from the middle forms of a grammar-school to university classes.

Tra La Jaro. Esperanta Lernolibro. By Lucy E. Waddy. 120 pp. (Dent.) 1s. 6d. net.—It may be that the educational value of a language depends more on the way in which it is taught, and on its literature, than on its actual self. Consequently we are glad to direct attention to this introductory book on Esperanto, edited on the new method. In Esperanto we have a logical language that will soon contain a large, if translated, literature. To him, too, who does not believe in the new method, we recommend the book. Let him test the system by working through the lessons on the four seasons, with the help of the well-known pictures. In the account of the spring picture he will see how "Karlo saltas inter Heleno kaj Anno"; and in that on winter he will discover "Proksime de la forĝejo staras radeĝo." An experiment with this book might lead to curious results in the hand of an investigator without prejudices.

Classics.

(1) *An Elementary Latin Grammar.* By E. E. Bryant and E. D. C. Lake. 115 pp. (Clarendon Press.) 1s. 6d.

(2) *Latin Grammar for Schools and Colleges.* By W. K. Gillies and F. P. Shepherd. viii+207 pp. (Oliver and Boyd.) 2s.

(3) *Matriculation Latin Course.* By B. J. Hayes and A. J. F. Collins. ix+386 pp. (Clive.) 4s. 6d.

(4) *A Shorter Second Latin Course.* By E. H. Scott and Frank Jones. xi+200 pp. (Blackie.) 2s.

For the first of these we see no reason; there is no improvement either in arrangement or matter on the stock school grammar such as Kennedy's "Revised

Primer." *O tables!* and rare words like *colus* are still with us. The only good thing about it is that it is well printed.

The second is much better—the endings both of declensions and conjugations are in thick type, as also are the irregular persons of *volo*, etc. Adjectives and nouns are worked together, and personal and possessive pronouns are correlated. A table of the formation of tenses, with an actual example, would have been better than the list which is given of the mere names of tenses. There is a full syntax and an appendix dealing with the calendar, metre, rules of quantity, etc. The book is lucid enough for beginners, and both scientific and full enough for boys right through their school course.

Number three is a heavy compilation. Why must Latin be made ridiculous by such things as:—

"Classed among the males must be
Hadria, *Adriatic Sea*?"

and again:—"The boy's words are pleasing to his grandfather"? We imagine that Messrs. Hayes and Collins are in a pretty deep rut. There are some fifty reading lessons with exercises, in which the extracts are of a more sensible nature than the rest of the book would lead one to expect.

The last of these is a shorter edition of the author's "Second Latin Course" to suit teachers who find that they have not sufficient time to go through the whole of the original edition, and experience practical difficulties in omitting exercises or parts of exercises. Those who have used the unabridged course will know that this is a great improvement upon the usual manual, while by no means going the whole way with direct-method teachers. Everything is carefully graded, and the book strikes one by its orderly efficiency, but it is dull. We feel that something on these lines, equally well graded and arranged, if it could only be made more interesting, would be the ideal. Is it impossible?

Folia Poetica, or Short Poems in Latin Verse. By J. C. Wordsworth. 71 pp. (Heffer.) 1s. net.—Here are ten original poems of varying length in hexameters and elegiacs which are likely to be useful to schoolmasters by suggesting how they may enliven their Latin verse lessons. Some are mere exercises, but there is also a lively river picnic and a debate on Olympus about *Jus Suffragii*, in which Minerva is opposed by Mars. The book was worth publishing for the subjects it treats, though there is no really remarkable charm about the versification. We fear that Mr. Wordsworth has taken too seriously a line of his own in the poem entitled "Ars Poetica": "Non sine Parnasi Musa petenda gradu." But the book is worth getting for its suggestiveness.

History.

The Teaching of Geography and History. 132 pp. Boards, 1s. net; cloth, 1s. 6d. net.

Our Island History. 320 pp. 2s.

The Modern British State: An Introduction to the Study of Civics. By H. J. Mackinder. 268 pp. (Philip.) 1s. 6d.

THESE three books form parts of a single scheme, and they constitute a notable departure from the ordinary track of education. Mr. Mackinder has already published a four-volume series of "Studies in Geography," in which, starting from the mother country, he has depicted with charm and admirable lucidity the salient features of the world. He now adds the two volumes, "Our Island History," and "The Modern British State," changes the title of the augmented series to "Studies in Geography and

History," and finally furnishes teachers with a practical companion to the studies, a book of method, entitled, "The Teaching of Geography and History." It is in Mr. Mackinder's effort to coordinate geography and history into a single unified scheme that the peculiar interest of the volumes before us consists. "Every fact and event," says Mr. Mackinder, "have both a geographical and a historical aspect. Space and time cannot be separated, except in books. It is because they are to a large extent separated in our school-books that history and geography often seem so unpractical to our children." The little hand-book of method in which he develops this thesis merits the close attention of educationists; it is a fascinating study of the child-mind and its mode of expansion. The text-book "Our Island History" assumes a knowledge of its geographical predecessor, "Our Own Islands," and it builds the history of Britain largely on a topographical basis. This is valuable, and the book, with its numerous and excellent maps, will be of great use to teachers, even when their classes are reading other manuals. The third volume, "The Modern British State," is intended for mature pupils at the end of their elementary course. It describes agricultural and industrial conditions; commercial and maritime activities; financial and political organisation. Civics is not a lively subject; but Mr. Mackinder, well-equipped from the stores of his varied personal experience, does all that is possible to make it tolerable.

The Foundations of International Polity. By N. Angell. xlviii+235 pp. (Heinemann.) 3s. 6d. net.—Mr. Norman Angell's main thesis should now be well known, since he set it forth in his previous work, "The Great Illusion," and has since expanded it in lectures on several occasions. He maintains that during the last fifty years at least, the internationalisation of commerce has created groups of dealers whose interests may be opposed, but who are by no means conterminous with the area over which the Governments of Europe and European countries reign. It follows, therefore, according to him, that the folk who would wish to destroy their rivals have as such no armed forces, and that the Governments that have armed forces have no quarrel one with another. The "great illusion" is, accordingly, the idea that Germany, for example, would gain anything from an even successful war with Great Britain, because so much German and British capital is involved in the territory of their neighbours, so intimate and delicate are the trade relations between these two countries that the looting of London, *e.g.*, would ruin many German firms almost at once. In the book under notice, which consists of the substance of six of his lectures, he elaborates these arguments in ways varying according to his audiences, and shows that this interdependence is not merely between any two countries, but is world-wide and complicated. The reader will find much repetition, but Mr. Angell thinks this necessary to rub in his novel and important points, and the teacher who will assimilate the views here set forth, to which we at any rate can find no answer, will henceforth be better able to give his pupils sounder notions as to present-day international politics than has previously been possible.

English History in Contemporary Poetry. Nos. 1-4. (Bell.) 1s. net each.—These are four pamphlets issued by the Historical Association, and apparently in their origin papers read before meetings of that society. The first of them, by Prof. Bruce, contains sixty-six pages, and deals with the fourteenth century; the others, by Mr. Frazer, Mr. Kingsford, and Prof. Hearnshaw, respectively, contain about 50 pp. each,

and together cover the period 1485-1688. The matter in every one is excellent as an introduction to the subject, and we can heartily recommend them to our readers. But somehow, as we read, a sense of tantalisation comes over us. The curtain is only just lifted for a moment; sometimes even we are told it cannot be lifted in the time allowed. This is, we suppose, a consequence of the origin of the pamphlets, but we wish the authors had expanded their lectures a little when they sent them to the press. However, we are thankful for what these authors give us, a thankfulness which we express in the words of Oliver Twist—"More!"

Mathematics.

Descriptive Geometry. Part i., *Lines and Planes.* By J. C. Tracy. Part ii., *Solids.* By H. B. North and J. C. Tracy. (Wiley; Chapman and Hall.) x+126 pp. 8s. 6d. net.—This work is remarkable for the exceedingly clear and logical manner in which the subject is treated. The method adopted is indicated in the preface in the following words:—"There are only four problems in descriptive geometry that are fundamentally different; all others depend for their solution upon one or more of these four fundamental problems." Hence the main object of the book is to teach the student to resolve a new problem into its component parts or steps, and to recognise in each step a previous problem with which he is already familiar. Great pains have been taken to facilitate and ensure a thorough comprehension of fundamental principles, so that the student will use his intelligence and not merely follow rules. The text is divided into three columns. In the first is given the general method for solving a problem, in the second the general principles are applied to the particular problem under consideration, and in the third are the figures corresponding to the successive steps of the construction explained in the second column. The second part deals with the development of surfaces, plane sections, lines and planes tangent to curved surfaces, and the intersection of surfaces. No attempt has been made to include practical applications; these are to be given in a supplementary set of exercises to be issued later.

A First School Calculus. By R. W. Bayliss. xii+288 pp. (Arnold.) 4s. 6d.—There is no trace of the lecture style about this book. It has grown naturally out of the author's experience in teaching the subject, and we feel sure that the method which has proved so successful in Mr. Bayliss's hands will be found by others to yield equally satisfactory results. Stated briefly, the method is one of teaching by example rather than by precept. Every new idea is introduced by means of some simple concrete problem, and the pupil is induced to construct the instrument for solving the problem by means of question and answer and by suggestion. The problems are derived from a great variety of sources, and relate to all sorts of practical problems. The answers to the questions are very full—they occupy more than one hundred closely printed pages—and the book is therefore well adapted for use by private students.

Science and Technology.

Dialogues concerning Two New Sciences. By Galileo Galilei. Translated from the Italian and Latin by Henry Crew and Alfonso de Salvio. With an Introduction by Antonio Favaro. Pp. xiii+300. (New York: The Macmillan Co.) 8s. 6d. net.—Galileo's "Discorsi e Dimostrazioni," or "Dialogues on the New Sciences," were published at Leyden in 1638, and were done into English in 1665, and again in 1730, but copies of these editions are scarce and expensive, and the translations are often too literal to be intelligible to modern readers. The dialogues contain prac-

tically all that Galileo has to say on the subject of physics; and this new English version of them will be received with lively satisfaction by all who are interested in the history of science. The theorems and demonstrations included in the work were arrived at during the eighteen happy years which Galileo spent at Padua, early in the seventeenth century. The conditions in the city at that time were favourable to such work; for the Venetian Senate granted the lecturers the utmost liberty, and experimental methods had been practised at the University for more than a century. The work was not, however, published; and it was while in exile at Siena, after his trial by the Inquisition in 1633, that Galileo began to inquire as to whether the order against the printing of his astronomical views applied to his experiments in mechanics. It did, wherever the long arm of the Court of Rome reached, but the Dutch publisher, Louis Elzevir, secured the manuscript and printed it. This is the work upon which the present text is based; and we can say at once that it is a long time since we have had before us such an attractive and stimulating addition to scientific literature. We are brought into intimate touch with the earliest experimental philosophy by these dialogues, and are able to read in current English, accounts of Galileo's experiments and conclusions as to the action of a pump, the motion of a pendulum, strength of materials, use of an inclined plane to determine acceleration of falling bodies, and a hundred other problems in physics and applied mathematics. We are indeed grateful to be in possession of this rendering into English of a classic work by the founder of modern experimental science; and we trust it will be made available to all teachers and serious students of dynamics and physics.

A Manual of Practical Physical Chemistry. By F. W. Gray. xv+211 pp. (Macmillan.) 4s. 6d.—The increasing importance of physical chemistry is reflected in the number of text-books dealing both with the theoretical and practical aspects of the science. It is not so many years ago that we had only one manual of physical chemistry written and published in this country, and for many years the only source of information on the practical side was the translation of Ostwald's "Physiko-chemische Messungen." This lamentable state of affairs is being speedily rectified, and the present manual is a creditable addition to our text-books. Dr. Gray has based his work on his own experience in teaching practical physical chemistry to large classes. It comprises thirty-nine exercises which have been written to a time limit, so that the average student can readily undertake any one of these determinations in a two or three hour period. It further contains several experiments which can be carried out by the student who has more time at his disposal. The book opens with an admirable chapter on experimental error, limits of accuracy, and the various methods to be adopted in securing the most trustworthy representation of the various measurements which are undertaken in physical chemistry. The author points out that special attention has been paid to the subject of accuracy, which, unfortunately, in many books of this kind, is treated in an inadequate and unsound manner. The directions for carrying out the experiments are clear, full, and thoroughly dependable. Ample diagrammatic illustration is provided, and the student who carefully follows out the excellent practical details cannot fail to obtain satisfactory results. Many useful tables are provided, and, in short, the book is one which can be most heartily recommended.

Chemical Calculations. By H. W. Bausor. Part i. 136 pp. 2s. Part ii. Advanced. 48 pp. 1s. (Clive.)

—These useful little books may be heartily commended. As the author points out, there is some risk at the present time that the pupil does not get the same grounding in calculations as in years gone by. The ability to tackle a problem shows pretty clearly that the student has mastered the fundamental laws of the science, and such a collection of exercises as Mr. Bausor has got together should prove most valuable in providing practice in applying these laws. Vol. i. provides examples on density, gas laws, solubility, equivalents, Gay Lussac's law, Avogadro's hypothesis, determination of formulæ, equations, Dulong and Petit's law, and the law of isomorphism. The second volume deals with organic analysis, molecular weight determination, the law of mass, and thermochemistry. Each part is provided with logarithmic and other tables, and with answers.

Introductory Electricity and Magnetism. By C. W. Hansel. 373 pp. (Heinemann.) 2s. 6d. net.—The greater part of this volume is devoted to a simple and non-mathematical description of the chief phenomena, and a few chapters are added in order to introduce fundamental quantitative measurements in which only elementary mathematics is required. Numerous experiments, which the student is expected to carry out, are described in the text; these will form a satisfactory first-year laboratory course. The numerous diagrams, though somewhat crude, are sufficient for the purpose.

Pedagogy.

Reading Aloud. By Hardress O'Grady. 160 pp. (Bell.) 2s. net.—"I believe reading aloud to be . . . an interpreter of the hidden things." These words, which are the last in this little book, are its keynote, and a very good keynote too. Throughout we are in company with an evidently competent enthusiast. The writer boldly throws over the shibboleths of the "voice-producer" and the elocutionist, and appeals to the personal influence of the class-room; and yet he writes a book. The result is that the production is stimulating and convincing but we still believe, not in spite of, but because of Mr. O'Grady, that the class-room and the private lesson are the scenes of all improvement in higher reading. The book is a chatty, personal, varied, and, so far as we can judge, correct account of the few rules and the great possibilities of good reading; and it loses nothing by the omission of all references to the works of Legouvé, Clifford Harrison, and Bonnier. It is full of extracts of considerable beauty, and it makes the necessary points on the pause, the stress, and the most careful study of details. Having said this, we need not fear being misunderstood for directing attention to the following. Most public speaking is disgraceful, but the worst is heard in educational conferences. Good "business reading" is greatly needed, especially in churches, and the author need not minimise the importance of distinctness in drill orders; the present direction-giving in Swedish exercises is quite ridiculous, and any phonograph would show it up. *Boys obey the orders simply because they know what is coming*, and there is little to choose among teachers and inspectors, men and women. If a teacher is distinct, he or she is regarded as slow. Mr. O'Grady draws a necessary distinction on pp. 14, 16, and 28 between mouth and nose resonance; but nasality twang and Cockneyism have not yet been fully treated. *Solvitur ambulando*: and we should like to challenge the phoneticians to an eradication of "twang." The beautiful lines of Keats are quoted on three pages—pp. 68, 90, and 118—and by an amazing piece of carelessness they are in two cases murdered, although the writer is pleading for Keats's music. The directions given for the practice of the

initial and medial R are quite inadequate, but such exercises demand a book to themselves. The book is dedicated to another enthusiast, Mr. Rippmann, with whom the author ventures to disagree, apparently on the question of standard English; Mr. O'Grady has travelled and must have heard many Englishes in his day.

Miscellaneous.

Careers for our Sons: A Practical Handbook to the Professions and Commercial Life. Edited by the Rev. G. H. Williams. Fourth edition. xii+564 pp. (Black.) 5s. net.—Most parents are strong believers in vocational education, and expect the schoolmaster to be able to give their sons an education which will be of direct service to them in the careers for which they are intended. Whatever opinion may be held of the reasonableness of this attitude, it can scarcely be doubted that the more precise the teacher's knowledge of the requirements of the various professions and commercial avocations, the more likely is he to do well by his pupils. This compilation may be commended to the consideration of schoolmasters; it is full of practical help, and is arranged in a manner which makes reference easy. Mr. Williams, as an old headmaster, knows the questions which trouble anxious parents, and he has here, with the help of many obliging experts, provided satisfying answers to these questions. The volume should prove invaluable to parents and schoolmasters alike.

Pitman's Commercial Self-Educator. Parts 9-18. (Pitman.) 7d. net each.—The favourable notice which was given to the earlier parts of this series may be extended to cover the complete issue, which has been achieved with the June part. Under the capable editorship of Mr. R. W. Holland the work provides the budding business man who has left school and is embarking on a larger life, with just that amount of concisely put, and attractively written, preliminary information which should whet his appetite for larger knowledge of some business subjects at least.

EDUCATIONAL BOOKS PUBLISHED DURING JUNE, 1914.

(Compiled from information provided by the publishers.)

Modern Languages.

"Grammaire Française Moderne." By M. Deshumbert and M. Ceppi. viii+213 pp. (Bell.) 2s. 6d.

"A Primer of Practice on the Four French Conjugations." By Henrietta M. Arthur. xiv+50 pp. (Bell.) 6d. net.

"Mérimee's Colomba." Edited by M. Ceppi. (Bell's Standard French Texts.) viii+212 pp. (Bell.) 2s.

The "MacMunn" Differential Partnership Method of French Conversation: "The Things about Us and a Few Others." By Norman MacMunn. 2 volumes. Part I. 70 pp. Part II. 68 pp. (Bell.) 8d. each.

"Légendes de Noël." By George Lenotre. (Blackie's Copyright French Texts.) 104 pp. (Blackie.) 10d.

H. de Gorsse and J. Jacquin: "La Jeunesse de Cyrano de Bergerac." By H. A. Jackson. (Pitt Press Series.) viii+352 pp. (Cambridge University Press.) 3s.

Paul Passy: "The Sounds of the French Language." Translated by D. L. Savory and D. Jones. Second edition. 134 pp. and 2 plates. (Clarendon Press.) 2s. 6d.

"Les Poètes Français du XIX^e Siècle, 1800-1885." By Auguste Auzas. (Cours de Français et d'Allemand.

(Methode Directe.) Publié sous la direction de D. L. Savory.) 316 pp. (Clarendon Press.) 3s. 6d.

Honoré de Balzac: "Eugénie Grandet." Edited by A. G. H. Spiers. 256 pp. (Harrap.) 2s.

"Geschichten und Marchen." By Lillian Foster. Exercises by G. W. Samson. New edition with Exercises. 181 pp. (Harrap.) 1s. 6d.

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A Combined Density Bottle and Dilatometer.

This little apparatus will be found very useful in a physical or chemical laboratory, as by means of it several typical experiments, both in density work and dilation of liquids under the influence of heat, can be carried out.

The bottle, Fig. 1, is calibrated so as to hold 50 c.c. when filled to the lowest division, B, of the neck, which is graduated. The mouth of the bottle, A, is ground, and fitted with a ground-glass stopper, which prevents evaporation of the contents when not in use. Thus with half a dozen such bottles, it is easy to keep each filled with a different liquid, and hence find the coefficient of cubical expansion of each liquid quickly. No washing and drying the bottle would be required, and such operations often take up a great deal of valuable time in a laboratory.

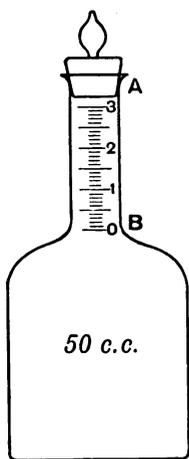


FIG. 1.

The following results of experiments show some of the work which can be accomplished with the bottle:—

To Find the Average Volume of a Lead Shot.

The bottle was previously counterpoised. In filling the bottle with a liquid, it is better to use a thistle funnel, in order to avoid wetting the upper portions of the neck.

Level of water after adding 40 lead shot = 50.45 c.c.
 Level of water before adding lead shot = 50.00 c.c.

∴ Volume of 40 lead shot = 0.45 c.c.

Average volume of one shot = $0.45 / 40 = 0.01125$ c.c.

To Find the Density of Lead Shot.

Weight of bottle of water + 40 lead shot = 55.185 grams.
 Weight of bottle of water filled to zero mark = 49.976 grams.

∴ Weight of 40 lead shot = 5.209 grams.

Level of water after adding 40 lead shot = 50.45 c.c.
 Level of water before adding lead shot = 50.00 c.c.

∴ Volume of lead shot = 0.45 c.c.

Density = $5.209 / 0.45 = 11.57$.

The densities of substances soluble in water, e.g., sugar, copper sulphate, etc., can be obtained by substituting alcohol, turpentine, etc., for water, in the bottle.

To Find the Specific Gravity of Methylated Spirits.

Weight of bottle of water filled to zero mark = 49.976 grams.
 Weight of bottle of methylated spirits filled to zero mark = 41.101 grams.
 Specific gravity = $41.101 / 49.976 = 0.822$.

To Plot a Curve, showing the Relation between the Volume and Temperature of a Known Volume of Methylated Spirits taken at a Known Temperature.

Fit up the apparatus as shown in Fig. 2. A is a thermometer, B the flask with a piece of cotton wool in the neck instead of the stopper, to prevent evaporation during the experiment, and C a stirrer. Adjust the volume of methylated spirits in the bottle by means of the drawn-out glass tube, D, until the reading of the liquid is zero. Take the temperature of the water. Now heat gently, stirring well all the time, until there is a rise in temperature of about 5° C. When this rise has taken place, do not read off the increase in volume immediately, but wait for a minute or two, to make sure that the heat from the water bath has penetrated completely through the methylated spirits. Continue the heating, taking readings of temperature and volume for each 5°, until a temperature of about 60° C. has been reached.

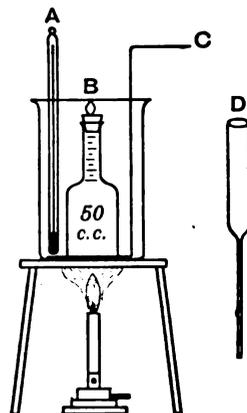


FIG. 2.

Volume c.c.	Temp. °C.	Volume c.c.	Temp. °C.
50.00	18	51.25	43
50.25	23	51.50	48
50.50	28	51.80	53
50.75	33	52.05	58
51.00	38		

Taking as abscissæ the readings of temperature, and ordinates the readings of volume, a curve (Fig. 3) can

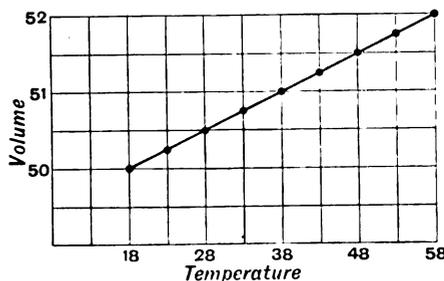


FIG. 3.

be plotted on millimetre squared paper, which will show clearly within the limits of experimental errors that methylated spirits expands regularly.

To Determine the Coefficient of Absolute Expansion of Methylated Spirits.

This experiment is carried out with the same apparatus as that required for obtaining the data for plotting the curve, the only difference being that it is only necessary to take the volume of methylated spirits and the temperature at the commencement and the

end of the experiment; intermediate readings are, of course, unnecessary. Obviously, the coefficient can be calculated directly from the results of the curve-plotting experiment.

Volume of methylated spirits at $53^{\circ}\text{C} = 51.80\text{ c.c.}$
 Volume of methylated spirits at $18^{\circ}\text{C} = 50.00\text{ c.c.}$

Amount of expansion for a rise of $35^{\circ}\text{C} = 1.80\text{ c.c.}$
 50 c.c. of methylated spirits expand 1.80 c.c. when heated through $35^{\circ}\text{C}.$

1 c.c. of methylated spirits expands $1.80/50 \times 35\text{ c.c.}$ when heated through $1^{\circ}\text{C}.$

$$= 0.001028.$$

This is, of course, the coefficient of apparent expansion. By adding to this result the coefficient of cubical expansion of glass (0.000009×3), we get 0.001055 as the coefficient of absolute expansion of methylated spirits. The coefficients of absolute expansion of other liquids may be obtained by this method, the most suitable being benzene (0.00138), petroleum (0.00099), and turpentine (0.00105). I have already described a somewhat similar method to that outlined here in THE SCHOOL WORLD for August, 1906, but the apparatus described therein is somewhat unwieldy, and otherwise not so convenient as the bottle.

To Determine the Coefficient of Absolute Expansion of Methylated Spirits, using the Bottle as a Weight Thermometer.

Counterpoise the bottle when clean and dry. Fill with methylated spirits to the zero mark. Weigh so as to obtain the weight of methylated spirits. Heat contents, as shown in Fig. 2, taking the temperature at the start and finish of the experiment. Remove the expanded methylated spirits by means of the small pipette shown in D (Fig. 2), and allow it to run into a weighed crucible. The volume of methylated spirits remaining in the bottle at the higher temperature must be exactly 50 c.c. Weigh the excess, and calculate the coefficient from the weights and temperatures obtained; or, the methylated spirits remaining in the bottle may be weighed, thus avoiding the use of the weighed crucible.

I have no doubt that other practical exercises in connection with the bottle will occur to science masters, but the typical experiments which I have set out here are sufficient, I think, to show the general utility of the little instrument.

E. T. BUCKNELL.

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Multiplication and Division of Decimals.

As the result of almost daily experiment for several years on the subject of Mr. Fawdry's paper in the July issue of THE SCHOOL WORLD, I have come to certain conclusions which may prove interesting.

In the first place, as Mr. Fawdry says, the final method of those who go on to make use of decimals in practical work will almost certainly be that of approximation, i.e., working with significant figures and afterwards adjusting the decimal point. It may further be noted that the number of people who will ever use fractions of any kind when once they have left school is, proportionally, very small; also that there is no particular difficulty in teaching a child of average intelligence to get correct results by any one of the methods in use. If we are aiming at "teaching rules," rules, too, which will have no particular value for the average person in after life, there seems to be

little to be said. But if arithmetic is a training ground for tracking down essentials, for resourcefulness in face of difficulties, for recognition of underlying principles, for selection of best ways of doing things, and for various other faculties connected with Everyman's everyday life, then every detail is important.

To Mr. Fawdry's objections to the usual methods I should like to add two others: the break of continuity in our whole system of notation, and the difficulty of forming a concrete interpretation of the process with, in the case of division, a clear conception of the value of the remainder.

A suggestion as to a solution of these difficulties can scarcely be fairly stated without a slight sketch of the earlier work on which it is based.

While mechanical arrangements are the last thing we want, proper naming and proper placing are insisted on throughout. The 5 in $\pounds 253$ is always spoken of as "five ten-pound notes," the 5 in 0.05 is always "5 hundredths." "Units under units" is a law as of the Medes and Persians. A reasonable interpretation of every "sum" is a *sine quâ non* until the stage is reached where sums are merely practice in the acquisition of speed and accuracy, or tools for the working out of problems. Approximate answers are found either as a rough guess or by the method of limits, i.e., two approximate answers, one larger and the other smaller, than the true result can possibly be. Decimals are first introduced in connection with florins. The relations of place and value connecting sovereigns, ten-pound notes, hundred-pound notes, etc., are carefully examined. Florins are seen to have a natural place in the series, and various suggestions are generally forthcoming, implying "Unit house must have a hedge." The practical difficulties are realised and a point denoting "Here end the units" is accepted with more or less resignation.

It is at this point that we stray from the usual methods. What need is there for any further machinery at all? Why not arrange everything in its natural, proper place? Why break through the long training in orderly arrangement that has now become habit?

Taking Mr. Fawdry's example:—

$$12.36 \times 42.3$$

Limits:

- i. $20 \times 50 = 1000$
- ii. $10 \times 40 = 400$

$$\begin{array}{r} 12.36 \\ 42.3 \\ \hline \end{array}$$

$$\begin{array}{r} 494.4 \\ 2472 \\ 3708 \\ \hline \end{array}$$

$$522.828$$

The reasoning is perfectly simple:—

- 4 times 6 hundredths = 24 hundredths
- $\therefore 40$ " 6 " = 240 "
- i.e. 2 units + 4 tenths, and so on.

When we come to multiply by 0.3 :—

- 1 tenth of 6 hundredths = 6 thousandths
- $\therefore 3$ tenths of 6 " = 18 " and so on.

The result is greater than 400 and less than 1000 , and is therefore at least sensible.

It does not matter how difficult either multiplier or multiplicand may be, provided the habits of accurate

naming and placing are firmly rooted. Take, for example:—

Limits:
 i. 2 hundredths of 5 thousandths = 10 hundred-thousandths
 ii. 1 " 4 " = 4 hundred-thousandths

```

0'01236
0'00423
-----
0'00004944
      2472
      3708
-----
0'0000;22828
    
```

Reasoning:

1 thousandth of 1 hundredth = 1 hundred-thousandth
 4 " 1 " = 4 " "

So the first significant figure goes into the fifth place — "No. 5, Mr. Hundred-Thousandth's House."

The old "rule" of our childhood is now quite intelligible; if we multiply 6 hundred-thousandths by units we get nothing smaller than hundred-thousandths, if by tenths we get millionths, and thus need one extra "house" to the right, and so on for each extra decimal in the multiplier. I have not myself become aware of any disadvantages connected with this method. Points to be noted are:—

(i) Decimals are seen to be essentially part of our ordinary notation, involving absolutely no new methods for their manipulation.

(ii) Every step is capable of direct interpretation (the subdivisions of slices of cake forming as convincing an illustration as anything).

(iii) No sacrifice of speed or neatness is involved. The transition to abstract number work comes imperceptibly with the mastery of the process.

For division the following method is suggested for experiment. A thorough grasp of the difference between partition and quotation is assumed.

Starting with an easy example, say $123.6 \div 4.23$, our problem is "How many times is 4.23 contained in 123.6?" or, in other words, "By what must 4.23 be multiplied to make it equal to 123.6?"

The work is arranged thus:—

Limits:

- i. $4.23 = 4.23 \times 100$
- ii. $42.3 = 4.23 \times 10$

```

      29'21
      4'23 123'6
      84'6
      -----
           39'0
           38'07
           -----
                0'93
                0'846
                -----
                    0'084
                    0'0423
                    -----
                        0'0417
    
```

Ans.: 29'21 with Remainder 0'0417.

For our upper limit we multiply the divisor by the lowest power of 10 that will produce a result greater than the dividend. We see that the dividend is more than ten times as great as the divisor but less than 100 times, so the first significant figure will represent a number of tens.

No further difficulties are involved by any possible variations, as the following examples will show:—

A. $0'01236 \div 0'00000423$.

Limits:

- i. $0'0423 = \text{Divisor} \times 10,000$
- ii. $0'00423 = \text{Divisor} \times 1,000$

```

      2921'9
      -----
0'00000423 0000'01236
              846
              -----
                    390
                    3807
                    -----
                          093
                          846
                          -----
                              84
                              423
                              -----
                                  417
                                  3807
                                  -----
    
```

0 000,000,363

Ans.: 2921'9 with Remainder 0 000,000,363.

B. $0'0001236 \div 42'3$

Limits:

- i. $0'000423 = \text{Divisor} \times 0'00001$
- ii. $0'0000423 = \text{Divisor} \times 0'000001$

```

      0'00000292
      -----
42'3 0'0001236
      846
      -----
           390
           3807
           -----
                093
                846
                -----
    
```

0'000,000,084

Ans.: 0'00000292 with Remainder 0'000,000,084.

The limits show that in A the first significant figure represents a number of thousands, in B a number of millionths.

Here again the process is merely an extension of the principles underlying previous work, absolutely no new methods or machinery are introduced, the unity of our system of notation is emphasised, the value of any remainder is obvious, and nothing has to be unlearned later. Most important of all, in dealing with beginners, is the fact that various direct interpretations are possible at any stage, bringing conviction of the "sense" of the whole proceeding. The children with whom these methods have been worked out vary from nine to thirteen years of age, and it has generally been their first introduction to the subject.

E. B. TAYLOR.

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The School World.

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

THE BOARD OF EDUCATION AND AN ANNUAL EXAMINATION OF GRANT-EARNING SCHOOLS.¹

By a HEADMASTER.

THE recent proposals of the Board of Education are the outcome of the Report of the Consultative Committee on examinations in secondary schools (1911) and of conferences held with Universities, education authorities, and teachers. They are now put forward in draft form for consideration and discussion. The Board will be glad to receive suggestions from persons interested. Teachers have now the opportunity to see that the proposals are put into a form that will insure the approval of parents, professional bodies, and employers in general.

On the whole question one cannot but express delight that the Board of Education has faced the necessity of providing official leaving certificates. So far as details are concerned, we may offer suggestions in response to the invitation of the Board. Having gained our objective, an official leaving certificate, we must look to ways and means and especially to such as schoolmasters should understand better than either Universities or officials.

The school should be the door to education. While we must not admit that frequent visitor, Mr. "Mere-imparting-of-information," we must consider the entrance of a more important caller, Mr. "Preparation-for-the-work-of-life." What were recently called bread-and-butter subjects are now regaining their lost prestige. The Board does not seem able to recognise this or to imagine that a leaving certificate can be deserved by any pupil except one proficient in science, languages, or modern humanities. The great maxim should be: "Sovez plutôt maçon, si c'est là votre talent."

The proposals must now be well known to most readers of THE SCHOOL WORLD, and a

short summary of each will suffice to recall to mind the gist of the eighteen subdivisions.

(i) *All grant-earning schools must submit proposals to the Board for an annual examination by some recognised body or bodies.*

So long as free choice is allowed to schools to select the examining body that best suits its needs, no objection can be raised against this proposal. Provided always that the Board does not wipe out the examining body to which the school is accustomed.

(ii) *There are to be two grades of examination, one suitable for Forms with an average age of 16 years to 16 years 8 months (V Forms), another or VI Form examination for pupils of about two years older. The age limit may be extended in the case of girls, but in all other respects these proposals apply to girls and boys equally.*

If it is quite certain that there must be two examinations, most people will agree that 16+ and 18+ are the ages at which such examinations should be taken. Yet it should not be forgotten that minimum age limits for candidates in an examination held once a year always create difficulties. Examinations will have to be held somewhere more than once a year, at which candidates aged 16 can compete, if they cannot stay longer at school, see section iv.

The warning that the Board's proposals apply equally to boys and girls may not mean precisely what it says. For, if it is implied that girls must necessarily pass such an examination and follow such a course as is suitable for boys, all friends of girls' education will rise in arms. To insist on girls following a boys' curriculum, when a new scheme is worked out and a great opportunity at hand for the rational education of girls, would be to perpetuate the error which is now wrecking modern girls' schools. From what is said in section vi. about subsidiary subjects such as music, drawing, manual work, housecraft, it would seem that the Board will only endorse

¹ Circular 849, July, 1914.

success in these subjects on certificates of candidates passing also the main examination. In other words, girls must pay most attention to English subjects, languages, science and mathematics, as explained in section iii. It is certain that more scope must be given to girls who wish to take up women's work as distinguished from scientific studies. As Dr. Kerschensteiner puts it,² "all the ripest and best knowledge that we possess comes to us through our calling, and where vocational training is conceived in a thorough-going spirit, it offers endless opportunities for the extension of our knowledge and of our powers." The proposals seem to consider that education consists of book-learning in its crudest forms.

THE FIRST EXAMINATION.

(iii) *The junior examination will test general education, correspond to the present school certificate examinations of the English Universities and be based on the course set out in the Board's Memorandum on Curricula.*

The subjects will be grouped as (1) English subjects, (2) languages, (3) science and mathematics; candidates will be judged by their attainments in each of these groups rather than by the power to pass in a prescribed number of specified subjects.

This proviso is clearly aimed at early specialisation, and will be generally acceptable, so long as it is admitted that many boys are worth leaving certificates who are only linguists or only science specialists, or even "only artists." A girl might well make a poor show in each of "the three main groups" just mentioned, but she might be a born cook or a genius at dressmaking. As such she deserves a leaving certificate quite as much as a boy who happens to be endowed by nature with great mathematical ability.

(iv) *The standard will be reasonable and a pass easier to obtain than a matriculation exemption. The Form, not the pupil, will be the unit for examination; a large proportion ought to be able to pass.*

If the Form is the unit, surely it must pass or fail as a unit? Here is the opportunity for the advertising headmaster, who will pack a form, enter only picked pupils and placard the results. How different from the quiet, orderly way in which some foreign schoolmasters brand their wares, a few at a time when ready, see section ii. The tendency throughout the Report is to keep the schoolmaster in the background. We have acknowledged that the right man to place at the War Office is a soldier.

May we not hope that the reign of the amateur educationist is coming to an end? It may be appropriate to quote Mr. Birrell's dictum that a headmaster must be captain on his own quarter deck. If captain, he cannot surrender his cadets to be tested by landsmen.

(v) *If the principle of the examination is carried out, viz., easy papers and a high standard of marking, it will be possible to establish a pass standard and a matriculation standard with marks of credit. It is hoped that Universities and professions will recognise the examination, but this is not a question for the Board.*

We have here perhaps the weakest paragraph in the whole circular. A blind belief in examinations is displayed, characteristic of those who are not schoolmasters and cannot be expected to understand how imperfect a test an examination is. The diagnosis of an examiner is often erroneous and opposed to the reasoned verdict of those who have studied the patient for years.

We have also no intimation conveyed that the leaving certificate will be backed up. The recent Civil Service Report complained of the lack of co-ordination between the C.S. Commission and the Board. One expects at least that candidates for C.S. appointments or teaching appointments will have to produce leaving certificates, for departments of the Government must play into each other's hands. There is, however, nothing in the Report to suggest that the C.S. Commissioners will not continue to infringe in their examinations canons laid down by the Board of Education. Shorn of Government support, the certificate will be of little value. We speak strongly, for we have the greatest belief in the value of a leaving certificate, properly issued, made—so to say—legal tender, and necessary to candidates for public and other appointments.

(vi) *Music, drawing, manual work and housecraft will be reckoned as optional subjects at first, when more experience has been gained provision for examination in them may be made.*

All efficient schools should be able to present a whole Form for the junior examination.

We have already commented on the narrowness of the draft regulations in the range of subjects proposed. The aim of the Board seems to be to pander to mediocrity and exclude arts, domestic science, nature study, and commercial subjects. The scheme would suit the commonplace and pass over the genius.

The final remark in this paragraph is perplexing. Why should a whole Form be presented? Many boys in a V Form would be too young to enter for the "First" examination, and any rule that only boys qualified by

² "The Schools and the Nation." (Macmillan.)

age to take the examination should be admitted to the Form would be detrimental to the school. No doubt there is no intention of this kind hidden in the lines under discussion. As they stand they need explanation. For what constitutes a Form? How long must a group of pupils remain together to become a Form? It is easy to make and unmake Forms before and after an examination.

THE SECOND EXAMINATION.

(vii) *The senior certificate will be a test of the study of three groups of subjects, prolonged for two years after the time of the junior certificate. The three groups are likely to be composed thus: (a) classics and ancient history, (b) modern humanistic studies, (c) science and mathematics. Candidates must offer one group as a whole, and one subsidiary subject, only needing to show a working knowledge of the latter.*

No doubt steps will be taken to insure that candidates for Intermediate Civil Service appointments, naval clerkships, and similar examinations hold senior certificates. Possession of such a certificate, under conditions, should reckon as equal to holding the "Inter" diploma of the local Universities, and generally as conferring some definite status. It is scarcely necessary to point out that pupils in some countries only stay at school long enough to obtain the leaving certificates on account of the freedom from serving longer in the army which the possession of these documents affords.

We take it that the object of the Board's proposals is to unify examinations, and by setting up periodical standards to induce pupils to stay at school until a definite goal has been reached. From the paragraph before us it is difficult to see how the Board thinks to attain either of these objects or to attract candidates. The minimum age for candidates is not mentioned. This is of importance, for, though some schools may take both "first" and "second" examinations, many will only take one. Those that take the senior test will use it as a qualifying examination for matriculation, some of the candidates being likely to be under eighteen. It must not be forgotten that pupils working for scholarships may not be able to turn their attention to a second examination except at a time convenient to themselves. Again, some schools, though willing, may be unable to take the second examination from opposition of intolerant governors. Care must be taken that the education of many is not stopped at sixteen by the economy of local bodies, who will assert that Government considers sixteen to be the

right age to leave school under the suggested scheme.

(viii) *The examinations are designed for schools up to the level of efficiency required by the Board, but will be accessible to all candidates under nineteen years of age.*

It is clear that a national certificate must be open to all and equally clear (see xiv) that an "external" diploma must carry less weight than an "internal." The Board therefore does well to propose to show on the certificate what kind of education the holder of the diploma has enjoyed.

(ix) (a) *Teachers are to be brought into touch with the examining bodies by representation or consultation.*

(b) *By having the right to submit their own syllabuses.*

(c) *By sending into the examining body an estimate of the relative merits of their candidates in each subject. The estimate will be taken into account by the examining body in doubtful cases.*

If the certificates are to have all possible value attached to them, section ix. must be revised. The award of certificates will have to be determined by the school record, the teachers' opinion of the candidate and perhaps in some degree by the examination. No one who has any experience of the vagaries of examiners and the upsetting of public form in examinations will trust the ordinary tests to decide the important question of granting or withholding the certificate. The wording of (c) shows that the Board is not alive to the difficulties of the situation. It talks of the examining body taking the school estimate into account in doubtful cases. How can the examining body detect doubtful cases? How often do not doubtful cases pass and deserving cases fail? Unless the main factor in estimating a candidate's quality is supplied by those who have watched his career for perhaps nine years, there is little hope of the test giving a just result.

The success of the Board's scheme depends largely on public support. Parents will put no faith in a written examination conducted on the usual lines, in which a tooth-ache may prevent a candidate from scoring the requisite number of marks for a pass in one paper. Doctors do not reject a recruit for some passing ailment, that might prevent a candidate from satisfying the examiners and debar him from obtaining his certificate.

(x) *As the machinery of the proposed examinations is to be set in motion by the many bodies now engaged in examining work, some co-ordinating authority is clearly needed. As things are, the only possible body able to undertake the task of determining the mini-*

mum standard and of hearing complaints is the Board.

One of the most difficult tasks of the Board in connection with the proposed examination will be that of securing that the standards of the various examining bodies shall be substantially equivalent. When an examining body holds a series of examinations supposed to be equivalent—for example, Oxford in "Smalls,"—it is found that candidates pass one of the series with greater ease than their fellows pass another. This will be much more the case when many bodies are concerned. On the other hand, variety of type of examination is necessary in order that we may escape from the dull uniformity of officially promoted tests. It is for the Board to lead the way and show that an excellent examination can be set up in which subjects and syllabuses play a minor part. Teachers are so obsessed with methods and systems and standards that they sometimes do not penetrate beyond the shell of the nut, and leave the kernel to rot.

(xi) *To help the Board there will be appointed an advisory committee composed of a representative of each approved examining body, of local education authorities, and the Teachers' Registration Council.*

If the advisory committee had a majority of teachers on it, it might be more helpful. The present form of the regulations suggest that the meetings of the advisory committee will resemble a "post-mortem" without a body.

(xii) *The certificates will be issued to those who are qualified, and will give some account of their careers. Those who have spent three years at an approved school will be credited with the fact, while others will (xiii) receive a document setting out the subjects in which they have passed.*

In no case will a certificate be issued until a candidate attains the age of sixteen and has left school. (It is not stated at what age a candidate may enter.)

Few will disagree with Proposals xii.-xv., dealing with the actual granting of the certificate. However, the candidate may be tested, the application of the brand must be speedy and show clearly how the candidate has prepared for the hall-mark. Circumstances at present require admission to the test of pupils who have not passed through efficient secondary schools. As time goes on no doubt inefficient schools will disappear and candidates will only be presented by approved schools.

We take it that candidates will have to go certificate hunting occasionally. So we shall see an extension of the present system which encourages a "bursar" to take two almost

simultaneous qualifying examinations in order that he may have a double chance of obtaining exemption from the certificate examination. What more scathing condemnation of examinations could there be than this: that candidates rejected in the Government test are accepted on a "senior local" test? Unless the proposed certificate examination can abolish these absurdities, it will leave much undone.

(xvi) *After an appointed day no grant-earning secondary school will be allowed to take "Preliminary Oxford or Cambridge Locals." Schools also may be prohibited from taking "junior examinations," whether local or university.*

It may be right to prohibit all infantile or preliminary examinations. Of his own experience the writer cannot assert that "preliminary examinations" have ever done boys much harm. And how can the Board justify the abolition of these examinations—failure or success in which is of little moment—while it insists on choosing free placers by means of examinations? Of course, one does not expect the Board to be consistent while its inspectors often disagree in their advice.

Next, whatever may be said about these "preliminary examinations," there can be no advantage in suppressing all "junior examinations." School tests are not sufficient to keep those concerned up to the mark; there is often a need for some comparative testing of teaching to prevent pupils and masters from falling into slack ways. It is better that examinations should be held by bodies experienced in the work than by amateurish education committees. If this regulation places the examinations of public bodies for the award of scholarships under control, much good will be done. We understand that sections xvi. and xvii. imply this.

(xvii) *No recognised school will be allowed to prepare for any examination not approved by the Board, by modification of organisation or curriculum.*

We take this to mean that all future Civil Service examinations will be modelled on such lines that pupils can be trained for them by following the usual syllabus of approved schools. An excellent provision, which we welcome warmly. See also section xvi.

(xviii) *Arrangements will be made for the closest cooperation between Inspectors, examining bodies and the advisory committee.*

On this suggestion hangs the success or failure of the whole scheme. We again insist that without the closest cooperation of schoolmasters, in addition to the three classes just mentioned, the proposed certificates will not attain to the success they should deserve. The

Board of Education officials, as a whole, have not all the experience needed to manage the work of schoolmasters and mistresses.

Finance. Financial aid will be forthcoming—to an extent to be determined later—to meet the expense entailed on schools by the annual compulsory examination of a portion of their pupils.

It is always pleasant to end on a cheerful note. We congratulate the Board on this offer and assure it that the proposal will be welcomed by all concerned.

THE PLACE OF CONVERSATION IN MODERN LANGUAGE TEACHING.¹

By E. ALLISON PEERS, B.A.

CONVERSATIONAL language-teaching and the "direct method" are two terms so loosely used in popular discussion that very few people can be said to conceive of them at all clearly. They are usually linked together, at all events by those who repudiate them, and it may be well to inquire at the outset how far this association is justified.

Certainly there is a real bond of union between the two, a union made more obvious by the absence of conversational teaching in the older method. Often, in days gone by, those who taught French and German made not the slightest pretence of being able to converse in these languages, nor of regarding them in any way other than as dead. They were not (and in many cases are not now) convinced of the value of what they contemptuously called "patter"; which, so far as those to whom it was impossible were concerned, was not surprising. Even if they had thought it valuable, they would probably have confined it to the actual lesson in French or German, or, at the very most, kept it within the four walls of the school. It was for those who taught with quite different ideals and aims, and for those who followed them in the main while modifying many of their opinions, to take up this despised instrument and make it a force in teaching.

We shall, however, make a disastrous mistake if we suppose that conversation is a fundamental principle of the direct method, or in any way its *raison d'être*. Few people who have a working acquaintance with modern methods carried out under favourable conditions would be in the least likely to commit such an error. But those who stray into a class-room and hear no English, walk about the school and catch scraps of conversation in

¹ By "Conversation" is meant, for the purposes of this article, ordinary talk in the foreign language *outside* the class itself. This includes conversation both in and out of school. For the sake of simplicity, French is taken throughout as the foreign language studied; but most of what is written would apply equally well to German.

another language, and are told of such amusements as voluntary French societies in which the members speak only French, are apt to suppose that this new method is engendered of the teacher's fluency in the colloquial use of the language, and has no other object than to train pupils to talk. It is as unfortunate a mistake as the more surprising one that pupils trained on the direct method learn no grammar, the real truth in the latter case being that whereas we used to learn a great deal of grammar which meant nothing to us, we now learn it rather more slowly, understand it, and put it into practice in the most natural possible way.

The direct method stands for much more than mere conversational facility within a limited range of subjects, though it assumes (and, indeed, most people admit) that such a facility has its value. It claims to be the natural and proper method of approaching a modern language, regarding it as a means of self-expression as real as the mother-tongue. It stands for the establishment of a direct association between object and mind, uninterrupted by any translation into the mother-tongue, and therefore aided by the exclusion of it during the lesson from the pupil's speech, and ultimately from his mind.² It lays more stress on free composition than on mere translation from English; translation, though not without its proper function, is the wrong method of reading a book. Lastly, since one's expression in the language must be oral as well as written, due attention must be paid to the correct production of the sounds of the language, first as isolated units and later in connected speech. It will presently be seen that "conversation," though at most an auxiliary to the instruction, plays a considerable part in furthering these aims.

(1) The most obvious service which conversation renders to modern language teaching is in connection with the formation of habits. The reason why so many pupils trained on "grammatical" methods know their grammar by the book without being able to use it is surely that correct habits of speech have never been formed. The boys have learned lists of conjunctions which are followed by the subjunctive mood, and can reel them off in record time if they can once get the clue. Yet they say and write, "bien que je vais," without the least suspicion. Occasionally the grammar is even recited wrongly, and with the most supreme confidence. "What verbs do you know?" I asked a new boy the other day. "Oh, I can say 'avoir' and 'être' . . ." he began. "Very well, then," I said, taking him

² It may be doubted by some if this last stage is ever reached. It is only the principle, however, with which we are for the present concerned.

at his most modest valuation, "let me have the present indicative of 'avoir.'" And "J'ai, tu as, il a, nous sommes, vous êtes, ils sont" were out of his mouth before I could stop him. It was nothing serious! He had merely confused two similar paths, and taken the wrong turning without thinking!

Now a continual use of conversation will not only ensure that the boy learns to use his knowledge in a rational way, but will also tend to form correct habits, to mark well-worn tracks in the pupil's brain, and keep them in good condition. Practice alone makes perfect, but it must be practice on correct lines. In the course of a few minutes' talk in French with his master a boy will use such verbs as "aller," "venir," and "arriver" quite a number of times. He will thus learn almost unconsciously to say "je suis allé," "il est arrivé"; phrases like "Il faut que je le fasse," "Je veux qu'il me le donne," "Croyez-vous qu'il soit malade?" will spring to the lips in class, because they have been heard and used so often outside. Such difficulties as the use of "tu" and "vous," of the question-forms "Qu'est-ce que," "Qui est-ce qui," etc., and, above all, the use of the past indefinite tense will quickly become mastered. We shall no longer have to endure marking exercises, written by boys who have learnt French for eight or ten years, which, describing historical anecdotes in the past, are written throughout in the imperfect. It need only be remarked in passing that constant conversation (and the hasty greeting is as important as the ten minutes' discussion) is as useful in forming habits of pronunciation as habits of grammatical correctness. It is especially valuable for intonation. The teacher may be unnatural in the school-room, and the pupil will have many other things than intonation to notice. But somehow in the study and on the playing-field French and German have a different sound.

There is another reason, from the psychological point of view, why conversation should make for correctness of speech, viz., that it tends to establish between ideas associations which are most valuable when they occur frequently and in natural surroundings. Thus the association of the "fear"-idea with the "negation"- and the "subjunctive"- ideas can no doubt be formed in time by rigid application to a grammar and continual "sentence-practice." But it will function more readily if it is formed in other ways. A boy may be afraid he is late, afraid he has left his book at home, afraid the school will lose the match, and afraid there will be no holiday—all inside five minutes' conversation with his French master. Surely the associations established by the expression of four such ideas in a

foreign language will be far more lasting than those formed by the writing of four similar sentences in class, on the type of: "J'ai peur qu'il ne vienne," where both pronouns mean absolutely nothing to the writer, the translation being made quite mechanically with grammar and vocabulary at hand. It will be said that the written work in class makes a deeper and more lasting impression than the "patter" in the street. But it would be equally true to say that the mistakes (and especially the uncorrected mistakes) also leave a greater impression, an impression extremely hard to obliterate. And further, strange as it may seem, the repeated application of "J'ai peur qu'il ne vienne," has actually been known to blot out the "ne" from the pupil's memory altogether.

(2) Many people might deny that conversation makes for correctness, but most will grant that it leads to fluency and facility in speech. Now, although mere fluency is not what is wanted, especially when divorced from accuracy, some facility in self-expression is most desirable. It helps to efface self-consciousness, even during adolescence, and—a most important aid to the teacher—it paves the way to free composition. For surely, both in English and in other modern languages, it should be impossible for the teacher to be able to state exactly where he begins composition. Questions and answers, if properly graded, shade off imperceptibly into connected narrative, and it is out of the class-room that the results will at first be most satisfactory. Ask your quick child where he spent his holidays, what he did, who went with him, whether the bathing was good, and so on—and before you have realised it he will have started a narrative of his own. He halts occasionally for want of words, you help him on the way again, and he is off once more. Then you go into the class-room with him, and he does the same thing under rather more exacting conditions. His duller comrade, after a little time, plucks up courage, breaks in, and eventually follows suit. They do realise, after all, that the master who is reprimanding in French now, was laughing, also in French, only a few moments before.

(3) Another advantage to be gained by encouraging conversation is the possibility of connecting the study of the foreign language with that of the literature and the people. It is impossible, in the four hours a week during which we teach our language, to speak of all the things we should wish; and even if it were possible we should find that in the school-room they had lost much of their charm. For, however "French" the atmosphere may be, and however pleasant the conditions under

which we teach, the atmosphere is none the less that of the schoolroom, and the conditions must always be artificial. If we use the foreign language freely out of school, our pupils will realise that it is "made to be spoken," that it is a living language, in which men chat and joke and scold and transact their business every day of their lives. One can easily find occasions to bring one's pupils together, half-a-dozen at a time, round the common interest of the foreign language. There are illustrated magazines to be shown, there are stories to be read, stamp-collections to be discussed, class-room "properties" to be made, plays to be acted—and all in French. Such meetings do perhaps more than anything else to create the French atmosphere in the class-room. And the chief of these meetings, unrivalled for creating spontaneous and lively conversation, will always remain the "five o'clock."

(4) Lastly, the encouragement of conversation brings with it that inestimable benefit, the interest of the learner. Not perhaps at first; for most boys, and especially public-school boys, feel awkward and foolish when they are addressed in another language. But when this initial awkwardness is overcome and the pupils begin to see that each remark they make suggests another, they speak more readily, and form the habit of turning their thoughts on occasion into French instead of English. They experience, in fact, what the psychologist calls a "sense of power"—though perhaps it is more precisely to them a "sense of triumph"—and every student knows that there is nothing like this to inspire him to further efforts. It is a great discovery to him that he can put his very own thoughts into another language than English, and when he can read exciting stories in French round the fire without having to stop at words not understood, it puts the study of the language in school on altogether a different plane.

It was a feeling something akin to this, and not pure greediness, which prompted a boy of my acquaintance recently to exclaim to his French master, "Oh, I wish you had a French tea every day!" No doubt at the said teas he had proved himself efficient with cup and knife; but I think, too, that in another way he was making even greater progress, rising gradually from one achievement to another until he could scarcely see in the far distance the lowly spot from which he first set out.

Journeys in Industrial England. By W. J. Claxton. 192 pp. (Harrap.) 1s.—This book describes the romance of English industries, and is doubly welcome on account both of its subject-matter and of the many excellent illustrations which greatly increase the value of the brightly written text. Teachers should place this book in the hands of their pupils.

SELF-GOVERNMENT IN SCHOOLS.

By PROF. H. BOMPAS SMITH, M.A.

Professor of Education in the Victoria University of Manchester.

THE Montessori Conference, recently held at East Runton, was of wider interest than its name suggests. For, though Dr. Montessori's methods of teaching have attracted attention in many different quarters, they are applicable, so far as secondary schools are concerned, only in preparatory classes. It is true that the conference devoted a good deal of time to the discussion of these methods, but the main problem dealt with was the larger one of how to extend Arnold's system of self-government, and his principle that boys are to be trusted both as individuals and as members of the school society.

Arnold saw the futility of the attempt to make boys law-abiding by means of regulations autocratically enforced. He appealed, therefore, to the boys' own sense of order and responsibility, and left them in some measure free to discipline themselves. He applied this principle, however, only within comparatively narrow limits, and it may naturally be asked whether these limits ought to be maintained, or whether the principle of individual and corporate responsibility is applicable to the whole field of school life and work.

To this question the conference returned an answer, which, while often vague in detail, was quite definite on the general issue raised. Speaker after speaker told of the good results which have followed from the introduction of greater liberty and opportunities for self-direction in schools of many different kinds. In some cases, no doubt, enthusiasm led to exaggerated statements, but as a rule sober accounts were given of experiments which were being tried, and perhaps the most impressive feature of the conference was the large number of members who were carrying on such experiments under very various conditions. We heard, for instance, of Montessori classes, and others conducted on similar lines, in which children roamed about at will, selected their occupations, and themselves laid the table for their common meal, and waited on each other. But so far as secondary-school work was concerned, the most suggestive meetings were those addressed by Dr. Yorke Trotter, on the teaching of music, and by Mr. Horner Lane, on the Little Commonwealth. Dr. Trotter explained how he developed each pupil's natural taste in music, letting him, within obvious limits, choose which pieces he would learn, getting him to feel the meaning of the music he played or heard, and encouraging him to compose and harmonise tunes

almost from the first. A demonstration given by Dr. Trotter's pupils supplied very striking evidence of the success of the method he adopted.

The most valuable experiment was, however, that described by Mr. Lane. As is now widely known, the Little Commonwealth at Batcombe, in Dorsetshire, was started a year ago for boys and girls who would usually be regarded as hardened criminals. The more desperate they were, the better Mr. Lane was pleased. These boys and girls were subjected to as little restraint as possible, and were treated as responsible beings worthy of being trusted. During the year they have evolved the organisation of a small self-governing community in which the standard of conduct demanded is extraordinarily high.

Without going into further details, it seems evident that we have here a point of view worthy of serious consideration. Many more experiments must be tried before we can determine the extent to which confidence in our boys' and girls' capacity for self-education ought to guide us in the administration of our schools. But there can be little doubt that this confidence will play an important part in the education of the future.

EDUCATION AND MODERN NEEDS.¹

By Prof. JOHN PERRY, D.Sc., LL.D., F.R.S.

THE English school system has outlived the medieval conditions which produced it. In old days the only way to knowledge was through Latin: all writing was in Latin. The result then was pretty much what it is now; lawyers, clergymen, and schoolmasters had to know some Latin after school life; the average man forgot anything he had learnt. A few very clever men did read, but the average monk or priest was a very ignorant person.

English people know the worthlessness of the public school system in the mental training of the average boy. Why, then, do they submit to it? However conservative they may be, they would not submit to this worthless system merely because it is hallowed by a history of 500 years.

The fact is, this worthless system continues because in some occult way it seems to have a connection with something of real importance, *public school form*. There is really no connection. When, in my youth, I was a master at one of the great English public schools, like everybody else I was a frightful prig in regard to public school *form*. Eton

form or Harrow form or Rugby form or Clifton form was the thing at each of these schools which was thought to be of more value than anything else in the world. Dr. Arnold, of Rugby, taught the trick of manufacturing it. It is in itself a splendid thing. The public school boy is trained in self-possession, modesty, cleanliness, truthfulness, and courage. At school his health in body and morals is all important. He learns to lead and also to obey. But the average resulting man is exceedingly ignorant; he neither reads nor writes, and he has little reasoning power except what his sports have developed. This form is essentially aristocratic. It is based on superiority of position or birth or caste. A man's place is fixed, his attitude to people of higher or lower rank is fixed. He needs no self-assertion, and he cannot become a "bounder," that is, a "cad"; but in Thackeray's sense he is usually a "snob," and in various directions he may be a *prig*. By prig I mean a man who cannot get outside convention and so cannot exercise his own common sense. One defect is that public school form when combined with poverty cannot make much money by its own ability, and if it does not starve it must join the valets or the grooms. Its strength lies in convention and habit and the belief that poor people are not men, but a lower kind of animal who may be pitied as we pity a suffering dog. Such pity can never raise the people nor reform abuses.

We ask the schools for mental power as of old one asked for bread, and they give us a stone. No doubt public school form is a beautiful stone, a diamond; but we want some bread as well, even if it were only in the Falstaffian proportion of bread to sack. For my part, I do not see why the average boy at school should not have reasoning power and a love for reading and knowledge as well as good manners, and this is why I ask for a great reform in our schools. We want from the school what Nature has not been accustomed to give, and what home life cannot give, the development of the intellect, and the school fails to give it in ninety-five out of every hundred cases. The great danger in school life is that it may hurt individuality, originality, because a boy, however harum-scarum, is naturally conventional and imitative. Good form comes easily, therefore, and the master is more than satisfied, he is proud. He often speaks of it as *character*, but he is quite wrong. Character comes from home life, not from school life, which indeed is rather antagonistic to character. It comes from contact with fathers and mothers, brothers and sisters, relatives and friends.

¹ From the presidential address delivered to the Educational Science Section of the British Association at Sydney, August 21st, 1914.

School life tends to induce a contempt for the lower classes and a slavish admiration of the upper classes, which is altogether wrong in a democracy, and can only lead to evil.

'Generalisation is always dangerous, but I think I am safe in saying that Englishmen of the higher classes do not believe in education. They believe in what they call character, which always to them means public school form, and they believe in mental mediocrity, which in most cases means mental inferiority. This gives one explanation of the persistence of the public school system. The man who remembers his years of dull school classroom routine with no intellectual result is not likely to be enthusiastic over the education of his son.

Unfortunately all secondary schools try to copy the public schools. They also aim at teaching good form, mainly by magnifying the importance of football and cricket. To differentiate themselves from the primary schools they compel every boy to learn through Latin. And all this they do at a rate which suits the pockets of the lower middle-class parent. It is a poor imitation of a system only one part of which is worthy of imitation.

The worst of it is that the average boy who has done almost nothing else than Latin and Greek at school gets absolutely no love for the classics; he never reads a Greek or Latin author after he leaves school. He might enjoy them in translations, but he hates their names, and even if he did not it would never enter his head to read a "crib." Surely this is the natural effect of the schoolroom routine.

It is not the method of teaching that is wrong; it is merely that Latin as a school subject for the average boy must be altogether condemned. It takes from him all interest in every kind of literature; it makes him dislike reading. We must have some compulsory subjects, and I think that any boy may be taught any subject—to some extent; but we ought to have as few of these compulsory subjects as possible, because any subject may be found very difficult by certain classes of intelligent minds. And it is surely ludicrous when a clever mathematician, well read in natural science and fond of English literature, is plucked for his degree because of his poor Latin or Greek. I knew a case where the first classic of his year would have failed to pass his "Little-go" only that special arrangements were made to let him through his mathematics easily. My own career was nearly ruined because I failed in a French examination.

Before a student enters a university he has to pass a matriculation examination, so that we may be sure that he is fit to follow any of the courses of study. In medieval times

the one compulsory subject was Latin, because all the literature known to students and teachers was in Latin, all lectures were delivered in Latin, all teaching was in Latin. Consequently in some Oxford colleges a man was fined if he spoke in any other tongue. Then came the time when there was still no English literature, and not only was the best literature in Greek, but Greek was the only approach to natural knowledge, so Greek also was compulsory, and so it has remained to this day—to this day when English literature (including translations) is of greater worth than any ancient, or, indeed, any other modern literature; when all teaching, all lectures are given in English, and when our English knowledge of natural science is not only infinitely greater than anything possessed by the ancients, but it enables us to say that the ancients were hopelessly wrong; when nobody but the official university orator or some traveller ignorant of the language of a foreign country speaks Latin and then speaks rather the language of Stratford-atte-Bow than the Latin of the City of the Golden Shields. The men of the City of the Violet Crown were not handicapped by being compelled to learn any other language than their own, to waste their time on mere words; "they were engaged in pursuits of a higher nature, in acquiring a knowledge of *things*. They did not, like us, spend seven or ten years of scholastic labour in making a general acquaintance with two dead languages. These years were employed in the study of *nature* and in gaining the elements of philosophical knowledge from her original economy and laws." The above quotation is from the Langhorne's "Life of Plutarch," and it is particularly valuable as expressing the views of two great classical scholars.

I would make a knowledge of Latin or of Greek compulsory only on students of certain subjects, and the professor ought to impose the condition, not the university. Again, students of certain other subjects ought to know one or more foreign languages, and, indeed, it seems to me that the professor in each subject has a right to insist on his students having certain special knowledge before they enter upon a study with him. But to enter the university, surely the compulsory subjects ought to be as few as possible. It seems to me that the most important thing is to make sure that every student has had an early education through his own language—English; that he should be able to write an account in English of anything he has seen; should have some acquaintance with what are called English subjects, such as geography and history, and the principles of natural science,

and the power to make simple computations. All the teaching is to be in English, all his companions speak English; there are good English books on all subjects, there are English translations of all the good books that have been written in foreign languages. So abominable do I think *compulsory* Latin or Greek or French or German that I believe a primary school to be a much better school than any other for a boy if he is fitting himself for any profession in which applied science is important. At present English is not taught properly in any British school. The teachers are all classical men, who are very careful when they write Greek or Latin, and exceedingly careless and slipshod when they write English. We might easily write a fairy story about three sisters—Greek, Latin, and English—and call it "Cinderella." The language of the greatest empire known in history, the empire of the English-speaking peoples, is not taught seriously in any part of that great empire. It is shocking to get from a great classical scholar a letter with misspelt words on every page, every sentence being ungrammatical. When will our good modern writers tell us how English composition may be taught to ordinary folk?

I want you to understand that we have established some fundamental principles in educational science: (1) A subject must interest a pupil. (2) A man who trains dogs or seals or bears or other animals makes a close study of their minds. In the same way we must recognise that one boy differs from another, and study the mind of each boy. (3) If a boy is not very receptive of an important subject we must do our best with him and try to settle what is the minimum with which we ought to be satisfied. Only a few subjects ought to be compulsory on all boys. (4) There are two classes of boys unequal as to numbers, (a) those fond of, and (b) those not capable of abstract reasoning. (5) Another two classes are (a) those fond of, and (b) those not fond of language study. (6) Every boy may be made to write and read in his own language, and he may be made fond of reading. (7) The average boy's reasoning faculties are most surely developed by letting him do things. That is, for example, through his sports, or through wood or metal working, or gardening, or experiments involving weighing and measuring. Through the last of these he learns to compute. A boy of eight learns decimals in an hour if he weighs and measures, whereas by the usual method of teaching he is ignorant of decimals at the age of fourteen. A boy learns whist very quickly if you seat him with three other people at a table with a pack of cards; he would not learn in a month

if he had no cards. Would you teach a boy to swim by mere talk? (8) Every boy must get a good deal of personal attention. (9) However good a system may be, there can be no good results if the teachers are cheap; cheap teachers are usually stupid and overworked. Men in charge of schools and colleges never seem to learn this. The market price must be paid for a capable man. (10) Fairly good results may be expected from a good teacher, even when he is compelled to work on a bad system, but really good results can be obtainable only from a good teacher with a good system.

A boy is cocksure about everything. He is incapable of reasoning about complex things. And when we try to teach him to reason about simple things we must be quite sure that they really are simple to him, that he understands them. For example, many educationists say that the study of geometry is just right for a boy. Well, yes, for five per cent. of all boys, boys who can take in abstract ideas. They take to Euclid as a duck takes to water. But for the other ninety-five per cent. geometry is very hurtful, because unless they continually experiment with rulers and compasses they do not understand what the reasoning is about. In ancient times only very old and exceptionally clever men were allowed to study geometry. We now assume that it ought to be an easy study for the average English boy. Generation after generation we stupefy the average English boy with demonstrative geometry, and we call him a duffer so often that he thinks himself a duffer, and even his mother thinks him a duffer, and, indeed, we have done our best with geometry and Latin to make him a duffer. Only for his football and cricket, which teach him to reason a little, he would become a duffer. And yet in my opinion if this average boy were properly taught in school he would prove to be very superior to the boy who is usually called clever. The schoolmaster calls a boy clever because he is exactly like what the schoolmaster himself was when a boy; but I am afraid that I place little value on the schoolmaster's cleverness, whether as a boy or a man. Reasoning can be taught through almost anything that a boy does, but more than all things through his experiments in natural science. Formal lessons on reasoning, on logic, are utterly useless, and I may say that set lessons on almost any subject are utterly useless for the average boy.

Education consists in the development of a man from his earliest day, and does not cease until he dies. Any thoughtful man must see that there is no science so important as that of education, the preparation of children of this

generation to be citizens, the rulers of the country, in the next generation. The whole future of our Empire depends upon the education of the children. By the study of this science we hope to improve teaching so as to make future citizens not only to have more knowledge and more skill, but to make them wiser than the people of the present or the past.

Early training determines what later training ought to be. Let us consider what the early training of a boy ought to be. In his very early days Nature has provided that his education shall proceed very rapidly by observation and experiment, and the only teaching needed is through careful nursing and affection. He teaches himself, and he loves to learn. He ought to get toys not too realistic, for he loves to weave romance round his toys, but still things to observe and experiment with. He has most complex problems in physical science when he is only a few weeks old, the solution of which involves much labour, but it is pleasant labour, and he is happy. And he will remain sweet-tempered and happy and unspoilt if there is real affection from his teachers. If, however, somebody teases him by playing practical jokes, or if a selfish mother who was unreasonably kind to him yesterday is unreasonably unkind to him to-day, he gets, because of his reasoning power, a sense of injustice. Man, woman, or child with a sense of injustice may be said to be possessed of a devil. During the first six years of a child's life the creation of its power to reason is more wonderful than anything else, and this reasoning power comes altogether by observation and experiment.

An affectionate parent easily find methods of helping Nature in this process. The unspoilt boy of six years seems to forget nothing that he hears; he has gathered a most wonderful vocabulary; he knows endless nursery rhymes and simple poetry; he is as active and adventurous as a kitten, and everything he does is cultivating his senses. This is the time when he fills the smallest playground (which to grown-ups seems bare and desolate) with giants and fairies and Indians and pirates, with forests and mountains and rivers and oceans. His imagination is so extraordinary that the most uncouth creation of his own gives him exquisite pleasure. Why do I dwell upon this stage of a boy's development? Because it has been so perfect! Nature has learnt to do this to children during perhaps hundreds of thousands of years, and it has been the most important time of a boy's life, the time when, if parents will only give the boy their love and greatly let him alone otherwise, he develops mentally more than during all the rest of his

life. Speaking broadly, he has done nothing in all this time except what Nature and affection made pleasant to him. I have studied the science of education and practised the art of teaching all my life, and I say that all our failures are due to our neglect of Nature's methods, and our schools destroy the good effects which Nature has produced.

As a rule I do not like to be told that certain subjects must be compulsory, but surely every child of eleven must have some such qualifications as these: (1) The power to speak and read and write in his own language. (2) To be able to do easy computation. (3) To have an exact knowledge of the simplest principles of natural science from his own observation and experiment. I think that every observer must acknowledge that these powers are possible for almost every boy of eleven. Some of us have for many years been endeavouring to show how the child of six may acquire these powers by the age of eleven if Nature's methods—that is, Kindergarten methods—are followed. For example, he plays at keeping shop, selling or buying things by weight or measure, and paying or receiving actual money and giving change. He weighs and measures with greater and greater accuracy as he makes experiments in mechanics and heat and chemistry. Every boy is fond of stories, and if treated reasonably is easily induced to learn to read. Reading aloud is easily made a pleasure and a habit, and so the boy learns to speak properly. Any boy whatever will become fond of reading if the people about him are fond of reading: I state this as a fact which I have investigated. A boy who is fond of reading gets later on to know the value of books and the use of books, and he will go on educating himself until he dies. Any attempt at coercion, unless it is the very gentle coercion of a person whom he loves, is fatal; even coaxing is not always good. He assimilates knowledge from everything which he does, and therefore he ought to be induced to do things which not only keep him healthy, but which give him knowledge and teach him to reason. Do you remember how angry Lanfranc of Bec was at the idea that any pupil could be *forced* to learn; he said "it turned men into beasts." I speak to you who love children, who love young people, who know that there is scarcely one child in a hundred, even among rather spoilt children, who does not love to do his duty.

I have no objection to the existence of classical schools something like the present for boys who are fond of classics. The average boy will not be asked to attend such a school. I feel sure that much greater attention ought to be paid to the teaching of English composi-

tion, to English poetry and prose, and to English subjects generally. I also feel sure that much attention ought to be paid to natural science. And surely it can do no good for the classical masters to go on sneering at natural science subjects and calling them "stinks" as they do now.

I want, however, to speak more particularly of a much higher kind of school, which will educate the boy usually called clever and also the boy usually called stupid. As I have already remarked, I think that these names may sometimes be redistributed.

The school is one for boys from eleven to sixteen years of age. It ought in no way to be connected with any classical school. English subjects will predominate, but teaching in Latin and Greek and modern languages and other alternative subjects will be provided, although they will not be forced upon any boy. The masters who teach English ought to know enough Latin and Greek and Celtic and Old English and modern languages to be able to illustrate the derivation of English words through their roots. And they must be well read in English subjects and fond of English literature. They will make the boys fond of reading English, and encourage them to find out what they like best. Some boys will take to history and philosophy, some to poetry and imaginative literature. Every boy ought to get the best chance of developing his faculties. It may be asked—if we cannot make the average boy spend or waste twelve hours a week on Latin, what are we to do with him? At all events, now, we keep him doing something, even if it is only marking time. My answer is, you think only of his putting in time; well, then, let him put in his time at work that interests him; any work of that kind must be educative under an intelligent master who can help him in his studies if it induces him to look up information for himself. Thus, when reading travels or history, he will use the globe and raised maps and read geography, and hunt up plans of battlefields. Think of the things that a boy used to be punished for doing, and let him do those things under wise direction. I used to be punished for reading Scott and Cooper. Nowadays prizes are given to boys for their knowledge of *Ivanhoe* or *Quentin Durward*. Expand this into a system. A boy who loves to browse over Chambers' English Literature ought to be guided in his browsing, and induced to take up something more than selections, and he may easily be induced to get off selections by heart if his teacher does not show him contempt by speaking of such exercises as *Rep.* [repetition].

Let the teacher take a leaf out of our methods of teaching chemistry and physics. It has been

shown that twenty-five boys doing work in the laboratory during a lesson of an hour and a half or two hours can be managed by one teacher. Experimental lectures in a lecture room have now been greatly discarded; such lessons as I speak of take place in the laboratory, but reliance is placed particularly upon the personal attention of the teacher being given to each group of students in charge of an investigation, the group not being usually greater than four in number, and often being less than two. These students are sometimes merely verifying or testing a statement made by the teacher or found in a book, but they are often finding out things for themselves. One idea underlying the work is that there ought to be more and more illustrations of simple fundamental principles. It is long before these simple things really become part of a boy's mental machinery; things like the mere definition of *force*, for example. It is, of course, quite different work for the teacher from anything that he used to have to do; for one thing, being much more exhausting. He cannot shirk his duties and sit down waiting for students to come to him. When teaching degenerates into mere maintenance of discipline, everything being regarded as right if the pupils are quiet and seem to be diligent, it is necessary to make a radical change, usually a dismissal of the teacher. It used to be that a science master gave an experimental lecture, and afterwards he had a very easy time, letting the students follow a set routine in the laboratory, but this will no longer do; such attendance at lectures and laboratory work means poor mental training.

Now, I would work out a system for English, English composition, English poetry and prose, geography, history, and other English subjects, on the lines that we have found so successful in natural science. An enormous change has been effected during the last fifteen years in the teaching of mathematics. The older methods always failed with the average boy or man. The new system, which is sometimes called *practical* mathematics, is based on the idea that students shall work experimentally, just as they do in their natural science. It is found that their eyes and faces are bright, they work hard, and they evidently enjoy their work. We have merely introduced common sense into the teaching; we have approached the student's mind from other points of view than the old academic one, from the only side on which he has ever been taught anything—the side of observation and trial. He weighs and measures. He does experimental geometry and mensuration, and is assisted by abstract reasoning just to the extent which interests him; he makes plans of

the school buildings and maps of the district; algebra becomes interesting when in coordination with experiments in mechanics and physics; trigonometry becomes interesting in the actual measurements of heights and distances. The infinitesimal calculus is bound to be a weapon which any boy of fifteen easily gets to understand by actual use when he is dealing with dynamic experiments. In fact, the physical and mathematical laboratories are in one, and the same teacher takes charge of both subjects and teaches them as much as possible together.

Furthermore, in the preparation of an account of an investigation there are practical lessons in English composition; there is sketching, and also more careful drawing with instruments, and the finding of empirical laws, using squared paper. In such a school every subject is being taught through all the other subjects; every boy is doing the work in which he is greatly interested, and no boy is attending merely and putting in time. Furthermore, out of school-time there might be the usual restrictions as to "bounds," but otherwise I would let a boy do pretty much as he pleased. "Prep." at boarding schools and home lessons for boys at day schools are to be quite discredited. I would—it may cost a little more money—allow a boy to work in the workshops or laboratories or library or in his own room or common rooms at anything he pleases in this off-time, and I would give him advice only if he asks for it. If I saw a boy reading a penny dreadful I would not stop him; nor if he were reading Paine's "Age of Reason," or any wretched treatise on psychology or logic. I would in no way discourage a boy from acquiring a greater and greater fondness for reading, knowing that this is the foundation of future happiness and education, and that no harm which he can get from his reading is of the slightest importance in comparison with the importance of our main object. As he grows up he will become less and less fond of the sixpenny magazine. The school can at its best be merely a preparation for the lifelong education of the man. I would not keep the boy at school after sixteen. Let him then go into business, or to a science or technical school, or to the university.

Unfortunately for the present no university will take men without an entrance examination involving other languages than English. This is a great evil, but it is not going to last much longer. In the meantime a competent coach will prepare any student to pass the necessary examinations (say, in Latin and Greek) in three months, even if there is much other work to do. This is not a matter of learning any classics; it is rather the manufacture of some

contempt for the classics, a necessary evil for the present. Indeed, for the present, but let us hope not for long, there are many other necessary evils. We have to find competent enthusiastic teachers; we have to persuade governing bodies to pay salaries two or more times as great as at present; we have to make parents see that some mental training and fondness for reading and writing are really of value, and that Tom Sawyerism is only childish.

SCIENCE AND THE SCHOOL.¹

BY PROF. HENRY E. ARMSTRONG, F.R.S.

THE difficulties under which science labours in our schools are partly internal, partly external. Tradition and the type of mind of the average teacher favour set lessons and literary study by blocks of learners; the extra cost of the work is considerable, when the expense of the special requirements is taken into account; more time and more individual effort are demanded both from teacher and from taught; freedom is hampered by the need of considering the requirements of external examinations; finally, the Universities have done but little to help, and though the schools have more or less unwillingly recognised that there is some value in scientific studies, in consequence of the persistent demands men such as Huxley have made, more especially because it is seen that there is money in them, none the less there is still no real demand for them on the part of the public. Of this, and, in fact, of nearly all the real problems of education, the public are too ignorant to be judges.

Having been more than forty years not only a teacher, but also a student of students and of teachers of educational methods, and of the conditions under which teaching is carried on, I have been led to form very definite opinions, the more so as I have been able to regard the problems not only from the pedagogic side, but also from that of the chemist and biologist—with some knowledge of the mechanism.

My view—and it is one that I desire to press to a logical conclusion—is that we must recognise that human ability is not merely a limited quantity, but that it varies enormously not only in quantity, but also in quality: the human orchestra contains a great variety of instruments differing in tone and range, but nature, like man, makes few instruments of superlative excellence, a vast number of very poor quality, and only a moderate proportion of serviceable type. If science can tell us anything, it is that

¹ From an address on "The Place of Wisdom (Science) in the State and in Education" delivered to the Educational Science Section of the British Association at the Australian meeting on August 14th, 1914.

the democratic and republican ideal of equality is the veriest moonshine—a thing that never has been and never will be. And education can do very little to alter the state of affairs: it cannot change the instrument, at most it can develop its potentialities, and it may easily, by careless handling, do damage to the working parts.

To develop a rational system we need to take into account man's past history, and to apply evolutionary and biological conceptions. Education as we know it and practise it, after all, is a modern superstition—something altogether foreign to the nature of the majority of mankind: it is based on the false assumption that we can all be intellectual; whereas most of us can only use our hands. But the schools neglect hands and attempt the impossible by trying to cultivate non-existent wits. Man is doubtless pretty much what he was, and it is useless trying to make of him what he has never been.

We are seeking to educate all. What does this mean? Practically that we are seeking to teach all to read. But when they have learnt, what are the majority to read—what will they care to read? At the schools for young gentlemen the reading taught hitherto has been mostly the reading of Latin and Greek. We know the result—the number of persons above school age who can and do read either language is negligible. Some of us learn French, scarcely any learn German, Spanish is all but neglected: when, therefore, we visit the Continent of Europe or South America we can only mumble a few words of the language of the country, and usually allow the foreigner we visit to speak broken English for us: few of us read his literature.

The vain attempt is made to put us in touch with the past, but no real effort is exerted to bring us into contact with the present. We have not yet taught English in our higher schools, but are beginning to think of doing so—to this end we are urging that attention be paid to so-called classical literature, forgetting, of course, that for the most part this was written for grown-ups, and not as food for babes of school age.

The difficulty is still greater in the case of those who have only passed through the elementary schools—the literature that will appeal to most of these will be very limited in scope. Our newspapers show pretty clearly what will go down: not much—but it represents what is going on in life. In London, when the theatres are under discussion, it is often said that people want to be amused, not instructed; to cudgel our dull brains is a dull business to most of us. It seems to me that this doctrine should be applied more than it is

in the schools. At all events we shall do well to remember the words of the wise pundit in Rudyard Kipling's "Kim": "Education—greatest blessing when of best sorts—otherwise no earthly use."

To discover the best sort for each sort of student is our difficulty—who will do it? Here comes my point. Not the present race of schoolmaster or of educational authority. By placing classical scholars in charge, we seem unconsciously to have selected men of one particular type of mind for school service—men of the literary type; and this type has been preferred for nearly all school posts, mainly because no other type has been available, this being the chief product of our universities. Such men, for the most part, have been indifferent to subjects and methods other than literary—I verily believe not because they have been positively antagonistic or lacking in sympathy, but rather because of their negative antagonism: of an innate inability to appreciate the aims and methods of any other school of thought than their own, especially on account of their entire ignorance of the experimental method. I believe, moreover, that the difference is fundamental and temperamental, not to be overcome by training. Oxford, owing to the bait of its classical scholarships, seems to have attracted an entirely peculiar type of ability, and to stand alone in consequence; at Cambridge, owing to the hold obtained by mathematics, the field has been divided, but the mathematician, in his way, is often as unpractical by nature as the classic; fortunately, of late years, owing to the rise of the medical school and that of natural science, other elements have been introduced, and the university has a future of infinite promise in consequence, if it will but realise that its primary function is to inculcate wisdom rather than to give purely professional training.

Sympathy is only begotten of understanding: the literary type of mind apparently does not and cannot sympathise with the practical side of modern scientific inquiry, because it has neither knowledge of the methods of experimental science, nor the faintest desire for such knowledge.

We need a more practical type of mind for our schools. Pessimist though I may appear to be, having watched with close attention all my life the great struggle that has been going on in and between schools, having had the great good fortune also myself to be one of the early workers in the province of technical education, and having been associated with the development of one of the greatest of our boarding schools (Christ's Hospital), I am, of course, aware that very great progress has been made, and am, in every way, hopeful of the

future in store for those who are unaffected by present prejudices. In my experience, the men to whom the progress has been due have, in all cases, been trained in a broader school than that of Oxford; the few escapes from Oxford who have been successful reformers have been the exceptions which prove the rule, as they have shown themselves to be gifted with practical instincts: to such men the Oxford literary training has been of extreme value. Oxford will not gain its full value until all types of ability are represented in fair proportion by its students, not one almost exclusively. When this step is taken, the incubus of the Oxford spirit will no longer be upon us: it will then be possible for us to regard education as "a preparation for life"—a formula often used, but usually honoured hitherto, in the breach, rarely if ever in the observance, in our schools.

There must be no misunderstanding. The representatives of literary training rely chiefly on a past into which it is well not to look too closely, and must always work with borrowed capital in the days to come: our side has no distant past worth speaking of, but is hopeful of a glorious future, in that it will be adding to its knowledge; we desire to do their party all possible justice, and shall ever be in need of their assistance, and more than grateful for the service they render us; but it must be war to the knife if they will not recognise that, in a progressive age, they cannot lead any longer, that we shall decline to put up in future with the conceit and narrowness of outlook of the classical scholar.

The argument I have applied to the teacher is equally applicable to the taught—boys and girls, indeed, students generally, are of different types: they have different orders of ability, and cannot be treated as if all were alike. In the beginning we may tempt them with all sorts of scholastic diet, but only, in the main, in order to discover their aptitudes; when these are found they should be the main line of attack. In saying this I am not arguing in favour of extreme specialisation, but against time being wasted in attempting the impossible. Some of us can learn one thing, others another; the schools try to force too many into one mould. It is essential that we should try to lay certain foundations, but useless to proceed when we find that some of them cannot be laid.

This doctrine is applicable especially to the selection of scholars, and to the training of teachers and of evening-class students. We select our scholars almost entirely by literary tests—the result is that we select persons of literary aptitude rather than those gifted with practical ability for every kind of service: like necessarily breeds like. By insisting on "grouped courses" we too often oblige students

to take up subjects which they are incapable of paying attention to with profit: most of us, probably, have found out that there are many subjects which we simply cannot learn, try as we may.

My own experience has been gained in a wide school. My course of action was determined in early days by reading Trench's "Study of Words," from which I acquired inklings of the art of inquiry and an interest in tracing things to their origin. At college, at the end of but a single year's didactic study, it was my great good fortune to be honoured with the confidence of my teacher, the discoverer of zinc methyl and the author of the conception of valency, who charged me with the solution of a problem: to work out an absolute method of determining the organic matter in river and well water. Instead of wasting time in merely repeating what others had done, I had to help myself in all sorts of ways: the discipline was invaluable. At the end of a year and a half, on going to Germany to study, I again came under the influence of a man, an individualist of the first water, who encouraged his students to think for themselves and do things themselves: he was an arch heretic himself, and we disputed with him constantly.

My views were first made public in 1884, when a scheme of instruction was put forward which was eventually developed into that known as the heuristic method. The subject is discussed so fully in my book on "The Teaching of Scientific Method," that it is unnecessary to say anything of the method, beyond pointing out that it involves putting the learner in the position of inquirer, and insisting that the purpose with which an experiment is made shall be fully appreciated before it is carried out, and that the bearing of the result on the question asked at the beginning shall be fully considered—each successive experiment being devised to promote the solution of the problem undertaken, and to justify the solution arrived at. One feature of the work is the stress laid on an account being written of the work in proper literary form, stage by stage, as the inquiry is carried on: the art of making experiments is the one before all others to be cultivated by such work; therefore it is essential that a statement of the motive with which an experiment is made shall be written out before proceeding.

The results obtained either by myself or through the agency of those whom I have trained have been most encouraging; but it has only been too obvious that those who attempt to put it in practice, after they have been under the influence of didactic and dogmatic teaching, have the greatest difficulty in

acquiring the right habit of mind, so that, probably, not many teachers have really learnt to appreciate the method and its possibilities: it is one that involves too much thinking to please the majority; thinking is always troublesome work. But the movement has had an influence in many quarters, and has even affected literary subjects: an ideal has been introduced into teaching the application of which is new, though it is not new in principle. Our conventional method of teaching is not one which favours the development of an inquiring habit—we give demonstrations and we call upon students to verify statements that are made to them; but we are so occupied in stating results that we do not explain how the results were arrived at, and what led up to them. As a rule, only those who have done research work know what constitutes an experiment.

My own experience with students has satisfied me that they not only vary in ability, but that the different classes are of very different types of mind: the engineer tends to be constructive, but not analytical; the analytical introspective habit of mind is more highly developed in the chemist; the biologist rarely has mathematical proclivities. It is useless to attempt to teach all in the same way, and many can learn only very little.

The explanation of Huxley's failure to forecast the future of science lies, apparently, in the fact that men generally are not attuned to her ways. I am inclined to think that the "mere man of letters" will continue to ignore and despise science—he will lack the peculiar mental capacity to assimilate scientific teaching. Only the few will rise to a proper understanding of the mysteries and be masters of their subjects, though many may be trained to be skilful mechanics.

The extent to which the multitude can receive instruction is a matter of primary importance. If, as Huxley has said, the greatest intellectual revolution mankind has yet seen is now slowly taking place by the agency of science—if she be teaching the world that the ultimate court of appeal is observation and experiment, not authority; teaching it the value of evidence; then must we strive to teach all, in some measure, what constitutes evidence, what observation and experiment are.

I believe much can be done in this direction, having made the attempt with hundreds of unwilling students in my time—students of engineering who had not only made up their minds that they were not going to learn chemistry as it was not their subject, but were incapable of ever entering into the spirit of the work—one of my sons was amongst them.

At an early period, having realised that it was useless to waste my time and theirs in the struggle, and that it would not help them in the long run to give them chemical tips which they lacked the sense to appreciate and to apply, I made up my mind, therefore, that it was desirable instead to develop any detective or inventive spirit that might be in them, so advised them to read detective stories instead of a text-book, and ask themselves what the stories taught them: how the detectives set to work. Their attention was secured by urging them also to think what would be their position, later in life, when they were called upon to act for themselves, and to get new knowledge for themselves, if they had not learnt to think for themselves. We have then set them to work to solve a series of problems in the laboratory. The course, in fact, was a combined laboratory-lecture course, the lectures being on, and always subsequent to, the laboratory work. In not a few cases, in after years, when I have met old students, they have told me spontaneously that, much as they had objected to the pressure put upon them, our insistence on their learning to do something themselves had proved to be of extreme value. Long experience has convinced me that anyone who has once learnt to make simple measurements and observations, and to ask and answer a definite question experimentally, is on a different mental and moral plane from that occupied by those who have had no such training.

Such teaching is possible even in elementary schools—given competent teachers; but a new race of teachers will be required to carry the work into effect, should it be decided to make the attempt at all generally.

The great mistake that has been made hitherto is that of attempting to teach the elements of this or that special branch of science: what we should seek to do is to impart the elements of scientific method and inculcate wisdom, so choosing the material studied as to develop an intelligent appreciation of what is going on in the world. It must be made clear, in every possible way, that science is not a mere body of doctrine, but a method: that its one aim is the pursuit of truth.

If we are to progress in these matters, a system must soon be developed which is broader and better than that under which we now muddle along—at present the real problems of education are all but neglected; even if the official mind were capable and desirous of promoting progress, the work of administering rules and regulations—of keeping the machine going—is so great that no time is left for thought.

To accomplish our purpose we need to in-

roduce higher ideals into our university life. In place of the worship of mere knowledge we must put those of understanding and application, and seek to teach all, so far as possible, to appreciate the art of discovery—to value and promote inquiry and discussion: to exercise a reasonable logic, in fact.

We have seen the error of our ways sufficiently to give up payment by results, and are all but ashamed that we were ever misled by Robert Lowe to adopt such a soul-killing policy. But, none the less, our entire educational system is still in the grips of commercialism, and in this respect, as a nation, we stand alone, I believe. Scholarships, prizes of one kind or another, examinations are the perpetual feast of British education. Examinations, in fact, are a regularised and very lucrative branch of industry—mostly in the hands of certain firms who diplomatically shelter themselves under the ægis of this or that educational body; but the universities are the greatest sinners. Valuable as examinations may be within certain narrow limits, and for certain definite purposes, there is little doubt that our general ignorance is in no small degree determined by our worship of the examination fetish. So long as the system prevails, the education of our youth will not be in accordance either with their capacity or their requirements, but on lines corresponding to those by which prize cattle are raised for show—they will be trained to develop some specially catching point.

The examinations are an inheritance from the literary rule. It is possible to test on paper whether a man be "well read," but faculty, as distinct from capacity, cannot be so determined. What is worse, by forcing students to commit a large body of doctrine to memory, the attention becomes fixed merely upon what others have done, and little time or inclination is left them to acquire a knowledge of method—the faculty of thinking for themselves and applying their knowledge. No class suffers more seriously than medical students under the system—their preliminary training is all but entirely didactic, and the time spent upon it all but wasted: we need not wonder that medicine has made so little advance, the practitioners being in no way trained in the use of scientific method.

To improve our system we need to get rid of our blind British belief in "men of affairs," especially in the "man of business," so-called, really the man of commerce, as persons capable of ordering everybody's affairs and everybody's business. The commercial man, the financier, or the lawyer, would never think of calling us in to manage his proper business—why should he be thought competent to

manage ours? Results show that he is not, as my argument in this address would lead us to expect would be the case.

No one will seek, for one moment, to minimise the progress made, or fail to recognise that infinite credit is due to those who have controlled the work of education thus far; hitherto, however, progress has been made in providing accommodation and getting pupils to school and college: the art of teaching has made no corresponding advance; nor will it, I believe, until the onus is cast more directly upon the teachers, and they are forced to exercise greater forethought in the direction of collective action—until they are placed in a position to be sole managers of their own affairs, and called upon to row together as entirely self-chosen crews. At home, excepting at our ancient universities, "governing bodies" are paramount everywhere, not the teachers; and too often the sense of responsibility and power of initiative of the teacher are further diminished by the interposition of a principal, who may be a man of all affairs except that in hand—the work of teaching.

In some way we must learn to debate our doings more freely, and not to flinch at fair criticism. Whatever the faults of our English public-school education, one of its many advantages is that boys who go through it are disciplined to stand the kicks of the world without too much complaining. This is one of the marks of the gentleman. Such training is not easily given in the day school, and no little difficulty is experienced, I am told, by employers of labour nowadays, on account of the way in which the least criticism, even the suggestion that there may be a better way of doing a thing is liable to be resented and interpreted as fault-finding by those in their employ.

SCHOOL TRAINING FOR PUBLIC LIFE.¹

By the Rev. H. B. GRAY, D.D.

EDUCATIONAL methods and practice have been up to the last twenty-five years empirical in England. The science of pedagogy has only recently come to the horizon and is still in its infancy. Traditional subjects have occupied the attention of schoolmasters even on the highest rungs of the educational ladder, and have been accepted as the groundwork of educational faith, notwithstanding the conclusions of thinkers like Pestalozzi, Rousseau, and Froebel abroad.

Education, which in Germany and the

¹ Abstract of a paper read before the Educational Science Section of the British Association, at the Australia meeting, August, 1914.

United States has long been welcomed as a great national asset, has in these islands been regarded as little less than a bore. The evolutionary theories of Darwin have, however, gradually penetrated the domain of pedagogy. It has been discovered, among other things, that the body and mind are inseparably interconnected, and that the evolution of the child has as its prototype the evolution of the race; secondly, that the higher we go up the scale of creation, the more vast is the difference between the infant and the adult life, and that hence arises not only the capacity, but the necessity of education to man as distinguished from the lower animals. This necessity begins from the cradle onwards, and the training of childhood in the informal education of the home becomes infinitely important.

Success and value in public life presuppose a well-balanced and ordered education. Such an education can only be gained by a due balance between the study of the works of nature and the works of man, between linguistic and literary subjects on one hand, and mathematical and natural-scientific subjects on the other. The adolescent who has been trained in one to the exclusion of the other emerges as a narrow man. This pedagogic principle has been but slowly recognised in our ancient universities and historic public schools, which have derived their curricula by long tradition from the ecclesiastical seminaries of four centuries ago, although the Humanists were regarded originally as the foes of the Church. The persistence of class interests and class prejudices in England has kept this tradition alive, long after a philosophic pedagogy recognised its inherent unwisdom.

A long race of schoolmasters, also, trained on the narrow ancient methods, has perpetuated the superstition, and has not yet by any means shaken off the trammels. Their want of intellectual equipment in other subjects has been a collateral drawback—and this notwithstanding calls, more or less intelligent, from the industrial classes, and from the more progressive ideals of other nations.

The devotion to literary and linguistic to the exclusion and disparagement of scientific studies in the curricula of our universities and schools carries with it, to a certain extent, a justification, inasmuch as it is undoubtedly true that concentration on the struggles and achievements of men in the past confers on the aspirant to public life a greater power of expressing himself more clearly and forcibly, of impressing his views and convictions on other men. On the other hand, his ignorance of the laws of nature, and want of practice in tracing from the laws and phenomena of the known

to the laws and phenomena of the unknown, have a tendency to give him a narrow outlook on the social and political problems with which he has to deal in governing and regulating the lives and ameliorating the condition of his fellow-men.

This becomes more painfully apparent when he is brought into contact with the phenomena of a vast and complicated Empire, and not merely of an insular people. It is not surprising, therefore, that the policy of our statesmen and public men generally has been lacking in (what may be called) imperial instinct, and this lack of a wide horizon may constitute a real danger to the future integrity and consolidation of the Empire.

To descend, then, from the general to the particular, the youthful aspirant to public life ought to spend far less time in the study of the two ancient languages which (until the past twenty-five years) occupied more than three-quarters of the educational periods of the young among the governing classes. He ought to devote not more than one-quarter or one-sixth of his student-life to such subjects. Political and commercial geography, a thorough knowledge of one modern language, of English literature and European and English history, ought to be part of his intellectual equipment. Civics and political economy ought to be carefully studied; while on the scientific side he should be taught at least the elements of physics and chemistry, and electricity, with a certain amount of general applied mathematics. The connection between mind and hand in manual training should also be a part of each student's equipment.

With regard to the social side of school life, the great weakness, both in our schools and universities, has been a want of large outlook. Both types of institutions are excellent training-grounds for character: in both the adolescent learns effectively the knowledge how to command and how to obey. But the sympathy and *camaraderie* engendered have been confined to those of the boy's own rank and position in life. The republic in which he is trained instils strong local patriotism, which, however, is intensive rather than extensive. His angularities are rubbed off, and his power of command is well trained. Hence he becomes, as a public man, if he attains to responsible positions in his island home, a sensible and just ruler within certain limits, but he perpetuates the prejudices of the class system. For the same reason, when his functions call him to the outlying parts of the Empire, he becomes an excellent governor over uncivilised races and over subject-peoples, which, while not inferior to himself in civilisation, have been accustomed to domination through the cen-

turies. But in countries like Australia, New Zealand, and Canada he is often, at first, at least, a comparative failure, through the causes already enumerated, *i.e.*, class prejudice, want of wide sympathy, an insular distaste for customs and habits with which he is not familiar, and a lack of manual training in early life.

In fact, the majority of English boys have, except in the narrow area of school sports, very little knowledge of the scientific connection between mind and hand. Some improvement, however, in all these respects has been observable during the last ten years, but much more widespread educational reform is required to make our statesmen less insular and fit them for the government of their imperial estate. It is, indeed, these deficiencies that our brethren overseas, and those of us who have divided our lives between our island home and our wide-flung dominions, consider should be taken in hand and remedied in our schools and colleges, if our vast and complex Empire is to survive as an organic whole.

THE LONDON TRADE SCHOOLS.¹

By C. W. KIMMINS, M.A., D.Sc.

Chief Inspector of Schools, London County Council.

IN order to place the subject of trade schools in its appropriate setting it is necessary to know something of the London County Council's elaborate scholarship scheme, consisting of junior, intermediate, and senior scholarships, which makes ample provision for the very clever child from the elementary school to the secondary school and the university or higher technical school.

After thus making provision for the clever child, the problem of problems becomes: How can we prevent the boy and girl of normal intelligence from drifting into the ranks of unskilled labour on leaving the elementary school at the age of fourteen? In order to bridge the serious gap between the ages of fourteen and seventeen the trade school has come into existence, and is destined in the future to play a very important part in London education. It has been found that for the poor type of child it is, under present conditions, quite impossible to ensure two or three years' continuous instruction after the age of fourteen unless some grant for maintenance is made which will recoup the parents for the loss they sustain by not letting their children enter unskilled employment. The trade-school scholarship for boys generally consists of free education and a maintenance of £6 for the first year and £15 for the second and third years.

The establishment of the trade school is,

moreover, largely due to the changed conditions of modern industry and the total disappearance in some, and the gradual disappearance in others, of the apprenticeship system in many of the London industries. Most of the trade scholarships for boys are awarded in engineering, silversmithing and jewelry, book-production, furniture and cabinet-making, carriage-building, photo-engraving and photo-process work, professional cookery, waiting, and wood-carving, and for the different branches of the building trades. In many other trades, such as tailoring and bakery and confectionery, definite trade instruction is given, but no scholarships are awarded for these subjects. The net cost, apart from loan charges, in a boys' trade school is about £15 to £21 per head.

The scholarships awarded to girls are for dressmaking, laundry-work, upholstery, ladies' tailoring, waistcoat-making, corset-making, millinery, designing and making of wholesale costumes, and photography. As a rule, trade scholarships for girls are for a period of two years, with a maintenance grant of £8 for the first year and £12 for the second year, in addition to free education. The net cost in a trade school for girls is about £15 per girl.

In order to ensure that trade scholarships are given only to children of parents who are unable to maintain their children at school without assistance, no candidate is eligible whose parents or guardians are in receipt of an income which exceeds £160 a year from all sources.

In many ways the trade school has a distinct advantage over the old system of apprenticeship:—

(1) The supervision in a well-equipped trade school is generally of a much more efficient kind than even that of a well-ordered workshop.

(2) Culture subjects are not neglected, and consequently the general education of the boys or girls is continued in a manner suitable to the trade for which they are preparing.

(3) In the apprenticeship system there is a natural tendency for the apprentice to become attached to some special department of the work, to the serious neglect of others.

(4) In following out a definite curriculum under a well-arranged time-table there is very little waste of time and the balance of theoretical work is properly maintained.

(5) The work of a trade school is generally governed by a consultative committee of experts who are to a large extent responsible for the education of the students being carried on under the best trade conditions.

(6) The presence of trade experts with experience of teaching, who are always at hand

¹ Abstract of a paper read before the Educational Science Section of the British Association in Australia, August, 1914.

in the trade school workshop and able to solve any difficulties which may arise, means an enormous saving of time as compared with the case of the apprentice, who has to await the convenience of the foreman for the solution of difficulties.

A most important element in the success of the trade schools is the connection of the school with the trade by means of expert consultative committees. The most important of these are the consultative committees in (i) bookbinding, (ii) book-production, (iii) goldsmithing, silversmithing, and jewelry, (iv) tailoring, and (v) furnishing trades. These committees are representative of the Masters' Associations, of the Workmen's Associations, and of the Council. Local consultative committees of experts have also been formed in the case of each trade in each of the girls' schools.

In addition to the full-time trade schools, there are many polytechnics and technical schools in London working in conjunction with employers of labour in connection with the technical education of their employees. Moreover, apart from full and part-time day work, admirable provision is made in all parts of London for evening classes in polytechnics and similar institutions in connection with the various trades. The enthusiasm with which thousands of young artisans, after a long day's work, will attend for theoretical and practical instruction in the scientific principles of their trades under skilled craftsmen is one of the most pleasing features in London education.

RUSSIAN EXPERIMENTAL PEDAGOGICS.¹

By Prof. A. NETSCHAJEFF, Ph.D.

THERE is no administrative unity in Russian education. The Ministries of War, Commerce, Public Instruction, Agriculture, and Benevolent Institutions all have educational responsibilities, and the Orthodox Church adds to the complicated list of administrative authorities. This want of unity leads to difficulties in practice, *e.g.*, the transition from primary to secondary school is very difficult. Public opinion moves in the direction of a single type of school of general education for all children.

The autocratic *régime* of ministers has led to many ups and downs in education, but the fact that repression in one Ministry might be contemporaneous with advance in another has had compensating effects. In recent years the Ministry of Commerce has been particularly

active in the encouragement it has offered to private initiative and experiment in education.

Public educational movements began in Russia under Catherine II., due largely to the influence of Comenius and Locke. The first university in Russia (Moscow) was founded in 1755, and at first middle and lower schools were controlled by university professors. This ended with the establishment of a Ministry of Education, and, under a rather barren officialism, the schools became simply imitators of their western neighbours.

Under Alexander II. new ideals came into being. They were voiced by Ushinsky and Pirogoff, who urged the establishment of chairs of pedagogy in the universities, and the scientific study of children. Then followed the period of reaction under Alexander III. The Ministry of Education reduced all its schools to a formal type. Individuality was repressed. The system was vigorously attacked, and finally it was officially admitted that reform was necessary. Active propaganda continues. It has taken many forms, one of which is experimental pedagogics.

Contrary to Tolstoi and his claim for absolute freedom for the child, the psychological investigator thinks the child needs help in the process of learning to understand himself; and in order to render that help it is the teacher's first duty to learn to understand the child as a phase in the process of the biological development of man.

In 1901 the first laboratory of experimental psychology was opened in Russia at the Pedagogical Museum of the Military Schools. This has become the centre of scientific pedagogy in Russia. Out of this institution have developed the Pedagogical Academy (1907), and a Society of Experimental Pedagogics (1908), which conducts a four-year course of study, and carries on an experimental school. Prof. Bechtereff founded in 1908 the Psycho-Neurological Institute in St. Petersburg, and Dr. Rossolimo founded the Institute of Children's Psychology and Neurology in Moscow. Numerous congresses have been held, and 131 schools and societies have purchased a cabinet of simple psychological apparatus for experimental purposes.

The chief problem under investigation during the last fifteen years has been concerned with the changes in the moral life of children as depending upon age, sex, and educational environment. Changes in memory and association have been carefully studied. The general results offer striking evidence in favour of coeducation. The study of attention and liability to fatigue confirmed this result. Suggestibility, the relation of amount of sleep

¹ Abstract of a paper read before the Educational Science Section of the British Association at the Australia meeting, August, 1914.

to intensity of work, and the like, have also been the subject of research.

Further, the specific quality of fatigue induced by special kinds of work have been studied with a view of discovering the best possible balance in the sequence of short exercises. We have also been engaged upon the problem of individual memory types in relation to economy in methods of teaching, and the possibility of improving the naturally weaker sides of individual memory. The "natural" method of teaching foreign languages has been carefully investigated with a view of determining the respective place to be given (a) to the mother-tongue and (b) to pictures in that work.

Lastly, we have been engaged in comparing the teachers' judgments of children as "attentive," "interested," "progressing," with their performances under stricter laboratory methods and conditions.

The work of Dr. Rossolimo and Prof. Lazoursky in characterology should also be mentioned. These researches have all taken their rise in the laboratory, passed thence to the school, and finally come back to the laboratory again. This triple process seems to us absolutely essential.

PERSONAL PARAGRAPHS.

MR. GEORGE SMITH, headmaster of Merchiston Castle School, Edinburgh, has been appointed headmaster of Dulwich College, in succession to Mr. Gilkes. Mr. Smith was educated at Ayr Academy, and is a graduate of both Edinburgh and Oxford. After teaching for a few months at Edinburgh Academy he became a master at Rugby until he became headmaster of Merchiston Castle School in 1892 at the age of about thirty-one.

* * *

MR. F. C. DUCKWORTH, of Repton School, died on August 10th at his brother's residence at Uppingham. Mr. Duckworth, who was educated at Blundell's School, Tiverton, and Magdalen College, Oxford, had been a master at Repton since 1886. He was one of a family of schoolmasters; his father built up a good school—St. Peter's, Weston-super-Mare. Since his death, his eldest son, Mr. R. F. Duckworth, has been headmaster, and has changed the character of the school, which is now one of the best preparatory schools in the west of England.

* * *

At the distribution of prizes at Epsom College, Lord Rosebery commented on the

fact that the ceremony marked the severance of the connection between the College and the Rev. T. H. A. Smith-Pearse, headmaster for a period of twenty-five years. After speaking of the work of the headmaster, which would remain as a monument to his memory, Lord Rosebery referred to the clouds on the political horizon, pregnant with thunder. . . .

* * *

THE war storm has now broken, and many schoolmasters and schoolmistresses were among the first to witness its initial severity. Many had reached the scenes of their holiday labours in France, Germany, and Switzerland, and some of them have not yet been able either to return or to communicate with their friends; some are held up in Switzerland, others hastily crossed the Italian border and are awaiting an opportunity of crossing France.

* * *

MANY schoolchildren will remember all their lives the return journey on August 3rd and 4th, the passage beneath fixed bayonets to the station, the crush on the quay, the crowded boat and the thousands left behind, and finally the search through tons of luggage at Charing Cross for the missing trunk.

* * *

SCHOOLMASTERS and schoolmistresses are now proving their loyalty, and at the same time doing much to establish a better reputation for the practical business ability of the profession. Many have volunteered for service—in one school two-thirds of the men within the required age-limits; others are qualifying for home defence, and the Special Constabulary now being enrolled in London includes well-known names; nor are the women teachers behindhand: their services are being freely given to the many committees engaged in preparing to alleviate the distress that such a war will inevitably cause. ONLOOKER.

THE TEACHING OF GEOMETRY IN SECONDARY SCHOOLS.

A LITTLE more than five years have elapsed since Circular No. 711, on the "Teaching of Geometry and Graphic Algebra in Secondary Schools," was issued by the Board of Education. This circular is now out of print, and the Board has therefore taken the opportunity in the "Board of Education Memorandum on the Teaching of Geometry in Secondary Schools (Circular 851)" to state the matter afresh, and, in the light of the criticism and advice which have been invited and received, to explain more fully and to justify the views expressed. In the new circular geometry alone is considered; "graphs" are to be dealt with separately.

The main practical suggestion in the first circular was that the teaching of geometry should be based on a much larger number of unproved propositions than is the case in Euclid's elements. This suggestion has been adopted by the committee of the Mathematical Association, and the influence of this body has induced the Cambridge Syndicate and the Oxford Delegacy for Local Examinations to take some steps in the direction desired by the Board. The suggestion has also been adopted in the syllabus of the Common Entrance Examination Board, controlled by the Headmasters' Conference; also in the regulations for the entry of naval cadets. The propositions which the Board suggests should be regarded at the outset as postulates are the following:—Euclid I., 13, 14, 15 (angles at a point); 27–29 (angle properties of parallels); 32 and its corollaries angle-sum of triangles and rectilinear figures); 4, 8, 26 (congruence of triangles); 5 and 6 (angles at the base of an isosceles triangle). In addition, one in dealing with proportion and possibly some for circles.

The greater part of the circular is occupied with a justification of the scheme suggested. It is pointed out that the philosophical discussion of the foundations of mathematics has made it clear that any set of propositions may be adopted as a basis for a mathematical science provided they are self-consistent. In the ideal case these propositions should be independent, but pedagogical considerations indicate that insistence upon this feature renders the approach to the subject too difficult and uninteresting for children. A further part of the circular deals with the deductive development of the subject. Here it is urged that not even the slightest course of school geometry can be considered reasonably complete unless it includes the elements of proportion and similarity, and that this is the case is now recognised by all examining bodies with the exception of London University.

The introduction of ratios and similar figures leads immediately to the trigonometrical ratios, and renders possible the inclusion of numerical trigonometry in the early part of a mathematical course.

It is considered that in many cases there will not be time for a formal logical treatment of solid geometry, but in any case exercises drawn from solid figures should be introduced into the work. Some opportunity should also be given for training in practical solid geometry—that is, the representation of solids by plan and elevation, and the obtaining of sections. Other paragraphs of the circular make suggestions regarding the method of teaching. Some parts of the earlier circular, e.g., that dealing with the treatment of parallels, received a considerable amount of criticism. The Board has recognised the force of a number of these objections, and where it still maintains its previous position, it can at any rate give good reasons for its attitude. The Board stands for the principle that the methods of reasoning adopted by philosophers and pure mathematicians are not those which can be used by children at the commencement of their work, but they must be introduced to them gradually, and the circular seems to us to sketch a reasonable way of carrying out this idea.

THE DAYLIGHT ILLUMINATION OF SCHOOLS.¹

IN 1913 an interim report on the artificial lighting of schoolrooms was issued by a joint committee.²

In that report it was stated that the daylight illumination of schools was also being considered. In view of the complex and technical nature of the problem involved, a sub-committee was appointed to deal with the subject.

One of the first tasks undertaken by the committee was to draw up a list of points on which further information was required. A considerable number of photometric tests of daylight were carried out by various members of the committee, chiefly in the course of visits to several schools in London and elsewhere.

Eventually it was thought desirable to supplement these researches by an open discussion on some of the most debatable points, and a paper was accordingly prepared and read at a meeting of the Illuminating Engineering Society by Mr. P. J. Waldram, one of the members of the committee.

It was recognised that certain aspects of school lighting had been exhaustively studied on the Continent, and a summary of recent literature on the subject was prepared. A series of queries on fundamental points connected with daylight illumination was also prepared and circulated among corresponding members of the society, including various continental authorities who had made the natural lighting of schools the subject of lifelong study.

In this way much useful information was obtained and the views of a number of experts were placed side by side. It soon became evident that while there was fair agreement on certain points, there were wide differences of opinion on many others. There were also cases in which it was frankly confessed that the necessary information, on which to base an opinion, was not available.

In view of the admitted importance of good daylight illumination in the schools of this country (in the schools of London alone there are more than one million children), it seems desirable that the study of the subject should be taken up in a more systematic manner. Much of the information sought would be of value in other directions, for example, as bearing on the admission of daylight into workshops and factories. It must be remembered that by far the greater portion of the work of the world is still carried out by daylight, and that our conceptions as to what is necessary and desirable by artificial light are moulded to a great extent by our experiences during the day; the study of daylight illumination has therefore a direct interest even to those who are primarily concerned with artificial illumination.

In preparing this interim report the chief aim of the committee has been to summarise the results of several main lines of investigation having for their object the setting up of a standard of daylight illumination in

¹ From an interim report issued by the Illuminating Engineering Society with the approval of the council and of the delegates of the associations represented on the joint committee, appointed in 1911. From the *Illuminating Engineer*, July, 1914.

² THE SCHOOL WORLD, October, 1913.

schoolrooms; and to make a few tentative recommendations as to how these principles may best be carried out in practice.

It is also hoped that the report will be instrumental in directing attention to some of the gaps in our knowledge of daylight illumination and suggesting fruitful lines of further investigation.

It is convenient to draw a distinction between fundamental principles affecting the provision of adequate illumination in schoolrooms, and practical applications, by which is understood the carrying out of these principles in actual practice.

These two aspects of the subject will be dealt with in turn.

FUNDAMENTAL PRINCIPLES.

These separate naturally into two groups:—

Physical, concerning light, climate, the building and its environment.

Physiological, concerning the visual apparatus of the workers and the subjective impression received.

Both of these groups include extremely variable quantities which are difficult to express in numerical terms, except in the form of averages deduced from a large number of measurements.

Sky-brightness, the most important physical quantity concerned, varies within very wide limits according to the time of the year and day, and even the estimated value at a certain hour on a certain day may vary enormously from the average value in the course of a few minutes. The absence of complete data showing the variation in the intensity of daylight in foot-candles according to the time of the year and day in this country (similar to those determined during a series of years for the State schools in Kiel by Prof. L. Weber) hinders considerably the investigation of daylight illumination. The committee considers that it would be highly desirable for a series of researches of this kind to be undertaken. In view of the variation in the conditions met with respectively in smoky cities and in the country, it would be desirable for tests to be made simultaneously at several different stations, and they should also be extended over a number of years.³

Sky-brightness, however, as a physical magnitude is capable of accurate definition and measurement.

The illumination directly due to the sky at a point on a horizontal plane within a room depends on:—

The amount of sky visible from that point.

The brightness of this area of sky.

Its angular elevation.

If the lighting is affected by vertical windows the solid angle subtended by the visible sky at any working position in the plane of reference is usually small enough for the illumination there to be given by the formula:—

$$B \omega \sin \theta$$

where B is the brightness of the visible sky expressed in candles per square foot, ω is the solid angle in

³ No complete systematic series of photometric tests of the unrestricted daylight illumination in foot-candles has yet been made in this country on the desired scale, but daily records of the sun and sky radiation have been taken by the Royal Meteorological Laboratory at South Kensington with a Callendar radio-micrometer. It is possible that a careful comparison of these tests with those carried out on a photometric basis might enable some useful conclusions to be drawn from past records.

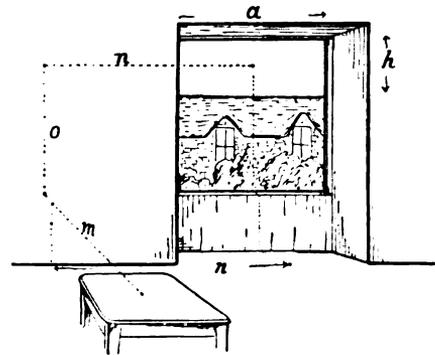
question, and θ its average angle of elevation. As $\sin \theta$ is a quantity increasing with θ , the value of "high angle light" is demonstrated.

It is sometimes convenient to express the sky-brightness in terms of foot-candles (on the so-called secondary system used in the researches of Weber and others). If e denotes the brightness in foot-candles,⁴ then the foregoing formula becomes:—

$$\frac{e}{\pi} \times \omega \times \sin \theta$$

One advantage of expressing the sky-brightness in this way is that the illumination on a horizontal surface due to a uniform sky of indefinite extent parallel (the "unrestricted daylight illumination") becomes equal to the brightness of the sky itself. When the brightness of the sky is estimated by comparison with the illuminated surface within a photometer it is also conveniently measured in foot-candles.

Pleier has worked out a simple formula for obtaining the reduced square degrees of uninterrupted sky visible from a desk. If m is the perpendicular distance of the desk from the window wall, n its horizontal distance in the plane of this wall from the point on the window corresponding to the centre of visible sky,



o the vertical height of this point above the desk, a the average horizontal, and h the average vertical width of the portion of window corresponding to sky visible from desk, then $R = \omega \sin \theta$

$$= 3283 \frac{a \cdot h \cdot m \cdot o}{(m^2 + n^2 + o^2)^2}$$

By the aid of this formula and a knowledge of the average variation in daylight illumination throughout the day and year, it should be possible to calculate with fair exactitude the average direct illumination at any point in a given building. This has been proposed by Weber as an aid in school planning. In addition to the value so obtained there would be a certain extra illumination due to reflection from the walls and ceilings of a room. It is possible that in schoolrooms of standard dimensions allowance for this might be made by using a suitable factor provided the nature of the walls and ceilings were known. But a considerable number of additional experiments seem necessary to establish this point.

⁴ When a luminous surface is said to have a surface-brightness of so many foot-candles this means that its brightness is the same as that of a dead white surface with a reflecting power of 100 per cent. which receives the illumination of this value.

It has also been suggested that the illumination in a room might be predicted by means of experiments with small models, either carried out in daylight or with some form of artificial sky. Some experiments carried out by members of the committee on this point gave promising results, but here again more exhaustive experiments are needed. From inquiries instituted among continental authorities it would appear that few have had experience of this method, but the subject is one that would repay further investigation.

The Committee has considered the question of a standard of daylight illumination in schools. The extreme variability of daylight renders an actual measurement of illumination at any particular spot of little service as a standard. On the other hand, the ratio between the unrestricted illumination out of doors and the illumination at a certain point in a schoolroom should be a very constant quantity, dependent on the nature of the building but independent of climatic conditions within wide limits. Such a ratio might serve as the basis for rules for the attainment of adequate lighting.

Prof. L. Weber has suggested that in an adequately-lighted schoolroom the illumination on the worst-lighted desk should not be less than 0.5 per cent. of the so-called "unrestricted illumination" from a complete hemisphere of sky, and a similar conclusion was reached independently by Mr. P. J. Waldram in this country. The measurements so far carried out by the committee suggest that this value is attainable in a well-designed schoolroom.

The simplest and most accurate method of determining this ratio would doubtless be to measure simultaneously the illumination on the worst-lighted desk and the unrestricted daylight illumination as received on a horizontal plane exposed to a complete hemisphere of sky. But in practice it is frequently difficult to find a spot from which the complete sky is visible, and in the experiments undertaken by the committee it was found more convenient to obtain the "sill ratio," i.e. the ratio between the illumination on the worst-lighted desk and the illumination from a quadrant of sky received on a horizontal surface on the window sill. This value will be affected to some extent by the obstruction of neighbouring buildings. But in the case of modern schools, owing to the space usually allotted to playgrounds, a practically uninterrupted view of the sky should generally be available, and the error so caused will be small. The experiments so far conducted indicate that on the worst desk in well-designed schoolrooms the sill ratio should not be less than 1:100. This result is in substantial agreement with the suggestion of Weber referred to above, and might be put forward as a tentative standard, pending further investigations.

A school place which required artificial light between 9 a.m. and 4.30 p.m. in normal weather, between March and September, is obviously unfit for use. On the other hand, a school place enjoying a "sill ratio" of 1:100 should only require artificial light towards the end of the school day in winter.

The daylight ratio may also be determined by methods involving direct observation of the brightness of the sky. In circumstances where it is only possible

to obtain a view of a small portion of the sky this method may be used, and may give useful results when the sky is uniformly bright; but in view of the difficulties introduced when skies of very variable brightness are met with, the methods proposed above seem preferable in connection with school buildings.

Physiological factors vary greatly with individuals, and while exceedingly important, their influence is also difficult to assess.

There is little doubt that the eye may suffer congestion and strain owing to imperfect illumination. This may lead to actual damage, and is probably an important factor in leading to the development of myopia (short-sightedness) in the case of individuals so disposed. Poor light causes excessive efforts of the external muscles of the eye to converge the visual axis on the subjects looked at, and also a still more fatiguing effort in many children for the accommodation of the lenses, so as to obtain from a poor light as clear and defined an image as possible. In such a case the head and eyes are generally brought near the object, thus aggravating all the muscular strains. This is a habit which it is of special importance to avoid in school work. There is much less need for such excessive effort when the light is sufficient to give the mental picture without strained attention.

In judging the illumination required it is necessary to bear in mind the physiological variations referred to above. It must always be remembered that about 10 per cent. of elementary school children are subnormal to the extent of having only one-third the usual visual acuity, so that any latitude in estimates should fall on the side of excess of light.

But there is another factor which affects the average amount of daylight required for a school desk—the adaptation of the retina. Where the average illumination remains fairly constant, as in artificial lighting, adaptation is not a factor of prime importance, and the problem of determining the amount of illumination for reading and writing is less complicated. But in the case of daylight illumination, where a considerable section of the visual field may have a brightness hundreds of times that of the printed page or the surface of the blackboard, adaptation plays an important part.

The impression formed as to the sufficiency of daylight in a room is also influenced by psychical effects. Visibility depends on contrasts in colour and shadow. Subjective feelings of deficiency of light which arise in cases where there is not the usual brightness of surrounding surfaces, even though the desk illumination is ample, need consideration. Such feelings may be produced by rooms lighted from the roof without side windows, or rooms with exceptionally dark walls.

For these reasons it is difficult to prescribe the absolute value of the illumination in the same way as by artificial light. Mr. N. Bishop Harman has advocated a standard of 9 foot-candles. It is, however, possible to read with a considerably lower illumination, but in other circumstances a value of illumination much higher than this may appear necessary. For example, on a dull day it has been found possible to work comfortably with 5 foot-candles and to see to read with only half a foot-candle, but on a bright

day 8 foot-candles, in a shaded corner, seemed insufficient. In cases where playground sheds judged by eyes with daylight adaptation had been complained of as insufficiently lighted, photometric readings of 15 to 25 foot-candles were noted. To investigate completely the effect of adaptation in connection with ordinary daylight illumination would be a valuable piece of work, but was obviously too intricate a problem to be undertaken in detail by the committee.

During most of the school hours a place sufficiently lighted for school work will probably yield photometric readings of at least 5 to 10 foot-candles. In such rooms during unusually dark weather or in the later hours of the day, the increased sensitiveness of the eye will compensate for decreased illumination. When this illumination on the worst-lighted desk falls to 2 foot-candles, the standard recommended for artificial lighting, the daylight should be excluded and artificial light used. It may be recalled that Cohn considered a room sufficiently lighted by day if the worst-lighted place received about $2\frac{1}{2}$ foot-candles illumination.

Weber found that with the average value of the sky-brightness likely to be met during the hours of study, this illumination should be obtained on any desk receiving 0.5 per cent. of the unrestricted daylight illumination out of doors.

It is likewise advocated by Cohn as being consistent with his recommendation that at the worst-lighted place in a schoolroom 50 square degrees of sky should be visible. There is thus some ground for suggesting that the 2 foot-candles, as recommended in the recent report on the artificial lighting of schools, should also be regarded as a tentative standard for the minimum readings permissible for illumination by daylight.

But it seems preferable to adopt one of the methods which largely eliminates the variation in adaptation of the eye by specifying in general terms the conditions enabling a certain access of daylight to be obtained—and hence an adequate illumination with an average brightness of sky—rather than to attempt to specify an absolute value of illumination in the room.⁵

⁵ A rough test of sufficiency of lighting is provided by the readings of certain varieties of type. For example, if diamond type can be read easily at 20 inches, the light is regarded as sufficient; this is confirmed if the letters can be deciphered when looked at through a smoked glass which absorbs 90 per cent. of the light.

The above paragraph is in Diamond Type.

Another physiological factor to be kept in mind is the glare from excess of sunlight. In England this is not of very great importance, as it can readily be avoided by the use of light blinds and curtains. West rooms sometimes cause trouble owing to the low incident rays from the setting sun. Most horizontal beams of light, as, for instance, those from shiny walls or badly arranged prismatic glass or mirror reflectors, may cause glare, and therefore intense light from this direction should preferably be avoided.

PRACTICAL APPLICATIONS.

It has been remarked that the construction of the most modern schoolrooms, favourably situated as regards obstruction from neighbouring buildings, enables them to comply with the fundamental requirement that the worst-lighted desk should receive not

less than 0.5 per cent. of the unrestricted daylight illumination out of doors.

The other recommendation, that the illumination on the worst-lighted desk should be at least as great as the illumination derived from 50 square degrees of sky, leads to very similar results. For example, in general modern practice it is found that if the angular elevation of the top of the window-glass from any desk is not less than 27° and a strip of sky not less than 4° vertical opening is visible, the solid angle will almost certainly exceed 50 square degrees in value. This angle of elevation of 27° for the top of the window-glass implies that no part of any desk should be further from the window than twice the height of the window-top above the desk.

It will be observed that the rules of the Board of Education specify that "in the absence of a supplementary light the measurement from the window-wall in a room 14 ft. high should not exceed 24 ft. 8 in." With these dimensions the angle made with the top of the window-glass is not far removed from the value suggested above.

The committee has found the building regulations (1907) of the Board of Education to be generally productive of good results. It would appear, however, that the words "top of glass in windows" should be substituted for "top of windows," so as to stipulate that the top of glass should be at least the same relative height in deeper or shallower rooms.

There also appears to be no serious structural reason why windows in classrooms should not be flush with the ceiling. In view of the desirability of securing a strong light on the ceiling, and utilising to the full the efficient upper portion of the window, this is recommended. Any diminution in glass area with a view to conserving heat should be made at the *bottom*, provided that the raising of the sill does not detrimentally affect the lighting of the desks adjacent to the window wall.

Experience shows that the area of window glass should not be less than one-fifth of the floor space in rooms up to 20 ft. across, and one-quarter of the floor area in wider rooms. The window should be square-topped and its effective area should not be diminished by ornamentation, pillars, ledges, or cornices, but all edges should be bevelled off. The obscuring of glass in windows, and neglect to keep them properly clean, are frequently responsible for a considerable loss of light.

As the lighting of a many-storied school with surrounding buildings will be worst in the lower floors the ground floor should be used for offices, cloakrooms, bathrooms, dining halls, etc. It would be advantageous to increase the height of the windows in the lowest schoolrooms, reducing the height of the top floor if necessary. In the lowest rooms the smallest desks should be used, as every increase in the height of desks means an equivalent potential decrease in height of window top. At the same time most light is needed in the infant classrooms (which are usually placed on the lower floors of school buildings) and where the smallest furniture can be used.

There is now a consensus of opinion that the lighting of classrooms should be from the wall on the left-hand side of the children. Right-handed lighting is to be deprecated as causing confusing shadows. In general bilateral lighting is less satisfactory than left-lighting, although in some special circumstances it may be permissible.

Lighting from behind the teacher is usually a source of glare to the children who face the window. Similarly, lighting from behind the children is apt to cause glare and discomfort to the teacher. It is also educationally disadvantageous in that the children's faces, being seen against a bright background, are not well defined. Moreover, back-lighting is apt to cause shadows of the children to fall on their work, and may lead them to assume unnatural and harmful positions.

Roof lighting generally provides an abundant light, but, unless used with discretion, gives a comfortless impression. It is useful in workshops, carpentry, and manual training centres, and is often desirable as a secondary means of lighting. Skylights, which are apt to leak, are to be distinguished from lantern lights and dormers, which, besides being very useful in mitigating defects in lighting, are often also useful as a means of ventilation.

Where a window, as an aid to cross draught ventilation, is located in other than the main lighting walls, it should be high, and it would perhaps be an advantage to have its light reflected to the ceiling. Borrowed lights are particularly ineffective. The fraction of light passing is in general of small value, and the loss of reflection from the wall area replaced by glass may be considerable. Glass partitions in the wall of a classroom tend to transmit noise from adjacent rooms and also have a distracting effect, causing the attention of children to wander.

The sloping of floors, and the raising of back desks to give children occupying them a better view of the blackboard, should be condemned if leading to loss of valuable high-angle light. The committee has also considered the desirability of slewing desks slightly, so as to enable a book or paper held vertically to receive a better illumination. It appeared that a material increase in light could be obtained in this way, but the advantage was only sufficient to justify the consequent curtailment of gangway space in extreme cases.

The internal decoration of a schoolroom should be arranged with a view to good diffusion of light. The ceiling and a frieze of 2 ft. should preferably be white. The walls behind the children and opposite the windows should be light-tinted from at most 30 in. above the desk level; below this level the walls might with advantage be somewhat darker. The practice of covering the walls with white diagrams on black material may interfere with the reflection of light from the walls. From this point of view diagrams on a white background are preferable. The wall surrounding and behind the teacher's blackboard should not be too light. The desks and furniture should all be finished a comparatively light colour (grey or dove-colour is very suitable), and dark colours or black should be avoided.

SUMMARY.

These suggestions might be summarised as follows:—

No place is fit for use in a schoolroom when diamond type cannot be read easily by a normal observer at a distance of half a metre (20 in.).

This is Diamond Type.

The darkest desk in any schoolroom should receive an illumination equivalent to that derived directly from 50 reduced square degrees of visible sky. In these circumstances the place should receive not less than 0.5 per cent. of the unrestricted illumination from the complete sky hemisphere.

The windows should be located in the wall to the left of the pupils, and the glass should be carried to the ceiling and not interrupted by cornices, pillars, or decorations.

No desk in a schoolroom should be farther from the window wall than twice the height of the top of the glass above the desk surface.

The ceiling should be white. The wall opposite to the window and the wall behind the children should be lightly coloured from 30 in. above the desk level. The wall around or behind blackboards should be somewhat darker than the rest of the room.

All furniture, desks, and surfaces in the lower part of the room should be finished in an unobtrusive colour, dark shades and black being avoided.

Conclusion.—The committee would like to make it clear that the suggestions in this report are tentative, and that there are many fundamental points affecting the admission of daylight into buildings on which further information is desired to put the subject on a scientific basis.

Reference has been made to several lines of investigation which require to be carried out on a scale beyond the resources of the committee to yield satisfactory results. The following are a few suggested lines of investigation:—

(1) Tests to be undertaken showing the average variation of daylight during the day, and throughout the year. These tests should cover a number of years and should be undertaken simultaneously at various centres so that the results can be compared and allowance made for difference in local climatic conditions. Possibly study of the records of radiation prepared by the Meteorological Office by physical methods might furnish useful information on the conditions in past years.

(2) Further tests of natural and artificial illumination under varied conditions should be carried out in schools, and correlated with tests of the eyesight and general physique of school children in order to trace the circumstances which give rise to defective sight.

(3) An investigation of the minimum daylight illumination necessary for various kinds of school-work (reading, writing, needlework, manual work, etc.), bearing in mind the part played by adaptation of the eye. This might be useful for determining the minimum value of daylight which is in general necessary in order to avoid conditions which are economically and hygienically prejudicial.

(4) Confirmatory data are needed with regard to the tentative standard of access of daylight into buildings (*i.e.* that the illumination in a room should be equal to at least 0.5 per cent. of the unrestricted full daylight illumination) in order to ascertain (a) how far this standard is practicable in the case of new buildings; (b) what percentage of existing buildings satisfy this condition; (c) how far external obstructions interfere with it.

(5) Records of the illumination should be made in all newly erected schools, particularly those having novel structural features, and would help to trace the influence of such departures in design.

(7) The existing regulations relating to the permissible distance apart of buildings, width of streets, etc., required for town planning should be considered in the light of the access of daylight into buildings, and if possible some agreement as to the degree of permissible obstruction arrived at.

(6) The value of photometric tests with small models needs further investigation, as they may offer means of predetermining the daylight illumination in interiors, and of testing the effect of windows of varied size and position, and the influence of materials of various reflection coefficients for the walls and ceilings, etc.

These inquiries would be of value in connection with school buildings, and many of them would have an important application to buildings in general. But it is clear that a comprehensive series of experiments on such lines is beyond the unaided resources of the committee. The committee, therefore, ventures the hope that a fuller investigation into some of these debatable points will receive the support of the education authorities and of other institutions the co-operation of which with the Illuminating Engineering Society would aid in the solution of these problems.

ITEMS OF INTEREST.

GENERAL.

OWING to the serious turn of public events, the coming into operation of the Elementary Education (Provision of Meals) Act of the present year is far more timely than could have been anticipated, and the circular on the subject issued by the Board of Education to the local authorities justly observes that an exceptional amount of distress is likely to arise among the industrial classes the children of which attend the public elementary schools. The Board is naturally anxious that the local authorities should at once get to work with preparations for meeting the distress. The new Act alters the existing law, as embodied in the Act of 1906, by legalising the provision of meals during the holidays, by removing the restriction whereby the amount to be spent on meals was limited to the produce of a halfpenny rate, and by abolishing the necessity of obtaining the Board's sanction. The Board will meet half the expenditure incurred in the financial year ending last March, and promises aid on at least as liberal a scale during the current year. The Board anticipates that a large amount of voluntary service will be forth-

coming, but points out the necessity of thinking out the arrangements betimes, with a view to efficiency and to the avoidance of overlapping and waste of effort. A memorandum has been issued dealing with the provision of suitable dietary and with other matters of organisation.

THE Board of Education has been informed that in some areas military requirements have necessitated the requisitioning of the buildings of public elementary schools. It is, in the opinion of the Board, very undesirable that the unrest, to which the present crisis in the affairs of the nation naturally gives rise, should be intensified by any avoidable interruption or dislocation of the public educational service of the country. In order, therefore, that public elementary schools may be carried on regularly and without interruption, the local education authority is at liberty to provide in cases of emergency the best temporary and provisional accommodation for children which can be obtained at short notice, without waiting for the Board's formal approval. For this purpose it is suggested that the authority should consult the Board's district inspector, and his approval of any premises selected by the authority will for the purposes of the Board be regarded as sufficient. In cases where an emergency can be better met by transferring school children to another school, the Board will similarly regard the inspector's approval of such an arrangement as sufficient, even if it involves some temporary overcrowding of the school premises.

THE Board of Education has been requested by the Central Advisory Committee for the Prevention and Relief of Distress, which has been established at the Local Government Board under the chairmanship of Mr. Herbert Samuel, to direct the attention of local education authorities to the desirability of making preparation to carry out as much building work as possible in areas where an exceptional amount of unemployment is anticipated. The Board is confident that the authority will see the importance of making arrangements which will enable them to provide employment quickly if and when an emergency arises, so that the demands on the funds available for the relief of distress may be kept down. The Board will use its best endeavours to accelerate the consideration of plans submitted by or through local education authorities for the erection of new school-buildings, or the improvement of existing school-buildings, and have instructed their officers to assist the authority and its architect by every means in their power. The Board is assured by the Local Government Board that so far as it is concerned it will co-operate in this matter by accelerating so far as possible the consideration of applications for sanction to loans and of questions of sanitation, which fall particularly within its province.

THOSE trained teachers who are under an obligation to serve in approved schools for not fewer than seven out of the ten years following the completion of their training, and who now proceed on military service, will be allowed to count the period of their military service during the continuance of mobilisa-

tion towards the fulfilment of this period of seven years.

IN consequence of the war, the Kent Education Committee has abandoned the Summer School at Folkestone, which was to have commenced on August 24th.

THE system of medical inspection in elementary schools has directed attention to the large number of children who on their first admission to school are suffering from ailments and defects due to insufficient knowledge on the part of mothers. For this reason the Board of Education has resolved to give further encouragement to schools for mothers. Such schools have hitherto received grants under the regulations for technical schools, etc., but the grants, being payable only in respect of organised class instruction, have been small. New regulations have just been issued, offering grants to the extent of one-half of the approved expenditure, provided the activities of the school extend to "home visiting" and "infant consultations," as well as to systematic classes. Further details are given in a memorandum issued along with the regulations. A school for mothers will naturally have a responsible superintendent, usually a qualified nurse, who will supervise the home visiting, and who will be present at infant consultations, acting in this respect under the direction of the medical officer. The difference between a school for mothers and a baby clinic or infant dispensary is that in the latter the treatment of the child is primary, and the instruction of the mother only incidental, whereas in the former the reverse is the case. We observe with satisfaction that the new institutions will be dealt with leniently in the first instance. The grant will not be based on attendance, though accurate registration is required; and the same degree of compliance with the regulations will not be expected at first as in subsequent years. A grave social problem is recognised in these regulations, and it is to be hoped that the schools for mothers will become popular, and effective for their purpose.

THE Board of Education has issued (Cd. 7535) a new edition of its building regulations for secondary schools, being principles to be observed in planning and fitting up new buildings in England. The last issue was made in 1907, and experience has shown that a fresh statement of principles and of their application is required. The principal modifications in the present issue relate to the position of the assembly hall in relation to the class-rooms, the need of making provision for physical training in every new school, the arrangement of cloak-rooms, and certain details in connection with art and science rooms, housecraft rooms, and staircases. In this new edition the arrangement of the regulations has been revised. The division into two parts, one dealing with principles and one with hygienic and sanitary requirements, has proved to be inconvenient. All the regulations that refer to one subject are now grouped under the same heading. Sites and general considerations are first dealt with; next a list is given of all the rooms which may be found in a

secondary school; then detailed provisions are set out with regard to each of these rooms. The following chapters deal with the boarding houses, ventilation and heating, construction and materials, and water supply. At the end the procedure for obtaining approval of plans is set out.

THE Board of Education has just issued a memorandum on the teaching of music in secondary schools. It is to be known briefly as Circular 832. The object of the circular is to emphasise the place music should occupy in the curriculum of all schools and to offer advice upon the methods to be adopted and the result to be aimed at. There is nothing novel or fanciful in the suggestions; indeed, they should have a somewhat restraining influence, tending to moderate the extravagances of the ambitious, but indiscreet, music teacher and to make him realise that children are children and not adults, and that children have their limitations. "Cramming" is as much to be condemned in the teaching of music as it is in other subjects of the curriculum. Fine performances, whether in choral singing or in instrumental playing, are not to be aimed at so much as a steady advance in musical culture, practice and perfecting of sight reading and ear training.

THROUGHOUT the circular emphasis is laid upon self-expression. Pupils are not to be told that any particular work of art is better than another. Teachers are urged rather to make them familiar with what is good, however simple the kind may be, and so gradually to train them to become aware of relative values for themselves. Again, in class singing the memorandum insists that it is the spirit of the song which should appeal to the spirit of the child, and that if the singing is to be vital, the pupils should not merely imitate but must express themselves, and that in unison singing, when once the pupils know the song and have begun to sing, it is often better to cease conducting and to leave them alone. The major portion of the circular is devoted to "remarks which are applicable to all schools," and this section is divided into sections dealing with class teaching and individual teaching. Under the head of class teaching are dealt with: choice of songs, the teaching of songs, voice training, ear training, and sight reading. This is undoubtedly the part that will be most helpful to the majority of secondary schools. Common faults are dealt with fully, and the remedies suggested are evidently the outcome of long experience in the classroom, and are based on observation of methods which have been successful in the teaching of the subject.

A COURSE introductory to the science of eugenics will be given at University College by Prof. Karl Pearson and Dr. C. H. O'Donoghue during next session on Fridays at 6 p.m., beginning on October 16. During the first term "The Biological Basis of Heredity" will be dealt with by Dr. O'Donoghue; Prof. Karl Pearson will lecture on the statistical basis of eugenic theory and the facts and theories of heredity during the second and third terms respectively. The course is intended to be especially helpful to teachers. Dr. David Heron will deliver ten lectures on elemen-

tary statistical methods for teachers on Tuesdays at 6 p.m., beginning October 13. Particulars may be obtained on application to the secretary of University College, Gower Street, London, W.C.

THE London County Council has published its arrangements for the special classes and lectures for teachers which have been organised for the coming session. Many of the courses are being conducted at university colleges by professors and other recognised teachers of the university. Among such may be mentioned the courses in psychology by Dr. Brown at King's College and Prof. Spearman at University College, modern electricity by Prof. Richardson at King's College, and the special classes held in connection with the school of English at King's College, the schools of history and phonetics at University College, and courses in economics and languages at the London School of Economics and Bedford College for Women. The Council has come to an arrangement with the Institut Français du Royaume Uni for the award of a number of free places at the institute to teachers of modern languages.

AMONG the courses which will be held by the Council may be mentioned those on commercial geography by Mr. J. J. Cardwell, historic London by Sir Laurence Gomme, and the numerous courses in educational handwork, physical education, voice production, which have formed a feature of the scheme in previous years. The attention which the Council has been giving during the last two years to the re-organisation of its evening institute system is reflected in the special courses which are being arranged for the benefit of instructors in evening institutes. The Council has made provision for a series of talks to teachers on the best methods of advising pupils about to leave school on the difficulties they are likely to meet during adolescence. These talks to teachers will be given by members of the Council's school medical staff, Dr. Christine Murrell and Dr. Beresford Kingsford, who are well acquainted with school conditions.

ALL these courses for teachers arranged by the London County Council are available, upon payment of a nominal registration fee, to any person who may be employed in teaching in London, irrespective of whether he is employed directly or indirectly by the Council or not. Extra-county teachers may be admitted where there is accommodation upon payment of a fee of 7s. for each course. Full particulars may be obtained from the Education Officer, L.C.C. Education Offices, Victoria Embankment, W.C. The popularity of the classes may be gauged from the fact that whereas in 1907 the total applications for admission came to about 7000, this number had increased to 20,000 for last session.

THE Visual Instruction Committee of the Colonial Office has issued a book of lantern lectures on the West Indies and Guiana, the sixth of a series for which a special fund was raised by a committee of ladies presided over by the Countess of Dudley. The book is published by Messrs. George Philip and Son,

and the slides, as well as those previously issued, may be bought or hired from Messrs. Newton and Co., of 37 King-street, Covent-garden. A book of lectures on tropical Africa, which is in preparation, will complete the series.

THE current issue of *Science Progress* contains much the usual collection of articles, from which those on the age of the earth may be selected for comment, as they give a useful statement of the knowledge on what must always remain a vexed question. The application of radio-active transformations, first suggested by Rutherford in 1905, has given new vitality to the question. Prof. Joly, in an article entitled the birth-time of the world, gives an admirable summary of the methods which have been utilised and the difficulty of reconciling the results deduced from the thickness or the mass of the sediments, or from the sodium of the ocean, with those based on the radio-active methods. Mr. Holmes gives a comprehensive account of the terrestrial distribution of radium, in which he takes the view that in the earth radium and its congeners are undoubtedly more abundant in the upper parts of the crust.

SCOTTISH.

AT the request of the Secretary for Scotland the Education Department has issued a circular to school boards directing attention to their powers under the Education (Scotland) Act of 1908 in regard to the feeding of necessitous school children. In the coming winter, having regard to the grave position of national affairs, it may readily be anticipated that there will be an exceptional amount of distress among certain sections of the population, and the department urges school authorities to make timely preparations for grappling with the situation. It is specially pointed out that boards have power to give meals not only during school days but also during holidays. Mr. Burns, M.P., who is not satisfied that the Act confers this power, has introduced in Parliament a short Bill specifically giving this authority to boards.

PARENTS, pupils, teachers are united this year in condemning the dilatory action of the Department in regard to announcing the results of the Leaving Certificates. These examinations were held at the end of March and the beginning of April, and in many cases the results are still not to hand in the middle of August. Mr. Hogge, M.P., asked a question on this subject in the House of Commons, and the usual official reply that the Department was losing no time in the matter was given. Had it not been for the grave crisis in national affairs it is certain that an emphatic protest would have been made in Parliament against the callous action of a State Department in keeping so many in suspense for a period of almost five months. But it is not merely a question of anxiety and of suspense, it is also one of inability to make arrangements for the future pending the announcement of the results. Entrance upon the professions and the universities depends in large measure on success or failure at these examinations, and parents and young folk have just to sit with folded hands until it suits the convenience

of the Department to attend to its business. School authorities and teachers may be trusted to see that they will not be so inconvenienced another year.

THE colloquium held under the auspices of the Edinburgh Mathematical Society was held in Edinburgh University, under the presidency of Dr. Somerville, St. Andrews. There was a large attendance, thoroughly representative of all parts of the country and of mathematical interests abroad. Mr. H. W. Richmond, F.R.S., King's College, Cambridge, lectured on points and lines at infinity, the theory of which is now so important in geometrical principles. The lecturer developed his ideas from analytical considerations, but passed on to their application to the geometry of the conic. Prof. D'Ocagne, Paris, introduced his audience to the principles of nomography, of which he himself is practically the originator. The method promises to displace in practical application the older method of graphical solution of equations as it can readily be applied to equations in any number of variables. Mr. E. Cunningham, St. John's College, Cambridge, took as his subject the ideal theory of the electrical constitution of matter. Several other papers of a highly interesting character to mathematicians were read, and from every point of view the second colloquium must be regarded as a great success.

At the annual dinner of the Education Board of the Edinburgh Merchant Company Prof. Darroch made the extraordinary statement that "students were now trained not for culture, for culture was an entirely wrong idea of education; the aim of education was to produce efficient workmen and efficient citizens." Those who have read Prof. Darroch's recent work on "Educational Ideals" know perfectly well what he means, but to the ordinary public his words must convey the idea that there is an essential antagonism between culture and labour and citizenship. In his efforts to promote vocational training it would seem that the professor is prepared to throw to the utilitarian wolves the breath and finer essence of all knowledge, and to retain only its "bread and butter" part. This is a sad descent for a Professor of Education.

A CONFERENCE of Scottish School Boards met at Perth to consider the question of the Scotch Education Department's proposal to pay school grants by instalments. The meeting was unanimous in the decision to offer the strongest opposition to the proposal, unless it was amended in such a way as to deal equal justice to all participators. Under the existing scheme it was contended that certain school boards would lose for all time to come a whole year's grant. The meeting resolved to memorialise the Secretary of State for Scotland, and to request an interview with him on the subject.

A MINUTE has just been issued by the Committee of Council on Education in Scotland providing for a further grant in aid of educational expenditure. This, together with the £71,000 as the equivalent for the new English education grant will be paid into the

Education (Scotland) Fund, and allocated in accordance with the terms of Sections 16 and 17 of the 1908 Act.

At the annual distribution of prizes in connection with the Inverness College, the Rev. Mr. Norwood, headmaster, complained that the Education Department had failed to forward in time the usual annual report upon the school. Considering the number of officials at its disposal and the huge sums spent on administration, he did not think it was asking too much to conduct the department on business lines and have reports ready at the right time. He also complained that the Department charged a fee for inspecting his school, while the schools in receipt of grants were examined free of charge. This meant that schools which cost the country not a single penny had to pay the cost of examination, whilst those for which the ratepayers had to provide huge sums got off scot free.

THE draft ordinance of the Scottish universities relating to the preliminary examinations have been officially sent down for the opinion of the senate and general council of each university, but it is not believed that any radical amendment on them will be made as a result of the deliberations of these bodies. This subject has been before the university authorities for more than two years, and it is high time a final decision was arrived at in regard to conditions that so intimately affect the curriculum of schools and the courses of pupils. The ordinance proposes to set up a new examination board to be called the "Entrance Board," to replace the existing joint board, which has come in for much criticism in recent years. The new board is to consist of sixteen members, four from each university, and its powers are so wide and elastic that it should be able to cope with any new conditions that may arise. Of special importance is the power "to confer from time to time on matters relating to preliminary examinations with the Scotch Education Department." The department has already expressed its willingness to confer, and it is possible that this may eventually evolve an examination board representative of the universities, the Education Department, and the teaching profession, which would take over the whole leaving-certificate examination system as well as the university preliminary examinations.

THE relations between "town" and "gown" in Glasgow have not been improved by the latest phase of municipal enterprise. The Corporation has promoted a Bill in Parliament which in two of its provisions vitally affects the university. The former of these proposed to lay a line of tramways alongside the university. This clause, fortunately for the research work carried on, has been deleted by order of the committee. The other clause gave the Corporation authority to build a new bridge over the Kelvin, and for this purpose to pass through the grounds of Queen Margaret College. The university authorities, believing that the amenities of these beautiful grounds would thereby be sacrificed, and its educational value greatly impaired owing to the noise of traffic, vigorously opposed the clause before both Houses of Parlia-

ment, but all in vain. Compensation on a very moderate scale is certainly to be given, but the Corporation has successfully resisted the demand that it should provide a new site.

THE Committee of Council on Education in Scotland has just issued two minutes providing for the election of members of the provincial committees and for the training of teachers and of the committees on secondary education respectively. In all essential details the constitution of these committees is the same as in previous years. In the case of the provincial committees, there is a new provision requiring that at least three of the members shall be women.

IRISH.

AMID the "slaughter of the innocents" towards the end of the Parliamentary session, the Intermediate Education Bill was saved, Mr. Asquith justly remarking that it met with the approval of all Irish parties. It passed hurriedly through all its concluding stages after war broke out, and became law early in August. The grant of 40,000*l.* which it entails was included in a supplementary estimate. Owing to the national crisis, which caused the measure to go through without discussion, the points which were not cleared up during the second reading discussion still remain obscure, but will doubtless be made plain shortly when the Act comes into operation.

THE passage of the Act marks the close of a stage in a great agitation for the improvement of the status of the Irish intermediate assistant-master, and is the first public recognition of his position and claim. Its provisions may be briefly summarised as follows. First, it inaugurates a scheme of registration; secondly, it proposes a minimum salary for registered teachers; thirdly, it insists on a certain number of registered assistants being employed; fourthly, the grant of 40,000*l.* is only for registered assistants. The Act may therefore with justice be regarded as the charter of the assistant-teacher. But it is only a beginning.

SUMMER courses for teachers were held in Dublin during July and August by the Department of Agriculture and Technical Instruction. The Secretary, Mr. T. P. Gill, in welcoming the students, explained that this was the fourteenth year of these courses. They were first started as a temporary expedient to train teachers for subjects which were new in the Irish educational curriculum, but as time went on the demand for them has increased, not diminished, and their utility has been demonstrated in so many ways that the Department has come to regard them as a permanent institution. Including the courses in rural science and gardening, 534 teachers attended the courses in Dublin from different parts of Ireland. With those attending similar courses in other parts of the country, the total was 712. For the fourteen years the total of admissions to the summer courses was 9000, and the number of individual teachers nearly 3000. The majority were intermediate teachers taking courses in chemistry, physics, natural history, commercial and physical geography, etc., but there

were also teachers from national schools, and, as a matter of fact, the Intermediate Board, the National Board, and the Department were working together in close cooperation. Besides the regular courses, a series of three lectures on the teaching of memory drawing were given by Mr. Catterson Smith, head of the Birmingham School of Art.

THE passing of a Bill for feeding necessitous school children in England originally contained a clause extending its operation to Ireland, which was eventually dropped on the understanding that a similar Bill should be introduced for Ireland. The need for such a Bill is equally great in Ireland as in England, and perhaps greater, but the Irish educational system is so different from that of England that the same administrative methods could not apply. In Ireland the primary schools are not, as in England, under the County Councils, but under one central National Board, and new local committees will be necessary in Ireland in order to carry out the feeding arrangements. The Irish Bill was quickly introduced and passed through all its stages in the early part of August.

WELSH.

WELSH education has sustained a great loss by the death of Sir Edward Anwyl, which took place on August 7th. A native of Chester, he was educated at St. John's College and King Henry VIII. School in that town, and at Oriel College, Oxford, where he held a classical scholarship. He joined the staff of Aberystwyth University College in 1892, being successively professor of Welsh, classical tutor, professor of comparative philology, and Dean of Arts. He was a member of the Court, Senate, and Theological Board of the University, and was one of the original members of the executive of the Central Welsh Board for Intermediate Education. He succeeded Principal Viriamu Jones as vice-chairman, and Dr. A. C. Humphreys-Owen as chairman of the Board. A few months ago he was offered, and accepted, the post of principal of the new Training College for Men Students to be opened in September at Caerleon by the counties of Glamorgan and Monmouth.

SIR EDWARD ANWYL—for he was knighted on the occasion of the Royal visit to Bangor in 1911—was a man whose manners were as unassuming as his knowledge was wide and his intellect penetrating; it was said of him that there were few of the chairs at Aberystwyth that he could not have held; he was most widely known as a profound Celtic scholar, and the author of a Welsh grammar, a dictionary, and many songs; he also wrote much on theology, including a commentary on the Prophet Hosea, and was for some years examiner in Holy Scripture in the University of Wales. He took an active part in the movement for the preservation of ancient monuments in Wales. His services to higher education were great, and his loss will be keenly felt.

THE relations between elementary and secondary education are somewhat vague in certain parts of Wales; there appears to be some overlapping of the

work done by various types of schools, and the situation is not improved by the tendency of the authorities to multiply—not schools with individual characteristics, but types of schools differing only slightly between themselves. In some places—as, for instance, Bethesda—the complaint is made that the county schools, which were intended for working men's children, do not teach "things that will be useful in after life." On the other hand, those who are enabled to profit by and to follow up their work in the county schools know well that the training they give is an excellent preparation for success in the higher walks of life. The truth is that in Wales, as elsewhere, the demand for "education" is twofold, and the two demands are incompatible; a few want education for itself and as a preparation for further education in adult life; the great majority want it as a preparation for success in the struggle for existence and advantage.

THESE two needs should be met by the provision of two types of school: the "vocational" type, with a training limited but complete in itself, looking forward to trade or handicraft; and the "liberal" type, looking forward to the professions and the universities. The pupils from the elementary school should go to one or other of these types of school, which should not be competitive. It is not fair to the county schools first to require them to provide both kinds of training, then to put near them and in competition with them vocational schools, then belittle them as not being democratic (which they are) and vocational (which they were not intended to be), and finally cry out that the system is a failure because many of the schools are practically bankrupt and their teachers disgracefully paid. There are at present in Carnarvonshire four kinds of schools higher than elementary, and instances could be given from other parts of Wales of overlapping and of injury inflicted by multiplication of types of schools.

At a meeting of governors of a county school in North Wales a mistress applied for an increase of her salary, £80 a year. The vicar of the parish asked whether a graduate could be expected to be content with a salary of £80; he considered it simply "sweating." Much sympathy was expressed with this view, and though the matter had to be adjourned, action will probably be taken to remedy it.

An agreement has been arrived at with respect to the provision of mining instruction in Glamorgan. A board of management is to have jurisdiction over the Treforest, Crumlin, and Swansea Schools of Mines. The board will consist of eleven members appointed by the education authorities, eleven and a chairman appointed by the owners. The coal-owners bear the whole cost, and keep questions of finance in their own hands.

DURING the hot weather in June the pupils of the Newcastle Emllyn Grammar School asked that afternoon work should be abolished, and the school opened at 6 a.m. This was done, and the experiment proved very successful, in spite of the fact that some boys cycle five miles to school.

At the meeting of the University Court at Bangor in July, the president, Lord Kenyon, read a letter from Lord Stamfordham intimating that his Majesty desired to retire from the Chancellorship of the University of Wales. It is understood that the Prince of Wales is to be asked to accept the office.

DENBIGHSHIRE Education Committee has refused the application made by more than seven hundred teachers for the establishment of a scale of salaries. The reply to the teachers' petition consists of a series of statements traversing their assertions. We quote one or two of the arguments adduced:—"The consciousness that special effort is rewarded by special recognition is a powerful incentive to the best worker, whereas the knowledge that whether the work is well or ill done the salary is safe simply by effluxion of time tends to discourage the good worker and is a premium on indifference." This is not professional treatment, and is directly conducive to hireling service and bustling self-advertisement. Fortunately for the community the work and spirit of most teachers rises far above this level. Again, "Discontent is not confined to Denbighshire, and would not be likely to disappear by the adoption of a scale of salaries. Questions of the adequacy of the scale would from time to time be raised. . . ." Comment is needless; these words may serve as the indictment of the policy of many authorities.

LATIN TEACHING IN FRANCE.

Comment apprendre le Latin à nos fils. By J. Bezard. 424 pp. (Paris: Librairie Vuibert.) 3.50 francs.

FRANCE has always had a high reputation for the teaching of languages, particularly the French language; and Latin has been a staple part of the curriculum until the late anti-classical upheaval. Within the last few years also attention has been given to method, and the direct method of teaching modern languages has had a little effect on classical method. Traces of this appear in the book before us. For instance, it is laid down that the pupils must make their own *instruments de travail*, little vocabularies, grammatical tables, and so forth. A useful practical maxim is that such tables ought to show the whole active conjugation, the whole system of declensions, in one sheet (why not both active and passive?). Induction, therefore, is recommended, which is an important part of the direct method. Another important principle here laid down is, that oral work alone teaches, written work being chiefly an *exercice de contrôle*, one that helps to fix knowledge, and makes one reflect upon it, but not proper for acquiring knowledge. In the early stages, too, printed exercises are banished; all is done by word of mouth, and the records are written by the pupils. There is also a good description of teaching a passage by heart to a small group of pupils (131).

An excellent analysis is given of the famous "mental gymnastic." *Pauvres enfants! dans cette lutte trop inégale, ils n'exercent guère que leurs doigts tachés d'encre à feuilleter l'affreux dictionnaire! A chaque instant, presque devant chaque mot, ils ont la sensation d'un arrêt qui brise leur élan.*

But, on the other hand, we have that ancient horror, the word-for-word construe, taken for granted as part of the method of instruction. There is minute verbal analysis, and sentence-analysis, which both have a

proper place, but not, we think, in the early stages of a language. The proper progress is from vague accuracy to exact accuracy: that is, from an accurate general knowledge of meaning to an accurate knowledge of each part. This is the plan of nature; and its result is, to give a keen sense of idiom and style before an exact knowledge of details; the knowledge of details can be taught later, but incorrect idiom and feeling for style can scarcely ever be corrected if it is once begun.

The greater part of the book is a transcript of lessons actually given; and it is on those lessons that we have founded the above remarks. We note also that the master talks a great deal too much. To take a couple of pages for an early lesson (pp. 16-17), the master speaks twenty-three times, the pupils ten times, and not one of these answers is a complete sentence; two of them are only *Oui*, the rest a couple of words or a definition. In the later lessons there are some excellent specimens of written work, but all through the spoken part is inadequate. This is the more remarkable, when we remember how important the spoken part, the lecture or "wrangle," is in the French university. No doubt this is left for the professor of French to deal with.

Thus we see that while most of us can get useful hints from this book, it gives little help in criticism of class-teaching. Here the reformed methods, which are being attempted in England, have the advantage. Assuming that translation and analysis are to be the method of instruction, England has little to learn from other nations; but M. Bezard feels instinctively that there is a better way, and he actually makes a step towards it. It is, however, only a step. If he went on, he would come, as others have come, to alter his practice altogether, and we hope he may live long enough to do it.

TOWARDS EDUCATIONAL REFORM.

In Defence of What Might Be. By E. Holmes. 376 pp. (Constable.) 4s. 6d. net.

The Montessori Manual. By Dorothy Canfield Fisher. 126 pp. (Constable.) 4s. 6d. net.

The Thinking Hand. By J. G. Legge. 217 pp. (Macmillan.) 8s. 6d. net.

Biology of Sex. By T. W. Galloway. 105 pp. (Heath.) 2s. net.

The Meaning of Marriage. By G. Spiller. 120 pp. (Watts.)

The Feeding of School Children. By M. E. Bulkley. (Bell.) 3s. 6d. net.

The Future of Education. By F. C. C. Egerton. (Bell.) 3s. 6d. net.

It may justly be remarked of the volumes here selected for special notice that their titles are, at least at first sight, oddly assorted. In some respects it is certainly a far cry from Mr. Holmes to Mr. Spiller, and from Mr. Spiller to Mr. Legge. Indeed, we hardly know which of them would be least pleased at being associated with the others. Yet in one respect all of them can be reduced to a common denominator. For all of them, like the rest of the authors appearing in our list, are impressed by the weakness of some part or aspect of our educational system, and are more or less ready with proposals to mend matters. To one, the change from mechanical obedience to freedom and self-realisation; to another, the change from silence to frankness in respect of the all-important sex-relationship; to another, the change from the supremacy of head-work to the equal rights of hand-work, seems the one thing needful. Let us briefly consider each in turn.

It is now three years since Mr. Holmes, by the publication of "What Is and What Might Be," achieved a remarkable success in the difficult feat of arousing general interest in the subject of education. He had something important to say, and he had the inestimable advantage of knowing how to say it. His book, whatever one might think of its details, placed him immediately among the major educational prophets of our time. The pent-up fires of long years of official restraint burst forth in an extremely out-spoken condemnation of our school system. If, said Mr. Holmes, we would mend our ways, we must follow "the path of self-realisation" instead of "the path of mechanical obedience," we must substitute the doctrine of original goodness for that of original sin, and we must trust the child instead of distrusting him.

In his new volume, Mr. Holmes again takes up his parable, partly by way of reinforcing his first statement, and partly by way of defending himself from his critics. We certainly like him best when he is pursuing the first of these two objects. We think it was well worth while writing the chapter on the meaning and value of freedom, because it was worth while emphasising the difference between allowing children to do as they please and releasing them from injurious constraint. We value also the chapter on self-realisation, in which, claiming Prof. Eucken as an ally, Mr. Holmes avers that the ideas which control his philosophy of education are modern and Western as well as ancient and Eastern.

But when Mr. Holmes specifically defends himself from his critics, we begin to ask whether it was worth while; whether, that is to say, he really adds anything to the force of what he wrote three years ago. He trounces a sort of "Herbartianism" which really has very little influence at the present time. Replying to an *obiter dictum* of Prof. Adams, he defends, at what seems to us quite unnecessary length, his right to use the word "faculty." Replying to Canon Scott Holland, he is, of course, able to show that the doctrine of original sin is held as strongly as ever in certain theological quarters, but he ignores the patent and the far more important fact that the attitude of the average teacher or parent towards children is now very different from what it was, say, in the days when Dickens wrote. And in the chapter on the primrose path he answers a lady who has apparently never attacked him, but who has written a pamphlet showing her "entire ignorance" of that Montessori system which Mr. Holmes believes in. Finally, in his remarks on examinations, he selects as an example one of the worst papers of questions we have ever seen—which is saying a good deal. There is much in Mr. Holmes' book that we value, and there are passages we should like to quote. But in our view he does not strengthen an already strong case by singling out the worst that he sees around him and treating it as typical.

Mr. Holmes keeps to the high ground of educational philosophy, descending only now and then to practical details, and doing this reluctantly, lest he should be thought to offer "tips" when he desires to confine himself to principles. Not so Mrs. Fisher, who now supplements her publication, "A Montessori Mother," by "The Montessori Manual," a simple and unpretentious guide for any mother or teacher who wishes to make a trial of the system. Mrs. Fisher wisely begins by expounding the central idea of the system. "No human being is ever educated by anyone else. He must do it himself, or it is never done." Though she devotes most of the book to an explanation of the uses of the "didactic apparatus," she reminds her readers that the most vital element of the system is its spirit and not its apparatus; and in this

sense she advises them to turn the child's everyday activities into "Montessori exercises." In her final chapter she expounds the difference between the unintelligent obedience exacted from a horse or a dog, and the intelligent obedience which alone we can safely demand from a child. The book should be most useful to all mothers and teachers who are looking for the kind of help it essays to give.

Hand-work is an accepted feature of the education of young children, whether the teacher labels herself Montessorian or Froebelian. That it has also come, and come to stay, in the education of older children is the faith in which "The Thinking Hand" has been written. In this book the director of education at Liverpool gives us what is practically a report on the hand-work done in the elementary schools of that city, together with some general reflections on the principles and practice of hand-work. About half the book is devoted to an excellent series of photographs illustrating a great variety of manual occupations. Probably Mr. Legge is right in expecting that some of his "readers" will confine their attention to the illustrations. They should not, however, miss the writer's racy indictment of educational literature, its "portentous solemnity," and its "canting assumption of superior virtue," especially when it takes the form of "introductions to codes and regulations." Mr. Legge has no fear of vocational tendencies, even in the curriculum of the elementary school. In this we think he is right. But he hits out rather too wildly at the "theorists." The *mere* theorist is not a greater humbug than the *mere* empiricist. The best of our theorists are also very practical men, and many of them agree with Mr. Legge's general position. The paradoxical title of the book does not please us, because it seems to countenance a fallacy common among apologists for hand-work. But the book itself is on an essentially right lines, and ought to serve well the cause its writer has at heart.

We pass now to a very different order of attempted educational reform. The idea is gaining ground, and is characteristic of the times in which we live, that, for the sake of individual and social well-being, the problems of sex should be more frankly and openly discussed with young people than has traditionally been the case. Our business here is not to argue that question, but to pass judgment on two relevant volumes that lie before us. One thing is clear. An essential condition of such a change, if it is to come, is that parents and teachers must themselves be properly informed, and set thinking on right lines. For this purpose we recommend most strongly, and without the slightest hesitation, Dr. Galloway's little volume on the "Biology of Sex." Though simple, it is scientific; and though scientific, it is not cold-blooded. The biological and the moral issues are both faced in this well-blended treatment of the subject. And the writer has abundant common sense. In trying, for example, to save a boy from the evils of self-abuse he would not sentimentalise. He would rather appeal to the normal boy's ambition to become a strong manly man, with a man's appearance and powers; and he would explain the consequences of abstracting from the blood those very products "the work of which is to bring about the development of those big qualities that all men want to have." It is partly because appeals like this seem to us so sane and wise that we think highly of Dr. Galloway's book.

Except to the extent of one chapter, Mr. Spiller's book on "The Meaning of Marriage" is not specifically addressed to teachers. The remaining chapters are meant for parents, young men and women, husbands and wives, bachelors and spinsters, widows and widowers. Whether it was wise to address this mis-

cellaneous assemblage by means of a single volume, albeit a small one, is, we think, open to question. At any rate, we confine ourselves here to Mr. Spiller's general position as it affects teachers. Broadly speaking, his method is to produce in the scholars "an unshakable conviction of the precious privileges and responsibilities of marriage," and of the necessity of self-control if those responsibilities are to be duly discharged. Mr. Spiller says little with which we do not agree. Yet we hardly think his book is just what is needed. There are two ways of approaching these sex questions, the way of the teacher and the way of the preacher. Most of us can teach well if we try. Most of us could not preach well, however much we tried. We think Mr. Spiller inclines too much to the way of the preacher, and we think the vast majority of teachers would agree with us in this opinion.

Another problem that has come to the front in recent years is that of the feeding of school children. Whether it is properly regarded as an educational or as a closely-associated social problem is obviously a matter of words. Miss Bulkley's monograph, based upon inquiries made during last year, begins by tracing the history of the question down to the Education (Provision of Meals) Act of 1906, and then in successive chapters deals with the administration of that Act, the extent and causes of mal-nutrition, and the effect of school meals on children and on parents. Miss Bulkley is convinced that, so long as economic conditions remain as they are, the provision of school meals is a necessity, and that all attempts at picking and choosing the children to be fed are useless and should be abandoned. The investigation has been carefully and thoroughly carried out by Miss Bulkley, and her book should, as Mr. Tawney says in his Introduction, make it easier for the administrator to apply the varied experience of the last eight years to a problem the solution of which is an indispensable condition of the progress of elementary education.

We may fairly close these remarks on recent educational literature by a reference to Mr. Egerton's comprehensive survey entitled "The Future of Education." All the main problems discussed in the works we have described, and more besides, are included in this volume, the table of contents of which is a good summary of the things that are troubling the minds of thoughtful teachers and administrators at the present time. Boldly, but we think wisely, Mr. Egerton starts with a succinct statement of his educational creed, several articles of which would gladden the heart of the author of "What Is and What Might Be." In the spirit of this creed, the author proceeds to discuss his selected themes. His treatment of them is refreshingly free from pedagogic jargon, and is none the less valuable because it takes the point of view of an educated man of the world rather than that of a professional teacher.

Notes on Elementary Inorganic Chemistry. By F. H. Jeffery. 55 pp. (Cambridge University Press.) 2s. 6d.—These notes are intended for the beginner, and aim at summarising in as succinct a manner as possible a series of useful facts connected with elementary inorganic chemistry. The ten short chapters are occupied with acids, bases and salts, the preparation of some common salts, the action of heat on oxides, metallic and non-metallic elements, oxidation and reduction, the examination of common gases, the action of acids on metals, and certain examples of electrolysis. Although the selection of the material is somewhat arbitrary, the author has produced a useful adjunct to the student's lecture and laboratory notebooks.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

How to Learn 6000 French Words in One Day; with Rules of French Pronunciation. By Emile Deschamps. 184 pp. (Hachette.) 2s. 6d. net.—It sounds tempting: 6,000 words in one day, with the pronunciation thrown in. The author has classified words of the same or similar form in English and French, such as *longitude, indigo, arnica, vehicle, artist*, and (which is more valuable) indicated the cases where we do not get quite the same form, e.g., plagiarism (*plagiat*), venous (*veinè*). He goes rather far afield, taking into account such words as *malvaceous, sabulous, penetrancy, anorexy*; whereas most of our common words do not appear in the 6,000, because they have no cognates in French. The rules of pronunciation are much behind what one has a right to expect nowadays; a few extracts will suffice. "The *r* may be pronounced as in English, it does not matter much. . . . In every language can be found the elements of pronunciation of all the languages of the world, except a few. . . . *F, l, m, n, o, s* are pronounced as in English. . . . *a* is pronounced as in *art, father* [only one *a* is mentioned] . . . *é* is the English *a* . . . *i* (in *ami*) is pronounced like *ee* in *feet* . . . *un* [nasal vowel] sounds very nearly as in *blunt*," &c., &c. We could continue for a long time. It is distressing to find that this book is in the "second edition," because so many must have acquired a bad pronunciation from it; and surprising to see that it has been "revised," for, apart from misprints, such wrong statements as have been instanced should surely have been pointed out by some of those who used the book. When M. Deschamps has made a more thorough study of English and French phonetics, using (let us hope) the "barbaric signs" of which he speaks with such contempt, he will no longer start off with the absurd statement that "the French pronunciation is not, in fact, difficult at all."

English.

Précis-Writing. By W. Murison, in three parts. Pp. 137, 196, and 264. (Cambridge University Press.) 2s. 6d., 3s. 6d., and 3s. 6d.—Surely there will be no need of another book on *précis*-writing for some time to come, Mr. Murison has so adequately covered the ground required for the recognised examinations. His three parts are progressive, and each contains not only material drawn from a great variety of official sources, but also model exercises. Nor are these model exercises merely "fair copies"; the process by which the desired end is obtained is shown in detail. In fact, the whole production is exactly what candidates for Government appointments require.

Nisbet's English Cards. (Senior Classes.) By W. Higgins. (Nisbet.) 2s.—These cards are no doubt intended for the senior classes of elementary schools, but they may be found useful for the junior classes of secondary schools. Each packet contains fifty cards, and each card has four exercises and one picture. The exercises cover free composition, language-training (structure and technique of sentences), letter-writing, and composition based on the picture. Each card has different exercises, and the collection certainly affords a very varied and sensible body of work. As the author claims, the cards are not intended to take the place of ordinary class-work in English, but are to be used in conjunction with the teacher's own lessons. They are worth a trial.

The Mother Tongue. Book II., in three parts. By Prof. J. W. Adamson and A. A. Cock. (Ginn.) 1s. each.

—This is a combination of Books II. and III. of the original American work, the English editors preferring to emphasise the close relationship between grammar and composition rather than to treat them separately. Each part of the present edition treats of one kind of composition—narration, description, and exposition—the grammar being "ancillary" throughout. The American work is so well known that there is little need to refer to this modification of it in any detail; so we merely note that when the editors claim to have accepted the recommendations of the Committee on Grammatical Terminology, "in nearly every instance," they are giving a fairly liberal interpretation to the word "nearly," and when they insist that grammar should be strictly subservient to composition they should take more trouble to establish an intelligible relationship between them.

History.

The History Teachers' Magazine. (April, May, June, 1914.) (Philadelphia, U.S.A.) 20 cents monthly.—Greek history is the prominent feature of these three numbers of the *History Teachers' Magazine*. In the first Prof. A. Sill deals with the teaching of the history of the two great periods of Greek expansion. He gives a lengthy summary of the subject, based on recent discoveries, and so provides not only the form, but also the substance of a most interesting series of lessons. In the second, Prof. F. M. Fling treats of the use of sources in the teaching of Greek history. In the third, Prof. G. W. Botsford, one of the best-known authorities on the matter, deals with the choice and use of books relating to the history of Greece. Other topics of interest to teachers are (1) a critical discussion of the value of examinations in history by Prof. H. D. Foster, under the title, "Adequate Tests in History" (April); (2) an exposition of the means by which the teaching of history can be made to serve as a school of practice in the use of a library. This is dealt with by Miss M. S. Smith, in an article on "How to Utilise the School Library" (May). (3) A defence of the use of the text-book in historical instruction, by Prof. R. W. Kelsey, under the heading, "The Text-Book Method" (June).

These three numbers as a whole well maintain the high standard of the *History Teachers' Magazine*.

Naval and Military Essays. viii+243 pp. (Cambridge University Press.) 7s. 6d. net.—This book consists of thirteen papers or summaries thereof read in the naval and military section at the International Congress of Historical Studies held last year. Most of them are of interest only to officers of the Navy or Army, and are concerned with the importance of historical study in the professional preparation for military and naval service, an importance which we as outsiders would have thought was not necessary to enforce, since it is surely the *a, b, c.* of the training of an officer. Incidentally we learn how difficult, if not impossible, it is to get a full and accurate account of any battle, and that partly because those who know most about such a thing, those, namely, who were engaged in it, are unwilling to blame in print their fellow-officers. The moral of that for those of us who are teachers is to be very sceptical about the accounts of battles in our text-books (did we not recently notice an account by Mr. Hilaire Belloc of the battle of Poitiers in which he upset all previous accounts of that encounter?), and therefore to avoid worrying our pupils (if only examiners would not in turn worry us) with what after all are subjects suitable for military establishments, but are too difficult and special for boys and girls under sixteen. Some of the papers

are well worth reading by the layman. Dr. J. R. Tanner praises Samuel Pepys as a naval official, and puts in its proper place the famous diary. Dr. J. H. Rose has a précis of the plans of Napoleon for the autumn campaign of 1813, and Dr. J. F. Novák, of Bohemia, contributes a paper with the most human interest on the life-story of Field-Marshal Prince Schwarzenberg, the general in command of the European forces against Napoleon in 1813, a man whose ideal life was one of peaceful domestic bliss, who hated the horrors of war, but sacrificed his ideal to do his duty as a soldier and a patriot.

The Story of Jeanne D'Arc. By E. M. Wilmot-Buxton. 102 pp. (Harrap.) 1s.—The story of the Maid of Orleans has a perennial interest. The peasant girl who, in the midst of a degenerate and selfish age had a pure and unselfish enthusiasm for what was not only her own interest, challenges comparison with that of the Dominican friar who some half-century after her death also had visions, worked to make the world better than he found it, and was rewarded as she was, with a chariot of fire in which to ascend. They were both entangled in politics and the careers of both raise the question what was the nature of their inspiration. We ask the old question, "Was it of heaven or from men?" This is not, of course, the place to enter on the discussion thus hinted at; the thoughtful reader will find his or her own solution, but we can very strongly recommend this last treatment of Joan's story. The only criticism we have to make is that Miss Wilmot-Buxton perpetuates the old mistake about her heroine's name, and introduces the apostrophe into the name of the peasant girl before there was any justification for it by her ennoblement. Her name was, of course, that of her father, Darc; she was not "of Arc," but "of Domremy." But this is the only fault in a perfectly delightful book, the pleasure of reading and possessing which is enhanced by the nine beautiful pictures. There is a map to illustrate the campaigns, but no index.

Geography.

The British Empire beyond the Seas. An Introduction to World Geography. By M. I. Newbigin. 351 pp. Maps and diagrams. (Bell.) 3s. 6d.—After a brief introduction on the great States of the world and the climate and plants of the British Empire, Miss Newbigin treats of the Empire on a climatic basis under four sections. The main thesis that the Empire represents the main features of the whole world, and that examples of all varieties of geographical areas occur within the Empire, is familiar to teachers of geography; yet this is the first time, we believe, in which an attempt has been made to describe the British Empire from this point of view. The method has certain inevitable defects of presentation, but Miss Newbigin has surmounted successfully the main difficulties, and her book should be consulted by all teachers.

Environment. A Natural Geography. By G. R. Swaine. 226 pp. Maps and illustrations. (Ralph, Holland.) 1s. 6d.—Based upon what Mr. Swaine regards as the fundamental theme in geography, this book is an attempt to show the geography of the world from the point of view of the influence of environment on man. The book is divided into four sections on a climatic basis, and each section contains chapters related to subdivisions of the main region. An attempt to treat the world in so small a compass with so large a plan is necessarily vitiated when the author feels compelled to refer to all the several

countries of the world, since it leads first to a multiplicity of references to some countries in many parts of the book; and, secondly, to a lack of cohesion which will, we fear, in practice mar the excellence of the idea on which the book is based. The illustrations are not very good, and Mr. Swaine drags in many apparently unnecessary details.

The Growth of Europe. By Grenville A. J. Cole. (The Home University Library.) 256 pp. (Williams and Norgate.) 1s. net.—The geographer looks to the geologist for a reasoned summary of the way in which the surface features of the earth have been produced; he asks for an account of the processes which have given to us the mountains such as the Alps, and the lowlands such as Hungary; and when the geologist who provides such geographical material is also a geographer, and sees beyond his hammer and his specimens into the human elements which surround the subject of his studies, the geographer cannot fail to study, with avidity, the geological story which is unfolded for him. Prof. Cole has laid all teachers of geography under a great obligation; he concludes this book of surpassing interest:—"The Cainozoic era offered a model continent to man, on which the tremendous pageant of European history has been played. The study of its fundamental structure in relation to the wayward actions of its overlords is for most of us the very keystone of geography."

Cambridge County Geographies. Argyllshire and Buteshire. By Peter Macnair. 150 pp. Maps and illustrations. (Cambridge University Press.) 1s. 6d.—The Clyde Estuary has its own appeal to the student and to the teacher, and this volume presents certain aspects of the Firth of Clyde which are essentially different from, and complementary to, the facts in the earlier volumes on Renfrew and Lanark in the same series. Mr. Macnair has maintained the high excellence of these geographies.

Beautiful England. "Bath and Wells." "Warwick and Leamington." "Ripon and Harrogate." "Scarborough."

Beautiful Switzerland. "Villars, Champerv, etc." "Lausanne and its Environs." 64 pp. Coloured illustrations. (Blackie.) 1s. 6d. net each.

These six books are reminders of the many excellences of the earlier books which have appeared in the same series. The English volumes are illustrated by Mr. Ernest Haslehurst, and the Swiss books by Mr. G. Flemwell, and the pictures add greatly by their charm to the attractiveness of the books; the text is interesting.

Grieben's Guide Books. "Brussels and Antwerp." "Berlin and Environs." 100 pp. Maps. (Williams and Norgate.) 1s. 6d. net each.—These handy pocket guide books deserve to be well known to the English tourist. They are compact with serviceable information for the traveller with a slender purse, and contain suggestive plans for a sojourn which may extend from a couple of days to a longer period.

Mathematics.

John Napier and the Invention of Logarithms, 1614. A lecture by E. W. Hobson. 48 pp. (Cambridge University Press.) 1s. 6d. net.—The historical aspects of mathematics are not considered so frequently as they might well be, for it is a stimulus and encouragement to follow the steps by which the great masters were led to their discoveries. Unfortunately, in the majority of cases they only allow us to admire the

finished structure, when all the scaffolding has been removed. There can be no two opinions as to the value of the invention of logarithms, and Prof. Hobson is well justified in saying that John Napier's "Mirifici Logarithmorum Canonis Descriptio" is a work which embodies one of the very greatest scientific discoveries that the world has seen. From the practical point of view, it is of the greatest utility, while from the theoretical it may be regarded as almost the first stone laid in the magnificent structure of the theory of functions. It is therefore a matter of supreme interest to know how this Scottish baron, living in turbulent and distracted times, was led to formulate the ideas which have exercised such great influence upon the development of scientific thought. In view of the recent tercentenary celebration, Prof. Hobson has put together the chief facts connected with the discovery, and we can only say that the lecture amply repays perusal. Photographic reproductions of a portrait of Napier and of a page of the "Descriptio" are included.

Science and Technology.

The Antiquity of Man. By Sir Charles Lyell. xx+407 pp. (Dent.) 1s. net.—The publication of this reprint marks the completion of the first 700 volumes of Everyman's Library. The book is beautifully printed on excellent paper, and is provided with an introduction and an admirable set of explanatory notes by Mr. R. H. Rastall. Recent researches have directed increased attention to the subject of Lyell's famous book, which, apart from its historic importance, still remains one of the best general accounts of early discoveries relating to primitive man. All interested in either geology or anthropology will welcome the re-issue of a classic in which Lyell's well-known breadth of view and lucidity of style are shown at their best. One is grateful for the enterprise which has made it possible to buy such a book at such a price.

Genera of British Plants. By Humphrey G. Carter. xviii+121 pp. (Cambridge University Press.) 4s. net.—Students of botany who are interested in the difficult but fascinating question of the natural classification of plants will be grateful to Mr. Carter for his application of Engler's system to the British flora. The book is arranged according to the latest edition of the *Syllabus der Pflanzenfamilien*, which admittedly represents a much nearer approach to a natural system than the "Bentham and Hooker" classification on which it has been customary to work in this country. Mr. Carter has added the characters of the British genera, and has thus made it an easy matter to assign any of our native species to its appropriate place in Engler's masterly scheme. The appearance of this little book has filled a serious gap in English botanical literature.

A Text-Book on Experimental Plant Physiology. By M. Rollo Mitchell. viii+78 pp. (Meiklejohn.) 1s. net.—The forty simple experiments here described cover satisfactorily as much practical work on plant physiology as can reasonably be expected from pupils of the standard of the Cambridge and Oxford Local Examinations. The work can all be done by the pupils themselves with simple apparatus and common plants, and if carried out in the manner directed will form a sound introduction to scientific method in botany. Some forty pages of the book are blank, being intended for records of personal observation and conclusions; but the value of such records is in danger of being nullified by part ii. of the book, in which the anticipated result of each experiment and the conclusion to be drawn from it are concisely set forth.

If part ii. had been omitted the book would, we think, have had a greater value as a guide to supervised class work. For students working alone nothing of the kind could be better.

Materials and Methods in High School Agriculture. By W. G. and B. R. Hummel. xii+385 pp. (New York: The Macmillan Co.) 5s. 6d. net.—The problem of rural education in this country is ripe for solution, and steps are being taken in this direction by local authorities under the stimulus of grants from the Board of Agriculture, but owing to the fact that few have had sufficient practical experience to guide these steps there is a danger lest they prove of the nature of a leap in the dark. This book comes at an opportune moment and gives an excellent account of what has been, and is being, attempted in the United States, and a perusal of it will shed much light on the methods which might be adopted here. Teachers and administrators alike, and members of Parliament also for the matter of that, would start with much clearer ideas on the subject if they obtained a copy and perused it thoughtfully from cover to cover. It deals entirely with American schools, and as our cousins are in advance of us in the organisation of rural education, we may profit by their experience. The first three chapters are especially enlightening to the average reader, and the remaining chapters show what is being done to teach technical and scientific agriculture in schools of the type of the farm institutes advocated here. We heartily commend the book.

Miscellaneous.

Junior Scripture Examination Papers, Old Testament. By Rev. S. A. P. Kermode and Rev. W. Williamson. 72 pp. (Methuen.) 1s.—This is a collection of seventy-two test papers on the Old Testament, in three groups—preliminary, junior, and senior. The questions are largely modelled on the Oxford and Cambridge Locals type, and are on the whole suitable and good. With the exception of pointing out that some few of the junior questions are quite on the difficult side, and might be exchanged with some from the senior group, we regard the book as safe from adverse criticism and recommend it as a useful aid in class and preparation work.

The Second Book of Kings. (The Revised Version Cambridge Bible for Schools.) Edited by G. H. Box. xv+157 pp. (Cambridge University Press.) 1s. 6d. net.—We gladly confess to a strong leaning in favour of the school commentaries in this series. Our experience leads us to the conclusion that this type of commentary contains everything that the school boy or girl is likely to need, or that a good teacher would wish his pupils to have, whilst studying any book of the Bible. The readily available notes, printed on the lower portion of each page under the text to which they refer, are clear and simple. They are real helps to an understanding of the subject-matter of the book. Their usefulness might be increased if the words and phrases commented upon were distinguished, by underlining, say, or by printing in italics. The introduction is distinctly good; it avoids overloading, is brief and well done. The one map—Palestine in the time of Christ—is the only weak feature of the book. A more useful and suitable map helpful to the study of Kings II. might have been included, and ought to have been.

The Gospel According to St. Matthew. (Preliminary edition.) Edited by Rev. T. Walker. xxvi+120 pp. (Clive.) 1s.—We welcome this further

volume in a useful series. The introduction contains much valuable and interesting matter. The paragraph on "Geography of the Country" is particularly well done. The notes are abundant, yet terse and clear, and their summary headings add greatly to their value. It is a matter of individual opinion only, but practical experience of the use of such a book points to the fact that notes are most helpful when they are printed at the foot of the text to which they refer, and not at the end of the book, as in this case. Besides plans in the introduction, two sensible and "drawable" maps are included, and so folded that either or both can be used in conjunction with study of the text.

The Literature of the Old Testament. By Prof. G. F. Moore. 256 pp. (Williams and Norgate.) 1s. net.—This is one of the volumes in the tenth set of the "Home University Library." It is popularly written, and provides fascinatingly interesting reading. A careful comparison of its conclusions and statements with those of accepted standard works on the subject justifies the claim that the book is sound and trustworthy. It is eminently readable. Its simplicity, combined with the scholarly reputation of its author, should secure it a wide circle of readers. Study of it should do much to remove many an error and misconception of hoary and unworthy age. We cordially recommend it as a veritable light-bringer.

Pitman's Pocket Shorthand Dictionary. (Centenary edition.) iv+232 pp. (Pitman.) 1s. net.—This work is an abridged edition of "Pitman's Shorthand Dictionary," and contains, in a neat form suitable for the pocket, the best phonographic forms for the more common English words. The volume also contains complete alphabetical lists of grammalogues and contractions.

The Girls' School Year Book (Public Schools), 1914. li+665 pp. (Year Book Press.) 3s. 6d. net.—This useful annual is now well known and constantly consulted by all who are interested in girls' education. Among the additions to this edition, which is the ninth, may be mentioned the particulars as to openings for well-educated girls in the larger drapery establishments, the account of the Teachers' Registration Council, and the authorised data in connection with the secondary schools for girls under the control of the London County Council and the Kent County Council.

EDUCATIONAL BOOKS PUBLISHED DURING JULY, 1914.

(Compiled from information provided by the Publishers.)

Modern Languages.

Ludwig Achim von Arnim: "Der Tolle Invalide auf dem Fort Rabonneau." Edited by A. E. Wilson. (Cambridge Modern German Series.) viii+64 pp. (Cambridge University Press.) 2s. 6a.

"Exercises on 'Le Blocus,' with Grammar and Questionnaire." Second edition. By R. J. C. Hayter. viii+32 pp. (Cambridge University Press.) 10d.

"Direct German Course." By H. J. Chaytor. xiii+108 pp. (Clive.) 2s. 6d.

"Fünfzig Kleine Deutsche Briefe." Revised and enlarged edition. By Louise G. Weisgerber. 84 pp. (Harrap.) 1s.

"Cours Française du Lycée Perse." Deuxième partie. By Von Glehn and L. Chouville. viii+74 pp., folding table. (Heffer.) 1s. 6d.

Ereckmann-Chatrian: "Histoire d'un Conscrit de 1813." Adapted and edited by O. Siepmann. 226 pp. (Macmillan.) 2s. 6d.

Word and Phrase Book for above. 24 pp. (Macmillan.) 6d.

Key to Appendices of above. 40 pp. (Macmillan.) 2s. 6d. net.

Victor Hugo: "Bug Jargal." Edited by R. R. N. Baron. (Direct Method French Texts.) 289 pp. (Mills and Boon.) 2s.

"A Reform First French Book: Especially Written for the Use of Adult Students." By J. Stuart Walters. 128 pp. (Mills and Boon.) 1s.

"A Reform First German Book." By J. Stuart Walters. 166 pp., with 5 plates in colour. 166 pp. (Mills and Boon.) 3s.

E. T. A. Hoffmann: "Meister Martin der Kufner und seine Gesellen." Edited by Ludwig Hirsch. (Direct Method German Texts.) 147 pp. (Mills and Boon.) 1s. 6d.

Classics.

"P. Terenti Phormio." Edited by John Sergeant. This edition can now be obtained with or without vocabulary. xxiv+130 pp. (Cambridge University Press.) 3s.

Cæsar: "Gallic War." Book ii. Edited by L. M. Penn. (School Latin Classics.) xxii+97 pp. (Clive.) 1s.

Cæsar: "Gallic War." Book iii. Edited by L. M. Penn. (School Latin Classics.) xxii+92 pp. (Clive.) 1s.

"An Introduction to Latin." By J. C. Kirtland and G. B. Rogers. 280 pp. (Macmillan.) 5s.

English: Grammar, Composition, Literature.

Thomas Gray: "English Poems." Edited by R. F. Charles. xxviii+108 pp. (Cambridge University Press.) 2s.

"English Literature through the Ages." By Amy Cruise. 600 pp. (Harrap.) 7s. 6d. net.

"Practical Course in Intermediate English." By Edward Albert. 288 pp. (Harrap.) 2s.

"Alcott's Little Women." With introduction and notes by J. F. McWilliam. (Class Books of English Literature.) (Longmans.) 1s.

Shakespeare: "Julius Cæsar." Edited by J. C. Scrimgeour. 300 pp. (Macmillan.) 2s. 6d.

"Rossetti, Christina: The Children's." In three parts. Junior. 64 pp. Sewed, 4d.; cloth, 5d. Intermediate. 80 pp. Sewed, 5d.; cloth, 6d. Senior. 112 pp. Sewed, 6d.; cloth, 7d. (Macmillan.)

"News, Ads., and Sales: the Use of English for Commercial Purposes." By J. B. Opdycke. 210 pp. (Macmillan.) 5s. 6d. net.

"Oral Composition." By C. C. Ward. 424 pp. (Macmillan.) 4s. 6d. net.

"The Wanderings of Rama, Prince of India." Edited by Wallace Gandy. 122 pp. (Macmillan.) 1s.

Shakespeare: "The Merchant of Venice." Edited by G. H. Ball and H. G. Smith. (Mills and Boon.) 136 pp. 1s. Plain Text. 64 pp. 6d.

History.

"A History of Modern Europe from the Middle of the Sixteenth Century." By Dr. John E. Morris. viii+282 pp. (Cambridge University Press.) 3s. 6d. net.

"Outlines of Ancient History from the Earliest Times to the Fall of the Roman Empire in the West, A.D. 476." By Harold Mattingly. xii+482. (Cambridge University Press.) 10s. 6d. net.

"The Americans in the Philippines." By James Le Roy, with an Introduction by Ex-President Taft. 2 vols. (Constable.) 42s. net.

"Republican Rome" ("Great Nations" Series). By H. L. Havell. 580 pp. (Harrap.) 7s. 6d. net.
 "The Midlands in Legend and History." 119 pp. (McDougall's Educ. Co., Ltd.) 8d. net.

Geography.

"Cambridge County Geographies: Durham." With maps, diagrams, and illustrations. By W. J. Weston. viii+184 pp. (Cambridge University Press.) 1s. 6d.
 "Cambridge County Geographies: Glamorgan-shire." With maps, diagrams, and illustrations. By J. H. Wade. xii+196 pp. (Cambridge University Press.) 1s. 6d.
 "Home of Man. Part III. America." By W. C. Brown and P. M. Johnson. 288 pp. (Harrap.) 1s. 9d.
 "Canada, To-day and Yesterday." (Geography correlated with history.) By David W. Oates. 208 pp. (Harrap.) 1s. 3d.
 "Earth Knowledge. Books 5 and 6." Europe, 96 pp. Empire Over Seas. 80 pp. (McDougall's Educ. Co., Ltd.) 6d. each.
 "Africa. A Supplementary Geography." By J. F. and A. H. Chamberlain. 220 pp. (Macmillan.) 3s.
 "The Pupils' Class-Book of Geography. England and Wales." By E. J. S. Lay. 80 pp. (Macmillan.) Sewed, 4d.; cloth, 5d.
 "The Pupils' Class-Book of Geography. The British Isles." By E. J. S. Lay. 120 pp. (Macmillan.) Sewed, 6d.; cloth, 7d.
 "Here and There Stories. Junior. No. 2. Ships and Men." 64 pp. (Macmillan.) Sewed, 3d.; cloth, 4d.
 Junior. No. 3. Man's Work. 64 pp. Sewed, 3d.; cloth, 4d.
 Intermediate. No. 7. Holidays Here and There in the Homeland. 80 pp. Sewed, 4d.; cloth, 5d.
 "A Regional Geography of the Six Continents. Book II. Asia." By Ellis W. Heaton. 94 pp. (Ralph, Holland.) 9d.

Mathematics.

"Solutions of the Exercises in Godfrey and Siddons's Shorter Geometry." By E. A. Price. viii+160 pp. (Cambridge University Press.) 4s. 6d. net.
 "Cambridge Tracts in Mathematics and Mathematical Physics. No. 16. Linear Algebras." By Dr. L. E. Dickson. viii+74 pp. (Cambridge University Press.) 3s. net.
 "Percentage Trigonometry or Plane Trigonometry reduced to Simple Arithmetic, with a short description of the author's Percentage Compass." By John C. Fergusson. (Longmans.) 3s. 6d. net.
 "An Elementary Treatment of the Theory of Spinning Tops and Gyroscopic Motion." By Harold Crabtree. Second edition. (Longmans.) 7s. 6d. net.
 "Key to Hall's School Algebra. Parts I., II., and III." By L. W. Grenville. 672 pp. (Macmillan.) 10s.

Science and Technology.

"The Story of Plant Life in the British Isles." Volume 2. By A. R. Horwood. 358 pp. (Churchill.) 6s. 6d. net.
 "Astronomy (in 'Thresholds of Science Series')." By Camille Flammarion. (Constable.) 2s. net.
 "Preliminary Machine Drawing Course." By C. E. Handy. (Longmans.) 1s.
 "Physics of the Household." By C. J. Lynde. 326 pp. (Macmillan.) 5s. 6d. net.
 "How Man Conquered Nature." By Minnie J. Reynolds. 256 pp. (Macmillan.) 1s. 8d.
 "Principles of Metallurgy." Second edition. By A. H. Hiorns. 404 pp. (Macmillan.) 6s.

"A First Book of Chemistry." By W. A. Whitton. 158 pp. (Macmillan.) 1s. 6d.
 "How and Why Stories. Intermediate. No. 9. Wind and Weather." 80 pp. (Macmillan.) Sewed, 4d.; cloth, 5d.
 Senior. No. 13. Madam How and Lady Why. (Abridged.) 112 pp. Sewed, 5d.; cloth, 6d.
 "Elementary Household Chemistry." By J. F. Snell. 318 pp. (Macmillan.) 5s. 6d. net.
 "Primary Handwork." By E. V. Dobbs. 140 pp. (Macmillan.) 3s. 6d. net.
 "The Farm Woodlot. A Handbook of Forestry." By E. G. Cheyney and J. P. Wentling. 360 pp. (Macmillan.) 6s. 6d. net.
 "A First School Botany." By E. M. Goddard. 198 pp. (Mills and Boon.) 2s. 6d.

Pedagogy.

"An Introduction to Experimental Psychology in Relation to Education." By C. W. Valentine. x+194 pp. (Clive.) 2s. 6d.
 "The Montessori Manual." By D. C. Fisher. Illustrated. (Constable.) 4s. 6d. net.

Miscellaneous.

"Regulations of the Oxford and Cambridge Schools Examination Board for the Year 1915." 92 pp. (Clarendon Press and Cambridge University Press.) 1s. net.
 "University of Cambridge Higher Local Examination and Certificates of Proficiency in Modern Languages Examination Papers, June, 1914, with Lists of Syndics and Examiners, to which are added The Regulations for the Examinations in December, 1914, and June, 1915." 160 pp. (Cambridge University Press.) 2s.
 "The Boy's Own Railway Book." (Cassell.) 3s. 6d.
 "The Ministry of Art." By R. A. Cram. (Constable.) 6s. net.
 "Congressional Government." By Woodrow Wilson. (Constable.) 5s. net.
 "Correlative Light Woodwork." By G. G. Adams and C. A. Elliott. 256 pp. (Harrap.) 3s. 6d. net.
 "True Stories about Horses." By Lilian Gask. 320 pp. (Harrap.) 3s. 6d. net.
 "One Hundred Best Animals." By Lilian Gask. 350 pp. (Harrap.) 7s. 6d. net.
 "Egyptian Gods and Heroes." By F. H. Brooks-bank. 256 pp. (Harrap.) 5s. net.
 "The Teacher's Day, and other Poems." By John Nickal. (Longmans.) 1s. net.
 "Daily Services for Schools and Colleges." By the Rev. H. Pakenham-Walsh. (Longmans.) 2s. net.
 "Concise School Dictionary." 224 pp. (McDougall's Education Co., Ltd.) 4½d. net. Paper boards or cloth.
 The "Memorabilia" Series of Cards. No. 4. The Battles of England. 5. Explorers and Discoverers. 6. The Colonies of the Empire. 7. The Makers of English Literature. (The Year Book Press.) 2d. each, 1s. 6d. dozen.
 "The Girls' School Year Book, 1914." Ninth Annual Issue. (The Official Book of Reference of the Association of Headmistresses.) 600 pp. (The Year Book Press.) 3s. 6d. net.
 Year Book Press Series of Part Songs for Schools:—No. 102, "The Boys Song." By Dr. A. J. Silver. 3d. No. 104, "The Bramble." By G. T. Shaw. 3d. No. 106, "The Child's Song." By John Ireland. 3d. No. 107, "Nurse's Song." By John Ireland. 2½d. (The Year Book Press.)

CORRESPONDENCE.

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

Multiplication and Division of Decimals.

HAVING had a good deal to do with a Second Form and with Third Forms beginning a science course, I should like to offer one or two suggestions on the subject of Mr. Fawdry's article in your July issue.

(1) From the beginning insist on the decimal nature of our way of writing numbers. Don't talk of a radix of 10 but of a ten-group system. From that it is easy to get the boys to see the necessity of using a decimal point to mark the difference, on plain paper, between the sign for three and that for three-tenths. With beginners use paper ruled in columns with the name of the group at the head of each column. The sign 0 is not then used. Next 0 comes in as a position-indicator needed on plain paper for indicating the column a figure is in.

(2) Only use with lower forms (and, perhaps, upper too) numbers within their comprehension. Thus by the help of squared paper we can get down to the second decimal place, but not further. Discard if they occur, as negligible, figures in the third and further decimal columns.

(3) Use the same methods of multiplication and long division for all numbers, whether they have a decimal point in them or not.

Multiplication:

(a) Show $27.1 \times 10 = 271.0$, then $20 = 10 \times 2$, and so $27.1 \times 20 = [27.1 \times 10] \times 2$. Thus show multiplication by a figure in the tens column moves all the figures one column to the left (of where they would appear in the answer if the multiplier were in the ones column). Extend this to multiplication by a figure in the hundreds column. Later extend this to higher multipliers.

(b) Define 27×0.1 as equal to 0.1×27 , since $5 \times 4 = 4 \times 5$. This is their first introduction to mathematical machinery and definition by analogy. Thence show multiplication by a figure in the tenths column moves all figures one column to the right. Later extend this.

Then 27.1×13.2 appears thus:—

$$\begin{array}{r} 27.1 \\ 13.2 \\ \hline 271.0 = 27.1 \times 10.0 \\ 81.3 = 27.1 \times 3.0 \\ 5.42 = 27.1 \times 0.2 \\ \hline 357.75 = 27.1 \times 13.2 \end{array}$$

Insist on all decimal points being in the same vertical straight line and each figure in a square of the paper to itself if using $\frac{1}{4}$ -in. squared paper. Point out the first line gives the order of the answer right away. Teach approximation as soon as the boys are ready for it.

Division.—Teach long division first and let their minds be a little older and more used to arithmetical machinery before teaching short division. Teach long Division as a hunt for a multiplier and not as a mere routine. At first have each sum written out in full, thus:—

To divide 357.72 by 13.2, we have

$$\begin{array}{r} 13.2 \times 1 = 13.2 \\ \times 2 = 26.4 \\ \times 3 = 39.6 \\ \times 4 = 52.8 \\ \times 5 = 66.0 \\ \times 6 = 79.2 \\ \times 7 = 92.4 \\ \times 8 = 105.6 \\ \times 9 = 118.8 \end{array} \quad \begin{array}{l} \text{Then } 13.2)357.72 \\ \underline{264.0} \\ 93.7 \\ \underline{92.4} \\ 1.32 \\ 1.32 = 13.2 \times 0.1 \\ \text{Answer} = 27.1 \end{array}$$

Observe the decimal points in this working-out, not usual, but, I think, desirable. Next point out that if we write the answer above the dividend, then each term of the answer comes above its product of the figure in the units column of the divisor. Then make this the automatic way of getting the answer:

$$\begin{array}{r} 27.1 \\ 13.2)357.72 \\ \underline{264.0} \\ 93.7 \\ \underline{92.4} \\ 1.32 \\ 1.32 \end{array}$$

In the Fourth Forms teach pupils to write every number in form $p.qrs \dots \times 10^x$

e.g. 3.7894×10^3 for 3789.4
 3.7894×10^{-2} ,, 0.037894

and then to use logarithms, and point out log tables give logs of numbers written in the form $p.qrs \dots$ and not for numbers from 1 to 100,000, as the heading of the page has it. In seeking brevity I hope I have avoided obscurity.

ARNOLD MERRICK.

Macclesfield Grammar School.

Adopted Children.

THERE is still a diversity of opinion as to the influence of the inborn propensities of an individual upon his early home-training and subsequent school education. One of the most direct ways of disentangling this knotty but important problem is to be sought in a comparison of adopted persons with their real and their adopted relatives. To this end a collection of data is being made by the writer, on schedules intended to make comparison less difficult. He would be obliged if anyone, knowing of a case, would write for a schedule. The name of the family studied is not asked for, and the information will be used for statistical purposes only. The name of the recorder will be published or not, according to his wish. Information supplied by schoolmasters is particularly desired, because they have so much practice in judging and comparing the mental qualities of individuals. Let no one think that a case is not worth recording because it appears to have no outstanding features, or because it is in harmony with or runs counter to prevailing opinions.

LEWIS F. RICHARDSON.

Eskdalemuir, Langholm, Scotland.

The School World.

A Monthly Magazine of Educational Work and Progress.

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The School World

A Monthly Magazine of Educational Work and Progress.

No. 190.

OCTOBER, 1914.

SIXPENCE.

EDUCATION AND THE WAR.

THE Minister for Education has uttered a timely word, a word which will go straight to the heart of every teacher who reads it. In his letter, printed below, he avoids entirely the formal language proper to an official circular, and addresses us as becomes a man and a brother. As, at this fateful crisis in the nation's history, high and low, rich and poor, duke's son and cook's son, are banded together for the protection of all that they hold most dear, so the head of the country's educational system addresses all teachers, even the humblest of them, as "colleagues in the national service of education." Mr. Pease's touching and manly message will help teachers and administrators to see their duty clearly, and will encourage them to carry it through with their might. In a double sense the children should at the present time be the objects of special solicitude. In varying degrees they are bound to be the helpless and innocent victims of this desolating struggle, and must be shielded from all except its sadly inevitable consequences. But besides this we must remember that we are fighting not only for ourselves, but for posterity, and that, as Mr. Pease reminds us, we shall want the children to know in after years that we did our best, neither losing hope nor surrendering our trust.

Already a large number of teachers have been called up, or have volunteered for military service. Not only so, but many prospective teachers, preparing to enter a profession which was already suffering from a shortage of supply, have enlisted or joined the ranks of the territorials. In some of the elementary training colleges practically the whole of the second-year men, and in others a large proportion of them, have thus disappeared for a time, and had their normal course of training suddenly brought to a standstill. And these processes of elimination are probably destined

to go further yet. From this one cause alone, therefore, strenuous times are in store for those who remain behind. In many places large classes and heavy duties, which ordinarily might with justice be complained of, will be accepted cheerfully as unavoidable consequences of the national situation.

But this is by no means all. The children of the killed and wounded, the children of men who are fighting abroad or guarding us at home, and the untold numbers of children who will suffer less directly, but scarcely less really, will all need watchful care. And there is no class of the community in a better position than we teachers to help the various authorities and societies in giving succour where it is most needed, in preventing waste and overlapping, and in extending that sympathy and personal service which are sometimes scarcely less important than material supplies.

Again, in our actual teaching at this time let us remember that the struggle in which our country is taking part is at bottom a spiritual struggle. We confess that in the past Britain has sometimes made mistakes. It is making no mistake now. To every British child who is of age to understand the issues it should be made clear, as Mr. Pease reminds us, that we entered this conflict with clean hands and a pure heart, after exhausting every means of preventing it. Let our boys and girls know the difference between patriotism and militarism. Let us help them to realise the meaning, not only of an undivided British nation, but of an absolutely united British Empire; and let us show them that no such Empire can ever be founded upon a policy of blood and iron. Let these moral issues for the whole human race be made plain, as they can be, even to boys and girls, and this terrible war will not be an unmixed evil.

In these times of emergency, all are liable to make mistakes, and we are inclined to think that the Board of Education has made a

mistake, though by no means an irretrievable one. In its circular on the position of training college students who are called out for military service, the Board guarantees that if a student returns to college in January his career shall not be prejudiced. This seems to us little to say. His military duties, whether they last one or two or three terms, will have helped to make a man of him,—and to be a strong, self-reliant man is something of an asset in elementary teaching. As a rule, he will be the kind of man who will atone later for the book-learning he has missed; and anyhow the prompt admission of these men to the full privileges of the profession is surely a trifling matter at this tremendous crisis.

One other thing. The country with which we are now at death-grips is a country which has always been held up, and in some respects justly held up, as a model in respect of the thoroughness and completeness of its educational system. It is a country to the science, literature, learning and philosophy of which thousands of us teachers acknowledge ourselves much beholden. Yet it is this country the statesmen of which refer to a solemn treaty obligation as a scrap of paper, and the professors and learned men of which have apologised for and upheld the devilish doctrine that might is right. To many a teacher the despairing thought must have occurred—is education after all a vain thing? Is it only a thin veneer of culture laid over our savage instincts? Let us not harbour the thought for one moment. Let us rather believe, with our countryman John Locke, that learning is, after all, the last and least thing in true education, and in that belief let us order all our efforts. For every teacher in our own country here is surely food for thought. Sound and efficient instruction we must have. But the power thus engendered, unless it be directed and controlled by high moral ideals, may become a curse and not a blessing.

T. R.

To my Colleagues in the National Service of Education.

WHAT can we do for our country? We are all asking this question, and seeking, according to the sphere of our duties and the nature of our capacities and opportunities, an appropriate answer. Perhaps it may help those who are engaged in the work of education—those who administer and those who teach and learn in schools and colleges and universities—if I say quite simply what I feel.

I make no claim to dictate duties to others: I arrogate no Ministerial authority for my

words. I speak only as one worker to my fellow-workers. But perhaps it may be granted, less to me personally than to the position I hold, that I should attempt to express, if only in a fragmentary way, some of the thoughts and feelings which I know I share with many of my colleagues in the national service of education.

What can we do? We can keep the system of education going. There are practical difficulties to be faced. Many teachers and students have been summoned to military duties, whilst others are asking themselves whether duty calls them to go or to stay; school buildings have been taken for military and hospital purposes; we have to fill the gaps in our ranks and to contrive makeshifts; we are disturbed by excitement, unrest, and anxiety, and before us lies the prospect of sorrow and suffering. In the midst of uncertainty and disquiet we have to concentrate our minds upon our duty. But temporary difficulties are the opportunity for greater effort and more devoted service.

If we can keep the schools open and effective, and have ready against the hour of distress our organisation for feeding school children, we shall have done much to guard a vital point. The welfare and health of children are an essential condition of national stability, most of all in a time of national stress. We can do much to reassure our countrymen serving with the colours, we can do much to maintain the balance and confidence of our life at home, by seeing that the children of the country are happy and occupied, living their normal life, well tended and undisturbed. So far as the educational service is concerned, let us who remain in it make this our first duty.

But there is more than this for us to do. The teachers can do more than anyone else to help their pupils, according to their age and capacity, to see why the cause upon which we are united is just; to feel, if they cannot fully understand, the meaning of liberty and of that free national life which every country, whether great or small, is right to cherish and defend. The pupils can be shown that we are involved in war by stern necessity, that we are fighting in the cause of peace and against the spirit of aggressive domination which is the great enemy of peace. They can be inspired to appreciate those high qualities of patience, forethought, perseverance, and steadfastness which are as needful for victory as the dash and enterprise which naturally move young minds the most. They can learn to be neither unduly exultant nor unduly depressed, to be proud of their race and country without arrogance, to be specially considerate and generous to others in need or distress. In

particular, they can be reminded of our duty of courtesy and forbearance towards foreigners of whatever race, living peaceably among us. They can be brought to realise how hateful war is in itself and in the desolation and suffering it involves, so that in the full vigour of a national spirit they may hereafter become workers for the concord of nations, and lay the foundations of enduring peace.

Especially can pupils of every age be trained to feel, as the teachers must be feeling, that this is above all a time for the most exact, punctual, and willing discharge of every duty of daily life at home or at school. Our daily work, whatever it be, must be carried on with the same steadiness and devotion, the same resolve to be content with nothing but mastery in the task assigned, as are expected from our comrades and fellow-countrymen on service at sea or in the field. We must be worthy of them. Readiness to spend and to be spent in the common cause is the great lesson of war, and if it is thoroughly learned in our schools to-day, it will be a source of strength to our country for generations to come. Let us stand together; let us demonstrate the solidarity of all who work for education, and manifest, in the most constructive and most fruitful of the services of peace, the fraternity of the fighting line.

Nor is this all. Whatever may happen in the strife of nations, there lies before this country a contest scarcely less momentous with the distress and dislocation which war brings in its train. In this endeavour the education service of the country can play a great part. The local education authorities and their officers, the teachers, the inspectors, and the voluntary workers acting together can be organised into an effective staff to help the local committees, which now cover the country, in the work of ascertaining needs and requirements, applying remedies, and bringing the collective action of the community to bear at the right time, at the right place, in the right way.

The time of our trial and proving is also the time of our opportunity. There are many boys and girls who, in the normal working of the industrial system, are lost too early to education, but, in its temporary dislocation, can be retained. Let us try to make for them the best educational provision we can. War involves not only the destruction of vast accumulations of capital which must be replaced, but the loss, perhaps, of thousands of men, skilful in their trade, trained in commerce and manufacture, by whose labours our prosperity has been created, maintained, and enlarged. Let us seize the chance of giving

to the children who must soon take their places a longer education, a fuller training for the work by which, when peace is restored, the wastage of war may be supplied and the wealth of nations renewed. Let the children remain at school to prepare themselves for the enterprises of their manhood and womanhood. If we turn this opportunity to account we shall find that out of the evil of war we have gathered the permanent good of a clearer consciousness of the value and possibilities of school-life and training.

We are trustees for posterity. We guard the lines of communication between the present and the future. In the educational system for which I speak there are more than seven millions of pupils and students, most of them of tender age—an army comparable in numbers with the forces which now stand armed in the European conflict. These seven millions are the future England. At the present moment a blow has been dealt, and, I sincerely believe, through no fault of ours, at the moral foundation of civilised life. When the conflict is over we shall not only have to reconstruct the material fabric of civilisation, but also to re-affirm its spiritual purpose. We must see to it that neither we nor those who come after us lose faith; that the seven millions may grow up still believing in national honesty and goodwill, in generosity, in humanity, in the supreme blessing of peace.

It is to them that we shall hand over the national and international polity which emerges from the present struggle—a form of society, we may hope, broader and more firmly based, freed of the secular heritage of racial hatred and military aggression which Europe is now expiating, but assuredly more exacting—demanding of all its members larger faculties, more highly trained aptitudes, a clearer realisation of the common duty and destiny of men. Let us see to it that these seven millions, and those who follow them in the linked generations of school life, come to their task well equipped. Their achievements will be the justification of our endeavours; their well-being the measure of our success. At least let us be able in after years to tell them that we did our best; that in the hours of national stress and strain, faced by dangers without and anxiety within, we neither lost hope nor surrendered our trust.

JOSEPH A. PEASE.

The British Isles. By F. Mort. 231 pp. Maps and illustrations. (Cambridge University Press.) 3s.—This descriptive geography of the Home Country is on essentially modern lines with many well-chosen and typical illustrations, sometimes pictures, and, at others, maps or diagrams.

THE HISTORICAL ANTECEDENTS OF THE WAR.

By F. J. C. HEARNshaw, M.A., LL.D.

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I SUPPOSE that if one wished, with German thoroughness, to trace the antecedents of the present war back to their original first cause, one would have to record the inscrutable decree of Providence which in the beginning ordained, and in the course of evolution created, the Prussian military mind. For practical purposes, however, it is sufficient to survey the political developments of a couple of generations.

I. PRUSSIA SIXTY YEARS AGO.

Sixty years ago, that is, within the memory of many people still living, Prussia was a power of but second rank in Germany and third rank in Europe. Under Frederick William III. (1797-1840) Prussia had never fully recovered from the *débâcle* of Jena and the the seven years' Napoleonic occupation. The next king, Frederick William IV. (1840-1861), feeble, vacillating, and mentally unbalanced, lived in constant dread of revolution, which, indeed, in 1848 was nearly fatal to his monarchy. Hence he remained subservient to Austria, that great bulwark against liberalism, and was content to accept her protection and to support her policy. His removal to a lunatic asylum, however, in 1858, and the appointment as regent of his brother William, afterwards king and emperor, opened a new epoch of Prussian history. For not only was William resolute to govern strongly, but he had at his side, first as informal adviser, then from 1862 as chief minister, that man of blood and iron, the unscrupulous but incomparably able Bismarck.

II. BISMARCK.

Bismarck, who henceforth for a quarter of a century controlled Prussian policy, made it his business, first to unify Prussia by ending the bitter struggle of the Government against liberalism, secondly to make Prussia supreme in Germany by ousting Austria and by confederating the other German states under Prussian hegemony, and thirdly to establish Germany as the dominant power on the Continent of Europe. Beyond Europe he did not greatly concern himself to look. The record of his public career is the story of the brilliantly successful accomplishment of his three great aims. He conciliated Prussian liberalism by concessions which sorely distressed the autocratic king. Then he prepared for war with Austria by building up, through his friend

and colleague Roon, a highly efficient army; by concluding an alliance with Italy, to whom he promised Venice as a reward; and by persuading Napoleon III.—by what empty professions no one exactly knows—to keep France neutral. When all was ready, he forced on the war, and had the satisfaction of seeing Austria crushed in a seven weeks' campaign (1866).

As a result of this triumph Germany was reconstructed as a two-fold confederation from which Austria was excluded and in which Prussia was dominant. Bismarck was then able to turn to his third and greatest task, viz., the establishment of German ascendancy in Europe. This involved the overthrow of France. Hence with consummate skill he proceeded diplomatically to isolate France in order to strike her down. Napoleon III., failing in health, harassed in domestic politics, intellectually hopelessly inferior to Bismarck, played into his hands. Bismarck secured the neutrality of Russia by promising to further her projects in the Black Sea, which had been checked by the Crimean war. He conciliated Austria, and impressed upon her the danger of weakening Teutonic power in the presence of the Pan-Slavonic peril. He won over Italy by the supreme lure of Rome, which was then held for the Pope by French troops.

Finally, in 1870, when all was ripe, he used the pretext of the Hohenzollern candidate for the Spanish throne in such a diabolically clever way as to make Napoleon himself declare a war for which both he and his country were totally unprepared. On July 14th, 1870, France declared war; on September 2nd Napoleon was overwhelmed at Sedan. William of Prussia was proclaimed German Emperor at Versailles, Alsace and Lorraine were annexed, and Bismarck's life's work was in the main accomplished.

III. THE TRIPLE ALLIANCE.

During his remaining eighteen years of office Bismarck made it his principal task to conserve and consolidate what he had won. His chief concern was to keep France isolated, friendless, and weak, impatient to obtain the revenge which he realised she would never cease to seek. Hence he cemented a close alliance with Austria (1879), which was soon converted into the famous and enduring Triple Alliance (1882) by the accession of Italy, who joined owing to her intense irritation at the French occupation of Tunis. He further devoted a good deal of care to the fostering of friendly relations with Russia, and here again he was eminently successful. In 1884 the Tsar entered into an agreement of benevolent

neutrality with the Kaiser. Thus when in 1888 the old William I., and soon after him his son Frederick, died, Germany was easily the first of European nations. France was wholly segregated. As for Great Britain, throughout all this period of storm and transition she kept carefully aloof from European politics, congratulating herself upon her insular security.

IV. THE DUAL ALLIANCE.

The accession of William II., the present Kaiser, to the throne led to a radical change in German policy—a change which was proclaimed in the most dramatic manner to the world in 1890 by the “dropping of the pilot,” that is, by the summary dismissal of Bismarck. The new ruler had been brought up imperially; at the most impressionable age he had seen the triumph of German arms; later he had witnessed the unprecedented growth of German influence and wealth. Confident in the destiny of the Hohenzollern family, convinced that Heaven had arrayed its hosts permanently on the Prussian side, he ceased to be content with the European hegemony which Bismarck had handed over to him, and determined to make Germany a world-power, supreme in Asia, Africa, and America as in Europe.

His Asiatic designs led him into opposition first to Russia and later Japan. His African projects, combined with other colonial and naval activities, profoundly disquieted Great Britain. His intrigues in South America, particularly Brazil, seriously alarmed the United States. Russia was the first to feel the fall of Bismarck. The cordiality between the chancellories of Berlin and Petrograd vanished. The Tsar became conscious of adverse influences working in Turkey, in the Balkan States, in Persia, in Tibet, in China. In self-defence he made friendly advances to Prussia's permanent and irreconcilable enemy, France. In 1891 the French fleet was invited to Cronstadt; in 1893 the Russian fleet returned the visits in the harbour of Toulon; in 1896 the Tsar was welcomed in Paris; finally, in 1897 the French President went as a guest to Russia, and the conclusion of the Dual Alliance was publicly proclaimed.

V.—GERMANY AND BRITAIN.

So far the relations between Great Britain and Germany had been friendly. William II. (a grandson of Queen Victoria) and other members of the Prussian royal family paid frequent visits to the English Court, and there was nothing (for increasing commercial

rivalry did not count) to portend serious political conflict. On the other hand, the relations of Britain with both Russia and France were strained. In 1897 war with Russia was actually in sight concerning the seizure of Port Arthur; in 1898 the French occupation of Fashoda brought France and England to the very verge of hostilities. The Boer war, however, marked the turn of the tide. The Kaiser's telegram to Kruger, like a flash of lightning, revealed both an unsuspected antagonism and a dangerously hostile policy. Throughout the war the attitude of Germany became increasingly unfriendly, and it was only lack of a fleet that kept the Kaiser neutral.

In order that he might never again through impotence lose a golden opportunity, he at once began to build a fleet, and to compel his allies of the Triple Alliance to do the same. Everywhere throughout the world Britain began to feel the pressure of German opposition, and in Germany itself publicists, professors, politicians, and pressmen began openly to preach the doctrine that Britain with her bloated empire lay athwart the path of Germany's predestined progress.

With eager energy Germany began to develop a colonial empire, especially in the four regions of Africa which she claimed as her peculiar sphere of influence, and everywhere where she planted a colony she made it her policy by means of her high protective tariff to cut off British commerce. By her Bagdad Railway she threatened British influence in the near East, and caused alarm in India. By her support of Turkey, even when Turkey massacred Armenians by thousands, she secured an ally eminently dangerous to the British occupation of Egypt and to the British control of the Suez Canal. By her interference in Morocco she not only irritated and harassed France, but also alarmed Britain by showing an unmistakable intention of establishing at Agadir a naval base on the Atlantic seaboard. By her seizure and fortification of Kiao-Chou in China she indicated her determination to challenge British ascendancy in the Pacific.

VI.—THE TRIPLE ENTENTE.

In these circumstances of persistent and ubiquitous hostility Britain began to realise the peril of her isolation. Strong though her navy was, it was being rapidly overtaken by the growing navies of the Triple Alliance; and as for her army, fine as was its quality, it was in numbers simply ludicrous in comparison with the conscript hosts of the Continental powers. Hence British statesmen began to

draw for safety towards the members of the Dual Alliance. France was first approached. Lord Lansdowne, foreign secretary in Mr. Balfour's ministry, opened up friendly negotiations concerning various minor matters which had caused persistent friction between the two Governments, *e.g.*, Egypt, Siam, Madagascar, Newfoundland. King Edward paid a visit to Paris in 1903, and did much to smooth the path of diplomacy by his marvellous tact. In 1904 a treaty was concluded by means of which all outstanding causes of dispute were removed. An *entente cordiale* was established, which was strengthened and confirmed next year (1905) by the joint action which the two Powers took in resisting German intervention in Morocco.

Then France used her influence to bring about a good understanding between Great Britain and Russia. On both sides there was so much good will that the end did not long remain in doubt. In 1907 Sir Edward Grey was able to conclude a treaty which settled some of the more thorny problems, especially the question of the delimitation of spheres of influences in Persia, Afghanistan, and Tibet. That having been accomplished, King Edward in 1908 paid a visit to Revel, and the Tsar announced by the cordiality of his welcome the completion of the Triple Entente.

VII. THE SEQUEL.

The year 1908 thus saw the establishment of a balance of power—the Triple Alliance of Germany, Austria, and Italy, faced by the Triple Entente of France, Russia, and Britain. The Triple Entente stood whole-heartedly for the maintenance of peace. France with diminishing population, with a crushing national debt, with grave internal unrest, with her Belgian frontier unprotected, asked only to be left alone. Russia, badly bruised and almost navy-less owing to the disasters of the Japanese war, and confronted, moreover, by the most serious constitutional and social problems within her vast dominions, desired many quiet years in which to recover and advance.

Great Britain, above all, intent on commercial development and social reform, with nothing to gain by war at all commensurate with the expenditure which it would entail, strenuously laboured for peace, and advocated disarmament. Germany and Austria, however, saw salvation only in war. Austria was terrified by the Pan-Slavonic menace, and felt that it could be removed only by the military defeat of Servia, Rumania, and Russia. Germany perceived that the destruction of the Triple Entente was the necessary preliminary to that

attack upon the British naval supremacy for which for fourteen years she has been deliberately and notoriously preparing.

The only question, then, for Germany and Austria has for the past six years been when and how? For both of them the sooner the better, because every year has seen the enlargement of the armies, navies, and fortresses of the Entente Powers. In 1908 the annexation of Bosnia and Herzegovina by Austria seemed likely to precipitate the crisis; but Russia, at the expense of deep diplomatic humiliation, prevented the outbreak of war. In 1911 the Agadir episode caused grave anxiety; but the unexpected firmness of Great Britain saved the situation. In 1913 the Balkan War seemed at one time to render inevitable the intervention of the Great Powers; but the speedy collapse of Turkey caused the danger to pass.

Finally, on June 28th, 1914, the Archduke Franz Ferdinand, heir to the Austrian throne, was assassinated at Serajevo. The crime had no international significance, for it was committed by Austrian subjects. But the two Kaisers felt that it was no longer safe to delay the great conflict. Hence the murder was made the pretext for a declaration of a war on Servia, which it was known would bring in both Russia and France. It was not expected to bring in either Belgium or Britain, for it was anticipated that Belgium would be submissive and Britain blind. Further, it was not supposed that Italy would hold aloof from her colleagues of the Triple Alliance. But German diplomacy had not prepared the path of war so skilfully as it used to do in Bismarck's day, and in many respects the German plans have gone awry.

THE WAR AND THE BUFFER STATES: THE FIRST PHASE.

By B. C. WALLIS, B.Sc.,

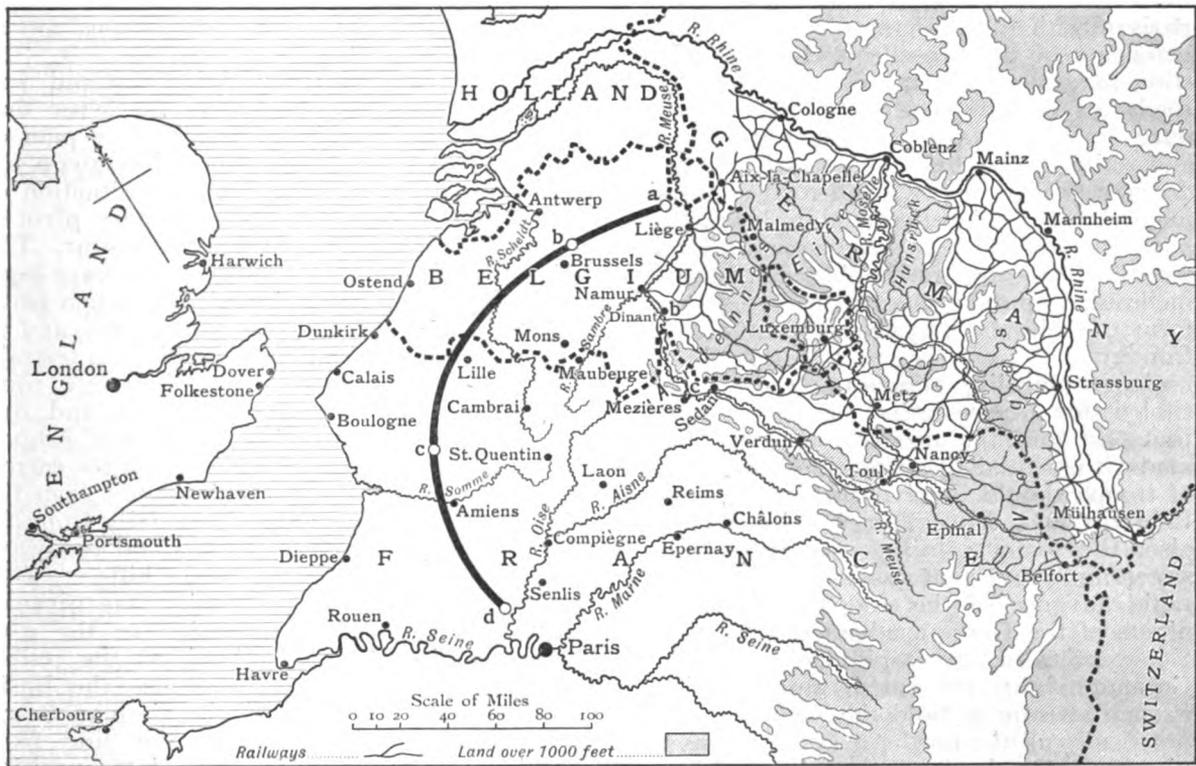
Fellow of the Royal Geographical Society.

WHEN schools re-assemble, the teachers will assume an onerous task: they have to present to their pupils, and through the pupils to the parents, the facts regarding Britain's participation in the war, the facts which justify the statement that no country has ever waged war with cleaner hands than ours. We strove to keep the peace, and now we fight for civilisation against militarism.

The crux of the explanation lies chiefly in the treatment which Germany has meted out to the Buffer States—Belgium and Luxemburg, although the invasion of the neutral territory of these small States was inevitable

when Germany took the initiative in warfare. The accompanying map will make this statement clearer. From an examination of the news which has been allowed to filter through the British Press and from the various maps which have been printed in different newspapers, it seems clear that the German plan of attack involved a wheeling movement pivoted upon Metz, so that German armies should sweep the country in a line of which the northern end swung from Aix-la-Chapelle along the Meuse to Namur and across to Paris. It is also clear that secondary pivots in the sweeping movement were established

motor transport. The railways between the Rhine and the Meuse are indicated on the map, and it will be noticed that in the south, near the line of French forts which stretches from Belfort to Verdun, many lines, both French and German, branch from the main railway routes and end, as it were, nowhere, just short of the Franco-German frontier. These branch lines are not so frequent further north. On the German side of the Belgo-German frontier, "south of Malmédy, though the normal traffic does not average half-a-dozen small trains in the twenty-four hours, there is a heavily metalled and



----- International Boundaries
————— The advance of the German right wing

The wheeling movement of the German Right. Metz to a, August 16th; Metz to bb, August 21st; Metz to cc, August 28th; Metz to d, September 4th. Primary pivots = Metz. Secondary pivots = August 21st-27th, Dinant (b), August 28th-September 3rd, Mezières (c). Railway lines are indicated only for the area between the Rhine and the Meuse.

successively in the neighbourhood of Dinant and near Mezières, both towns on the Meuse. This sweeping operation occupied nearly three weeks, and since the troops on the extreme German right moved through a distance of some 230 miles, while the whole front line was roughly 150 miles long, it follows that the movement was carried out with much greater speed than has been seen in similar movements of troops in previous wars.

This element of speed seems to have been an essential factor in the German plan, and indicates the importance which must be attached to railways and roads, to trains and to

double track running parallel to and within a mile of the frontier. Along this track there is a station every three miles; and at these stations there is sufficient 'loop' accommodation to allow from half-a-dozen to a dozen long troop trains to be side-tracked, and—without blocking the through traffic on the main line—from 5,000 to 10,000 men to be detrained, with all their immediate impedimenta. In each case, too, the sidings are provided with high platforms and all other necessary apparatus for detraining horses, guns, and wagons. These stations are close to the admirable roads which the Belgians

have run through the Ardennes to encourage tourist traffic."¹

From the German point of view, therefore, the geographical factors which determined the direction and conditions of an attack upon France which aimed at reaching Paris as rapidly as possible, were briefly: (i) the Belgian lowland between the Meuse and the coast; (ii) the railway communications along the Belgian frontier connected with the Belgian roads which lead, downhill in the main, from the ridge of the Ardennes northwards and north-westwards to Liège, Namur, and Dinant; (iii) the Moselle lowland between the Eifel and the Hunsrück, which are, by comparison with the Ardennes, roadless; (iv) the extension of the Moselle lowland near Metz, with its concentration of railways; (v) the roadways radiating from the city of Luxemburg north-westwards to Dinant and Mezières and skirting the higher portions of the Ardennes; (vi) the railway and road connections in the lower land between Mannheim, Strassburg on the Rhine, and Metz on the Moselle; and (vii) the comparative absence of transport facilities over the crests of the Vosges, which form the highest physical barrier along the frontier.

Geographically, therefore, there was no choice for the German leaders. Modern transport and the necessity for rapid action made it essential that the chief concentration of troops should involve the passage through Belgium and Luxemburg. Geographically, also, the main fighting occurred where the sweeping movement necessitated the most rapid advance of the troops, and where the pivots of the German advance were situated. Geographically, the rapid movement of the German right prevented any Belgian or French attempt to hold the Ardennes, so that practically all the northern struggle has taken place on the lowlands, where the lines of communication brought the invader down from the hills.

Politically, the guaranteed neutrality of Luxemburg and Belgium, which in the first case dates back to 1867, and in the other to an earlier period, should have made the German plan impossible. National honour, international reputation, should have negatived the German scheme. But what was the alternative? Nothing but the reverse sweep of a line of troops stretching from Metz southwards, and such a plan would be slowly executed and would mean the investment at least of the chief French fortresses designed to prevent it.

Geographical conditions triumphed over political conditions; and this fact merely emphasises the importance of a geographical basis to political settlements. Warfare is more elemental than the diplomacy of the European Concert, and the nearer we approach to the elemental conditions of nature the more important do geographic controls become.

Such, in outline, appears to be the conditions which have determined the German attack; what of the defence? With less definite information regarding the movements of the Allies, it becomes clear, however, that throughout August there was but one chance of a successful opposition to the onward sweep of the enemy.

The defence of the Belgian lowland was heroic, but was unplanned in the sense that it formed no portion of a deliberate plan of defence or of counter-offensive. The crux of the position seems to have been the situation of the Allies in regard to the secondary pivot at Dinant, in relation to the forts at Namur. The German wheeling movement might have been arrested during those fateful days when fierce fighting occurred at these two places and at Mons. When it became impossible to restrain the German advance, the Allies were compelled to begin a strategic retreat, and this retreat throughout the last ten days of August was masterly in face of the fact that the enemy was debouching on to the lowlands from the hills and gathering momentum daily from the inevitable excellence of the lowland roadways in comparison with those of the hills.

Just as the German offensive has given a new and modern interpretation to the geographical ideas of a lowland, so the retreat gives new meaning to the phrase, the Basin of Paris, for the sweep of the German troops from their positions along the line from Amiens to Mezières to their later position along the Marne from Senlis to Metz has brought them across the north-eastern quadrant of the Paris Basin, where every road and railway leads to Paris. A glance at a road map reveals the reason why we have heard of definite struggles, on a scale large enough to have been called battles in earlier days, at such places as Cambrai, for at this place there is a nucleus of roads, with a main road leading direct to Mezières. Laon, Compiègne, St. Quentin are similar nuclei of roads.

By comparison, Luxemburg and Belgium have met very different fates; it was inevitable that Luxemburg could not resist, and the resistance of Belgium was based upon its greater size and population, and more definitely upon its sea-board and the help which was sent from Britain.

¹ This quotation is from "The Continent of Europe," by L. W. Lyde, p. 285. Prof. Lyde's work should be consulted for additional information on the geographical factors in the various centres of warfare.

This question of sea-board naturally leads to the consideration of one other geographical factor in the situation. In consequence of the silent work of the British Navy, the Allies have been reinforced by British soldiers in Belgium and in France. In consequence of the naval situation, the whole coast-line from Antwerp to Havre has been exempt from conquest, and in the days to come there is little doubt that this fact will be a turning-point in the situation, for doubtless, sooner or later, the German troops will have to fight their way home again, and it is possible that the Belgian lowland will be less easy to traverse against opposition strongly supported from the sea. It may be, indeed, that the influence of sea-power will strengthen the Allies' position so greatly that the return journey will not be attempted across the Belgian lowland.

VULGAR FRACTIONS *v.* DECIMALS.

By R. WYKE BAYLISS, M.A.

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NOT so very many years ago a case was being tried which depended upon the percentages of certain chemicals used in the manufacture of a patent. Counsel argued to the effect that, the percentage 0·11 being so very much smaller than the percentage 0·9, the defendant was entitled to the verdict. The learned judge, after listening with some impatience to these remarks, at length exclaimed, "But surely point eleven is *greater* than point nine!"

The text-books of those days gave precedence to vulgar fractions; from these the properties of decimal fractions were afterwards developed—if the student ever reached such a mathematical eminence before proceeding to the university! Now, however, the pendulum has swung so far that we find boys multiplying £3 2s. 6d. by 2 in the following manner:—

$$£3 \cdot 125 \times 2 \cdot 8 = £(6 \cdot 250 + 2 \cdot 5000) = £8 \cdot 75.$$

We may even observe £5 6s. 8d. \times 300 attempted thus:—

$$£5 \cdot 333 \times 300 = £1599 \cdot 9 = £1599 \text{ 18s.}$$

(Of course, it should be £5½ \times 300 = £1,600.)

On the other hand, devotees of vulgar fractions having to evaluate 7¼ of 5·36 will perhaps write:—

$$7\frac{1}{4} \times 5\frac{36}{100} = \frac{29}{4} \times \frac{134}{25} = \frac{29 \times 67}{2 \times 25} = \frac{1943}{50} = 38\frac{43}{50} = 38 \cdot 86.$$

(Compare 7¼ \times 5·36 = 37·52 + 1·34 = 38·86.)

The above illustrate two only out of a multitude of cases where the distinctive economies of fractions and decimals are either misunderstood or confused.

We have (let us hope!) outlived the day when a Chancellor of the Exchequer could ask, "What is the meaning of those adjectival dots?" The danger now is that boys leaving school, although capable of performing operations with decimals for laboratory purposes, may yet (for example) be quite unable to see at a glance that 3¼ of 28 is 88. The new generation, with the aid of pen and paper, will perhaps only succeed in finding that it equals $3 \cdot 1428 \times 28 = 87 \cdot 9984$ *approximately*!

Ought we then to revert to the old method of teaching vulgar fractions before decimal fractions? This leads straight to more searching questions. Ought we to teach everything of *either* kind of fraction before explaining anything of the other kind? Certainly not; for example, no one would suggest that we should teach the use of *continued* fractions to a child; and it would be impossible to discuss *recurring* decimals adequately until we have first considered vulgar fractions. Hence, the *proper method of procedure must be to teach portions of the two subjects* (fractions and decimals) *alternately*. What these portions should be is a matter which clearly depends upon the age and capacity of the pupils, their previous knowledge, the methods of the teacher, and the objects in view.

Are there no *general considerations* for our guidance? For instance, may we not say that vulgar fractions are *natural*, whilst decimals are highly *artificial*? It is certainly true that the ideas of a *half*, a *third*, and a *quarter* are far more natural and simple than 0·5, 0·3, and 0·25; but it is extremely doubtful whether 12½ and 45½ are more simple and natural than 12·6 and 45·64.

Does history throw any light upon the matter? We know, at any rate, that the ancient Egyptians used symbols representing ½, ⅓, ¼, ⅕, etc., for about 3,000 years before they invented symbols for ⅔, ¾, ⅘, ⅚, ⅞, etc. In other words, their fractions were denoted by *denominators* only, the numerator being always unity.

This fact alone ought to warn enthusiasts of the heuristic school against expecting children to rediscover the properties of fractions without considerable assistance; and it should warn all teachers *not* to expect that their explanations, however lucid, will be easily grasped, even by the brightest pupils. The warning becomes emphatic when we learn that, immensely clever and highly civilised though they were, the Egyptians took a whole century, *after inventing a special symbol for the single fraction two-thirds*, before they grasped the general idea of a numerator. Yet the ancients apparently dealt with *tenths* and *hundredths* without difficulty.

This affords sufficient justification for our modern system of teaching decimal fractions as a mere extension of the ordinary decimal notation. The child who can add together 12 m. 30 cm. and 4 m. 56 cm. can just as easily add 12 $\frac{3}{10}$ m. to 4 $\frac{56}{100}$ m. when the significance of the decimal point is explained. Thence it is but a step to the multiplication or division of a decimal by a *whole number*. Multiplication of a decimal by a decimal is much harder; so is multiplication of a fraction by a fraction. What a number of boys, after a year's instruction in fractions, when suddenly asked, "What is a half multiplied by a half?" will triumphantly reply, "One!" How many boys, after a year's study of decimals, will stumble when required to state the product of 0.5 and 0.4! Yet how few boys would fail to evaluate $\frac{1}{2}$ of 0.4 at a glance!

Does not this suggest a further reform? Since multiplication of decimals by decimals or of fractions by fractions is so difficult, whilst that of a decimal by a fraction is (in many cases) so easy, why not introduce the latter at this stage? At present we are too inclined to keep fractions and decimals in watertight compartments; the result is that boys often say, "I did not know that you *could* multiply a decimal by a fraction!" The suggestion would have the further advantage that it would pave the way towards the principle of aliquot parts, and would lead naturally on to multiplication by a decimal.

The questions set should be of a very easy type. Thus:—

Multiply 34.56 by 2, by $\frac{1}{2}$, by $2\frac{1}{2}$, by $\frac{1}{4}$, by $(\frac{1}{2} + \frac{1}{4})$, and by $2\frac{3}{4}$.

The last question is not intended to be done by reducing the mixed number to an improper fraction. That process should be reserved until it is required to facilitate multiplication of fractions by fractions. But it should be worked (as the ancient Egyptians would doubtless have done it) by adding together the results of multiplying by 2, $\frac{1}{2}$, and $\frac{1}{4}$; thus:—

$$\begin{aligned} 34.56 \times 2\frac{3}{4} &= 34.56 \times (2 + \frac{1}{2} + \frac{1}{4}) \\ &= 69.12 + 17.28 + 8.64 \\ &= 95.04. \end{aligned}$$

Only one intermediate stage is required between this and the multiplication by a decimal; that stage is multiplication by a single digit in any position.

Example.—Multiply 34.36 by 2, by 20, by 200, by 0.2, by 0.02, and by 0.002.

This leads straight to such a question as: Multiply 67.89 by 20, by 3, by 0.4, by 0.05, and by 23.45.

The boat is thus launched; but practice in its use will be necessary. No pupil really understands multiplication until he can pick

out unhesitatingly the product of any digit in one number by any digit in another with the proper place-value.

Example.—In multiplying 12.345 by 67.89, state the products of the "3" and the "6," of the "4" and the "9," etc. (*i.e.*, evaluate 0.3 × 60, 0.04 × 0.09, etc.). Do the same with the numbers 100203.405 and 670.8009.

When the pupil can do this work quite correctly, he needs no further instruction in multiplication of decimals, except a few lessons on contracted methods, which the preceding drill should render almost obvious.

Multiplication of fractions by fractions will not, under this system, be introduced too suddenly; since it will have been preceded by the multiplication of a fraction by a whole number. The persistency with which boys, under the old system, reduced mixed numbers to improper fractions, whether convenient for multiplication or not, and even for addition and subtraction, indicates that too much stress was laid upon this artifice. The habit of mind thus induced prevented boys from appreciating the mathematical processes involved in obtaining the products of algebraical expressions; and this again caused difficulty with the converse process of factorisation. Hence examples of the following type should be set before the usual artifice is explained:—

$$9\frac{1}{2} \times 8\frac{1}{3} = 72 + 6 + 3 + \frac{1}{4} = 81\frac{1}{4}.$$

Here only two steps are required; there are ten digits used in the working; and it involves seven operations, *viz.*:—

$$9 \times 8, 8 \div 4, 2 \times 3, 9 \div 3, \frac{1}{2} \div 3, 72 + 6, \text{ and } 78 \div 3.$$

The artificial method is as follows:—

$$9\frac{1}{2} \times 8\frac{1}{3} = \frac{19}{2} \times \frac{25}{3} = \frac{475}{6} = 81\frac{1}{2} = 81\frac{1}{4}.$$

Here there are four steps; in the working there are *at least* 23 digits used (including the "side-work" for 39 × 25); and *at least* twenty operations are required.

Why thrust the longer method upon our pupils when the shorter is so much more instructive, natural, and comprehensive? It may be objected that the above case is artificially chosen to suit the method favoured. Why not? We may surely choose our questions to suit the processes in which instruction is being given; just as an artist will choose his subject to illustrate the use of a particular medium or a special implement.

A good opportunity for instruction in the common or artificial method will be afforded by the introduction of such a case as:—

$$2\frac{1}{4} \times 5\frac{1}{3} = 10 + 1\frac{1}{4} + \frac{5}{3} + \frac{1}{12} = 11\frac{3+8+1}{12} = 12,$$

which is more easily treated by reducing to improper fractions, thus:—

$$2\frac{1}{4} \times 5\frac{1}{3} = \frac{9}{4} \times \frac{16}{3} = 3 \times 4 = 12.$$

But even in cases of this kind, *the more natural method should be used mentally* for determining the "Sight Result," "Rough Check," or "Trial" answer. Incidentally, we should warn masters against allowing their pupils to use the abbreviations "S.R." and "R.C." Surely the word "Trial" is short enough and more intelligible.

Division of fractions by fractions presents few problems differing from those of multiplication. But division of decimals by decimals needs some consideration. Cases should be pointed out where it is advisable to reduce the *divisor* to a vulgar fraction. This may be specially useful in finding the "Trial" answer. Thus, before determining the quotient of $0.014664 \div 0.2496$, we have the mental work:—

$$\text{Trial} = 0.015 \div 0.25 = 0.015 \div \frac{1}{4} = 0.015 \times 4 = 0.06.$$

The more accurate division by the decimal then follows.

The course under consideration may thus be regarded as consisting of six stages, viz.:—

1. Addition and subtraction of decimals and fractions.
2. Multiplication and division of decimals and fractions by a whole number.
3. Multiplication of decimals by a fraction (or by a mixed number).
4. Multiplication of decimals by decimals.
5. Multiplication and division of fractions by fractions.
6. Division of decimals (by a decimal or a fraction).

This course should break up the present artificial distinction between work with decimals and work with fractions. If it does not cure all the existing evils, it should surely prevent a boy from saying: "I did not know that you could divide a decimal by a *whole number*; I thought you could only divide a decimal by a *decimal*." (This is an actual remark made by a "Classical" student of sixteen!)

Still, we must not forget the adage concerning the horse and the water. We may lead our young foals to the springs of knowledge, and even drive them therein, but we cannot make them imbibe unless we create a thirst. How is this to be achieved?

We might set several examples of the following type:—Find the value of 2 ft. 3 in. at £6 8s. per foot by three different methods; using (a) fractions only, (b) decimals only, (c) a fraction and a decimal.

- (a) $£6\frac{3}{4} \times 2\frac{1}{4} = £\frac{33}{2} \times \frac{9}{4} = £\frac{297}{8} = £14 \text{ 8s.}$
- (b) $£6.4 \times 2.25 = £14.4 = £14 \text{ 8s.}$ [with side-work.]
- (c) $£6.4 \times 2\frac{1}{4} = £12.8 + £1.6 = £14 \text{ 8s.}$

Let the class note that the best methods of working are:—

- Method (a) for 1 ft. 4 in. at 3s 9d. per foot,
- Method (b) for 27 tons 15 cwt. at £6 12s. per ton,
- Method (c) for 5 miles 1 furlong at 26 dollars 48 cents per mile.

Then set a number of miscellaneous examples to be done within a given time, telling the class to do each by one method only, and that the most suitable. This "warm exercise" ought to produce a "thirst" to discover the quickest and most accurate methods, yet it would leave each boy free to consult his own individual taste. Comparison of style afterwards might prove stimulating.

There remain a few important considerations. In questions involving the use of π (for multiplication or division), boys should be shown that 3.14 only ensures *two-figure* accuracy, whereas $3\frac{1}{2}$ ensures *three-figure* accuracy; but that if *four-figure* accuracy be desired, they must use 3.1416 (and that this generally gives *five-figure* accuracy). Similarly discuss other incommensurables.

When calculations are made from *their own measurements*, point out the inadequacy of vulgar fractions. If the true length be 2.79 inches, measurement on the twelfths' scale would be either $2\frac{3}{8}$ " or $2\frac{3}{4}$ " (erring by $\pm .04$ "). If the measurement be made on the *sixteenths'* scale it would at the best be $2\frac{1}{8}$ " (erring by about .02"); but if made on the *tenths'* scale, with careful eye-estimation for the second decimal place, the measurement should, if not accurate, be either 2.80" or 2.78" (erring only by $\pm .01$ ").

In other words, when measuring inches, the range of error on the twelfths' scale is $\frac{1}{12}$ "; on the sixteenths' scale it is $\frac{1}{16}$ "; but on the decimal scale it should, with proper eye-estimation, rarely exceed $\frac{1}{100}$ ". [On the usual diagonal scale the range of error is, of course, $\frac{1}{1000}$ ".]

Hence, unless express direction to use a particular scale of fractions be given, it should be an invariable habit for the pupils to use a decimal scale for the measurement of *unknown* lengths. On the contrary, if told to find graphically the length of *BC*, when $AB = 3\frac{5}{8}$, $AC = 2\frac{3}{8}$ ", and $BAC = 30^\circ$, they should use the twelfths' and sixteenths' scales for *AB* and *AC* respectively; but still the decimal scale should be used for *BC*.

Excellent examples in the mixed use of fractions and decimals can be set on finding the areas of triangles or parallelograms in which the base is given as a vulgar fraction and the altitude is determined from the figure by actual measurement.

Would not the system here advocated tend both to cure the "madness" caused by fractions, and also to remove the unparliamentary attribute from the "adjectival dots"?

PENSIONS—THE PROPOSED NATIONAL SCHEME FOR SECONDARY-SCHOOL TEACHERS.

By H. P. LUNN, B.Sc.

IN the autumn of 1911 a deputation consisting of representatives of teachers in secondary and technical schools waited upon the President of the Board of Education for the purpose of placing before him the views of the profession on the question of a National Pension Scheme for such teachers. A similar deputation, with the same purpose, was received by the Chancellor of the Exchequer in May, 1912. The Chancellor expressed sympathy with the views of the deputation, and stated that he was prepared to recommend the Government to meet substantially the claim made that day, in so far as it affected teachers in State-aided schools. Two months later the question was referred for consideration and report to a Departmental Committee, on which the Treasury and the Board of Education were represented. This Committee presented its report in March, 1914.

Meanwhile, there occurred two events which were not without effect on the movement towards the National Pension Scheme. On April 1st, 1912, the Scottish National Superannuation Scheme for teachers in all grades of State-aided schools in Scotland came into operation. On October 1st, 1913, the Federated Universities System for the superannuation of the administrative and teaching staffs of the English universities was inaugurated. Both these schemes are national, both are supported by State grants made specifically for superannuation, both have had an important bearing on the deliberations of the Departmental Committee. Further, the inauguration of these two schemes has, by the mere process of exhaustion, strengthened the claim for a National Scheme (applicable to England and Wales) for teachers in all State-aided schools intermediate between the elementary and the university stages. This category of teachers stands out in bold relief as the only body of teachers serving in State-aided schools to whom a National Pension System does not apply.

*Report of the Departmental Committee.*¹—The majority report is signed by three of the five members, viz.: The Rt. Hon. J. W. Wilson, M.P. (Chairman), Sir T. L. Heath, K.C.B., F.R.S., Joint Secretary to the Treasury, and Mr. H. W. Orange, C.B., Accountant-General to the Board of Educa-

tion. Lord Farrer and Mr. H. Fitzherbert Wright, M.P. write notes of dissent.

The evidence given to the Committee made it clear that a system based on the Elementary-School Teachers' Superannuation Acts, and built on contributions from the State and teachers, as suggested in the terms of reference, would not be satisfactory. The Committee came decidedly to the conclusion that the search for a secondary-school teachers' system costing the same as that for elementary-school teachers, but built on different lines, could have no satisfactory result. In the course of the Committee's examination of these questions the Government announced its intention to provide additional funds for secondary and technical schools. This announcement presented another source from which contributions to a pension system might be drawn, viz., the local authority or governing body. The proposal that the immediate employers of the teacher should be a contributory party is contingent upon increased State grants to school authorities. (The Chancellor of the Exchequer, in his 1914 Budget speech, said: "We propose that there should be a very substantial grant for the improvement of higher education, which will include a grant for pensions for secondary-school teachers.")

The report proceeds to a discussion of the Elementary-school Teachers' Scheme, after which definite reasons are given for adopting a different system for secondary-school teachers. Briefly summarised, the reasons assigned are:—The inadequacy of the pensions provided; the growing movement for supplementing these pensions by local schemes of varied character; the inconvenience of a dual system of pensions involving future consolidating legislation.

It is urged that "by far the soundest policy would be to take the matter in hand now; and, before a chaos of local variations is produced, to provide a common framework into which the existing pension systems may be brought."

Then follows a description of existing systems of pensions for secondary-school, etc., teachers. There were 126 grant-earning secondary schools in England and one in Wales in which pension systems existed on July 31st, 1912. The number of full-time teachers in these schools was 1,813; the number included in the pension systems was not less than 1,000, a number which tends constantly to increase, owing to new entrants replacing existing teachers not included in the systems.

The Federated Superannuation System for Universities is then considered. The contributory parties to the system are the univer-

¹ Paper Cd. 7365—1914. Report of Departmental Committee on the Superannuation of Teachers (Second Reference). Wyman and Sons, Fetter Lane, E.C. 5d. post free.

sities and their staffs, both teaching and administrative. On the inauguration of the system additional annual grants, amounting in all to £8,400, were paid to the universities by the Board of Education, this sum being the total amount contributed by the universities as their share of the premiums. All the English universities accepted the conditions.

The report proceeds to lay down the conditions to which a pension system for secondary-school, etc., teachers should conform:—

(1) It should provide an adequate universal minimum of provision against old age.

(2) It should admit of the free circulation of teachers without infringing upon this minimum.

(3) The benefits intended for old age should be reserved for old age.

(4) There should be some choice of benefits.

To achieve these conditions the Federated System for Universities, with modifications, is recommended as the system for secondary-school, etc., teachers. This is rendered possible by the additional financial assistance promised by the Treasury, of which "a large proportion must necessarily be applied to improving the remuneration of teachers, and one form which that improvement would take, and ought fairly to take, is a better provision for their superannuation."

Pension System recommended by the Departmental Committee:—

(1) That a system of insurance policies to mature at age 60 be made compulsory in all State-aided schools, the premiums to be paid partly by the teachers and partly by their employers.

(2) That in addition to the benefits provided by these insurance policies superannuation allowances be granted by the State from the age of 65, at the rate of £1 per annum for each year of recorded service.

(3) That disablement allowances be granted by the State at the rate of £1 per annum for each year of recorded service, with a minimum qualifying service of ten years.

The Insurance Policies.—The amount of the contribution is to be 10 per cent. of the salary, subject to a minimum contribution of £10 annually in the case of any teacher, and a maximum limit of £500 to the salary in respect of which the teacher or the employer would be compelled to contribute. Beyond a salary of £500, further contributions are to be optional. The proportion of the contribution paid by the teacher is not to exceed 5 per cent. of the salary. The annual contribution would be paid as premium on an insurance policy to mature at the age of 60. The teacher should have the choice between several optional policies, these options to be of three

main types, viz.: endowment assurance, deferred annuity with return of premiums, deferred annuity without return of premiums. As the salary of a particular teacher increases, a further or increment policy should be taken out for every step of £20 increase of salary. Should the teacher not wish to retire at age 60, in that case the value of the policy would accumulate at interest until retirement, while premiums paid after age 60 would further enhance the value of the policy. Retirement is to be compulsory at the age of 65.

Thus both pensions and annuities on disablement will be provided from two sources, the annuities purchasable by the insurance policies, and in addition a separate State allowance. A teacher retiring at 60 would be entitled to an annuity from his insurance policy. From age 60 to age 65 he would not receive any State allowance, which would only be granted after the attainment of age 65. It may be possible, however, to make arrangements with the insurance companies to equalise the annuity from the age of 60.

Administration of the Policy System—Central Committee proposed.—The Departmental Committee cannot recommend that the system of compulsory insurance should be administered by the State. Cost of administration by the State would be proportionally high, the rate of interest on investments would be necessarily low, the range of options afforded would probably be inelastic. It suggests the formation of a Central Committee representative of governors of schools, of the local authorities, and of the teachers themselves "through their existing organisations." The main duties of this Central Committee would be to make arrangements for the inauguration of the system, to select insurance companies and types of policy, and subsequently to control the system.

Custody of Policies—Withdrawal from the Profession.—Arrangements must be made to defeat any attempt on the part of the beneficiary to anticipate the benefits before pension age is reached. The custody of the policies would be vested in the governing bodies of schools, who would transfer the policy from one institution to another in the event of the teacher exchanging his post.

Should a teacher withdraw from the profession, he would not ordinarily realise the value of his policy until attaining the age of 60. He could either keep up the full premium until the policy matured, or convert it into a paid-up policy by arrangement. Meanwhile, the Central Committee might hold the policy in trust for him. Exceptional cases are those of disabled teachers and women leaving the profession on marriage. It is proposed that in

these cases the full surrender value of the policies should be immediately realisable by the beneficiaries.

An important point arises here. In several existing schemes, *e.g.*, the Scottish Scheme, a teacher withdrawing from the profession receives only the value of his own share of the contributions, forfeiting those made by his employers. In the proposed system "*in no case will any part of the policy be appropriated by the institution on the departure of the teacher, but in one form or another the teacher will receive the full benefit represented by the total premiums paid both by himself and the institution up to the time of his leaving.*"

Effect on Existing Schemes.—Every existing teacher should have the *option* of receiving the full benefits of the system proposed. Existing pension schemes cannot be accepted as substitutes unless (a) they are amended in certain essential respects; (b) they offer benefits equivalent to those of the proposed system. The essential respects referred to in (a) are:—

(1) Benefits should be obtainable from the age of 60 onwards. (In most of the schemes the benefits are not obtainable until the age of 65.)

(2) Freedom of movement should be possible from one area to another without loss of pensionable prospects.

(3) Benefits should not be realisable before the age of 60, except in case of disablement or, if a woman, on marriage.

(4) The premiums should be 10 per cent. of the salary, not more than 5 per cent. being deducted from the teacher's salary.

Teachers to whom the System will apply.—All full-time teachers in secondary and technical schools, schools of art, training colleges, pupil-teacher centres, and other schools or institutions (not being university colleges) which are aided by grants from the Board of Education. Existing teachers are to be admissible at their option, for future teachers the system is to be compulsory.

The total number of pensionable teachers in the above schools was nearly 15,000 in 1912. The total salaries were estimated to be about £2,500,000. The insurance premiums would therefore amount to £250,000 annually, of which at least £125,000 would be provided by the governing bodies of the schools.

Past Service of Existing Teachers.—The State superannuation and disablement allowances of teachers in grant-earning schools at the commencement of the system should be increased by threepence (men) and twopence (women) for every year of recorded service previous to the commencement of the system, such increase to be applied to the whole of their pensionable service on retirement.

Example.—Man, age 40, with 16 years recorded service at the commencement of the system. Service continued in State-aided schools until retirement at 60 or 65.

Annual superannuation allowance, normally £1 per year of service, increased by $16 \times 3d.$ (=4s.) would be £1 4s.

Total years of service=36 on retirement at 60, or 41 on retirement at 65.

Superannuation allowance=36 × (£1 4s.)=£43 4s. on retirement at 60; or 41 × (£1 4s.)=£49 4s. on retirement at 65.

(N.B.—The superannuation allowance is not payable until the age of 65.)

The recognition of schools in which past service shall qualify for these special allowances is difficult, nor is it quite cleared up in the report. It is, however, suggested that past service would "necessarily be limited to the length of time during which the Board has been making grants to the institutions of the kind named in the terms of reference." This "length of time" may possibly go back through the period of Division A and Division B schools to include the time when schools were paid on results of examinations in science and in art.

Such are the main recommendations of the majority report. The features which will perhaps commend themselves most to the profession are:—

(1) The elasticity allowed by the options under the insurance policies. In particular, the taking out of an endowment assurance policy will allow the teacher to combine insurance against death with provision for old age, thus minimising the total annual outlay on insurance.

(2) The teacher will in all cases realise the full value of the contributions of both his employers and himself, a distinct gain on most existing schemes.

(3) Administration of the system by a Central Committee will give the teachers a large measure of control.

(4) Absolute freedom of movement from school to school.

(5) Retirement is possible at age 60. Service till age 65 permissible.

(6) The proposed treatment of transfer values of those insured under the National Insurance Act.

(7) The treatment of women leaving the profession on marriage.

The treatment of existing teachers and the inadequacy of the provision for disablement will doubtless evoke severe criticism. One may hope that the authorities will in some measure augment the sums available for the pensions of those who have rendered faithful and loyal service in the past, whilst some form

of optional policy increasing the provision against disablement seems to be desirable. There is reason to believe that the system is on the whole satisfactory to the general body of teachers concerned, who will look forward to its early inauguration.

The six insurance companies selected under the University System grant specially favourable terms under that system. The writer has approached two of these companies, and is informed that they would offer the same terms to secondary-school, etc., teachers.

The following examples illustrate the possibilities of the system. The first example is taken from the report of the Departmental Committee, the others are based on figures supplied to the writer by one of the insurance offices concerned. In the case of endowment assurance policies and surrender values, the figures are calculated on the last declared bonuses, which cannot be guaranteed to remain at the same rate in the future.

Example I.—Teacher enters service at age 24. Initial salary £120, rising by increments of £10 every five years to a maximum of £240 at age 55. Premium is 10 per cent. of the salary.

If teaching service continued to age 65:—
Cash value at age 65 of policy and further premiums, £897.

Pension at 65: Male life ... £93 14
Female life ... 84 6

In addition, the teacher would on reaching the age of 65 receive a State superannuation allowance of £1 for each year of service, i.e., £35 if retiring at 60, or £40 if retiring at 65.

Example III.—Age at entry, 24.

Initial salary, £130, rising by annual increments of £10 to a maximum of £200.

Policy, endowment assurance (with profits) maturing at age 60.

Sum assured in case of death increases from £488 at age 25 to £1,316 at age 60.

Cash value at age 60 ... £1,316
Pension at 60: Male life ... 121 1
Female life ... 109 0

If teaching service continued to age 65:—

Cash value at age 65 of policy
+ further premiums ... £1,670
Pension at 65: Male life ... 174 10
Female life ... 157 0

State superannuation allowances to be added as in Example II.

Type of Policy	Pensions at age 60		Cash at 60		Cash on Death at			Surrender Value on Withdrawal at		
	Males	Females	Males	Females	36	46	56	36	46	56
Endowment Assurance	£ 91 s. 19 d. 7	£ 82 s. 5 d. 7	£ 1050	£ 1050	£ 609	£ 755	£ 866	£ 122	£ 342	£ 744
Deferred Annuity with return of Premiums	97 2 2	88 2 1	1049	1049	174	438	840	174	438	840
Deferred Annuity without return of Premiums	142 8 11	128 5 3	1210	1090	Nil	Nil	Nil	173	1160	1267
								Or Proportionate Paid up Annuities		
								£ 36 s. 1	£ 76 s. 12	£ 122 s. 16
								Female Life 32 9	68 19	110 11

¹ Subject to satisfactory medical examination.

These benefits would be enhanced if the teacher remained in service until a later age than 60. In addition, the teacher would, on reaching the age of 65, receive a State superannuation allowance of £1 for each year of service, i.e., £35 per annum if retiring at 60, or £40 per annum if retiring at 65.

Example II.—Possibilities from minimum premium proposed by the Departmental Committee, viz., £10. Age at entry, 24.

Salary not exceeding £100 at any time during service. Policy, endowment assurance (with profits) maturing at age 60. Sum assured in case of death increases from £376 at age 25, to £710 at age 60.

Cash value at age 60 ... £710
Pension at 60: Male life ... 65 6
Female life ... 58 16

Example IV.—Existing teacher, age 44, with 20 years' previous recorded service.

Salary, fixed, £200.

Policy, endowment assurance (with profits) to mature at age 60.

Sum assured in case of death increases from £294 at age 45 to £386 at age 60.

Cash value at age 60 ... £386
Pension at 60: Male life ... 35 10
Female life ... 31 19

If teaching service continued to age 65:—

Cash value at age 65 of policy
+ further premiums ... £566
Pension at 65: Male life ... 59 2
Female life ... 53 3

Superannuation allowance at age 65 to be added:—

Man, per annum of service :—
 Superannuation allowance = £1 + 20 × 3d. = £1 5s. 0d.
 Woman, per annum of service :—
 Superannuation allowance = £1 + 20 × 2d. = £1 3s. 4d.
 Man retiring at 60, superannuation allowance =
 35 × £1 5s. 0d. = £43 15s. 0d.
 Man retiring at 65, superannuation allowance =
 40 × £1 5s. 0d. = £50 0s. 0d.
 Woman retiring at 60, superannuation allowance =
 35 × £1 3s. 4d. = £40 16s. 8d.
 Woman retiring at 65, superannuation allowance =
 40 × £1 3s. 4d. = £46 13s. 4d.

THE DIRECT METHOD.

By S. A. RICHARDS, M.A. (Lond.).

Senior French Master at Hackney Downs School.

MY mind goes back—more years than I care to reckon—to a certain French lesson of which I still retain the clearest recollection. The master was a Cambridge man with a mathematical degree and no particular knowledge of modern languages, for in those days each form master taught French as a matter of course, whether he knew anything about it or not. We were translating the story of "La Canne de Jonc" from De Vigny's "Servitude et Grandeur militaires"; it was the set book for the Cambridge Local Examination, for in those days we took a whole year to wade through a prescribed text, with voluminous notes on the subject-matter. We had reached the description of Marsala, as seen from the ship, with its white houses, dimly visible through the breaking mists, like "des colombes perçant un nuage." The boy who was translating stopped at "colombes," and the master prompted him—wrongly, alas!—with the result that I was puzzled by a simile which likened houses to "columns piercing a cloud." It was some time before I detected the mistake, and my respect for my teacher's knowledge was not increased by the discovery.

Such a thing would, I suppose, be impossible now in any good school. *Nous avons changé tout cela*, and the change has been effected, as is usually the case with reforms, not by gradual improvement but by a revolution. The reformers, to whom we owe so much, did not begin by insisting that modern language teachers must be better equipped for their task, that more attention must be paid to pronunciation and to oral instruction, that our pupils should be taught, so far as possible, to speak the foreign language, and to express their ideas in it in writing and not merely to translate. Their battle-cry was "der Sprachunterricht muss umkehren." Translation was to be abolished, the mother-

tongue excluded, the children were to learn to think in the foreign language from the start, direct association was to be formed in the child's mind between the words of the foreign language and the image of the thing denoted without the intervention of the corresponding word in the native language, pictures taking the place of translation in the early stages, definition in the foreign language or illustrative action serving the same purpose in the case of words not representing concrete objects. Grammar was not to be taught *qua* grammar; grammatical knowledge was to be acquired inductively. The child was to learn to speak the language by dint of habit, and thus acquire the *Sprachgefühl*, which would insensibly guide him to correct speech and hence to correct writing.

Such was the direct method in its pristine purity. Even its most ardent apostles have of late relinquished some of the outposts of their position. First it was conceded that the mother-tongue may be used when necessary, to save time. Translation from and into the foreign language has crept into the papers of examinations avowedly modelled on *reform* principles. In fact, there are not lacking signs that we are approaching the second stage through which such reforms usually pass when the pendulum has swung to its furthest point. As soon as enthusiasm allows us to bring our theories to the test of actual experience we find that we must modify them; we discover unsuspected fallacies lurking in our reasoning; we are inevitably brought back to the old, old truth that there is safety in the mean. "Medio tutissimus ibis."

In the present instance, the greatest fallacy seems to me to be that of assuming that the natural process of acquiring one's mother tongue is the one to be employed in learning a foreign language under artificial conditions. A child of ten has a very limited power of expression in his native language; he possesses a very restricted vocabulary; he expresses his ideas in writing in an extremely crude and faulty manner. Yet for eight years he has spent every minute that he was awake in striving to master his mother tongue. Can we expect to obtain the same results in three or four years with a foreign language by devoting three or four hours a week to the same process? Every minute, too, outside these few hours, the child is doing his best to break down the speech habit we are trying to form. How much ground are we likely to cover in this way? Are the associations, the *Sprachgefühl*, set up under these conditions sufficiently close and permanent to be of any use?

Suppose we achieve the impossible and

teach him to speak the language correctly, does this, as is contended, enable him to write it correctly? We have only to look at the written French of imperfectly educated French people to find an answer. Why, for example, should anyone use and pronounce correctly the words *j'avais donné* and yet write *j'avait donner*? The answer is, of course, that *avais, avait, avaient* are pronounced alike, and that *donner, donné, donnai, donnez*, are pronounced alike. A simple calculation shows us that the words *j'avais donné* may be represented, in accordance with the principles of French spelling, in twelve different ways. "If your pupils take such orthographical liberties it must be that your grammar teaching is defective," says the direct method enthusiast. Grammar! What then becomes of the theory that the pupil is to learn the language by speaking it?

Grammar, then, we are forced to admit, is essential, and experience tells us that there is only one way of teaching it,—that is, by hammering it in, a piece at a time. Even if we confine our attention to correct speaking (which, as we have seen, does not involve correct writing), the time at our disposal is hopelessly inadequate for covering the necessary ground by the habit-forming method, which means that each different combination of words must be repeated so many times that it becomes familiar, and is reproduced naturally and automatically by the pupil.

Even if we abandon the extremist's theory that the spoken language is all that matters; if, for example, we are particular about the spelling, as well as the pronunciation, of such a phrase as "les lettres que j'ai reçues," we shall find that such grammatical accuracy cannot be obtained by discursive exercises of the *reform* type based on the reader. There is too much grammar, and it is too difficult to be mastered in this haphazard fashion. The ground to be covered is too large to allow of our dispensing altogether with the shortening process of grouping phenomena methodically according to grammatical principles—in other words, the study of rules. May not this appeal to reason and method be, moreover, at least as educative as the formation of a habit due to constant iteration?

Grammatical knowledge is the only lasting foundation on which to build in the case of a foreign language in which the pupil cannot have constant and lasting speaking practice. I know a little girl who had a French governess, and learnt from her to express herself, within the limits naturally imposed by her tender age, quite easily and naturally in French. The governess left, and, in a sur-

prisingly short time, every vestige of the child's knowledge of French disappeared.

After all, how did we teachers, children of an earlier generation, acquire our knowledge of modern languages? I have indicated the methods in vogue in my own case. Yet I well remember that at the age of fifteen I read French easily enough for the reading to be a pleasure which I voluntarily indulged in at home, and that when, during the summer holidays, I took advantage of a stay at Hastings to join in an excursion to Boulogne, I found it easy to ask my way and to make myself understood on the occasion of my first setting foot on French soil. To follow what seemed to me to be the incredibly rapid speech of the natives was more difficult. Later on, when I first was able to make a longer stay, I am sure I learnt to speak and understand French much more quickly than would have been the case if I had not had a thorough grounding in grammar.

That the spoken language is *the* language; that the natural development of a language follows phonetic laws; that the phenomena with which the philologist is concerned are phonetic in their nature—all these obvious facts, though they are sometimes advanced as arguments, are wide of the mark. We have to teach the language, both spoken and written, as it is to-day. So long as we expect our pupils to write such sentences as *Elle s'est brûlée, Elle s'est brûlé le doigt*, correctly, we must explain the reason for the change in the spelling, though not in the pronunciation, of the past participle. We might, without having recourse to translation or the explanation of the rule, get them to observe the concord mechanically—if that were a desirable thing!—by dint of copious exercises of the reform type on this one point, but it is obvious that no amount of oral work would achieve this result.

Not only must we take the language and the spelling as they are, but we must take the conditions under which we teach as they are and adapt our method to them. I have heard this denied. I have heard it seriously contended that we must adopt the method which is suited to ideal conditions in the hope that those ideal conditions may some day be realised. And meanwhile the pupils are to be sacrificed! Moreover, does not our strongest argument in favour of an improvement in conditions consist in pointing out that those under which we are now compelled to teach prevent us from employing the method which we consider the best?

The Direct Method in its undiluted form makes great demands on the teacher's energy, demands which cannot adequately be met by

one who has to do from twenty to twenty-five hours' teaching a week. Further, we may put the average number of boys in a class (in the lower and middle school) at from twenty-five to thirty, and the number of hours a week devoted to French at from three to four. A simple calculation will show us how much individual practice in actual speaking each boy is likely to get. Allowing for the collection, return, and correction of written work, and assuming that the rest of the time is equally distributed among the pupils in speaking the language (making no allowance for the time taken up by the teacher in asking questions, making corrections and explanations), I find that, on a generous computation, my boys cannot count on more than six minutes' individual practice a week, or four hours' practice a year! And in this time they are to set up innumerable associations between mental image, sound, muscular sensation, etc., to build up an extensive vocabulary, to master accidence, and to develop that *Sprachgefühl* which is to guide them unerringly along the devious paths of syntax! There is, of course, chorus work, but its application is extremely limited.

We are passing through a phase marked by excessive veneration of method. The poster at the railway station informs us that French may be mastered in six months, but *only* by Prof. Blank's method. A more important factor is the personality of the teacher. A few exceptional teachers will make a success of any method, but are we wise in trying to hamper the rank and file by binding them down to a procedure which may not be suited to their individuality? There is no doubt that much poor, ineffective work is being done by teachers who are struggling with a method which is not suited to their temperament or to the conditions under which they are compelled to work. In many cases they have not the courage to strike out a line for themselves, to ignore the dictates of the extremists. A moderate party exists, but it fears to make its voice heard. We are all so much afraid of being dubbed "reactionary." If we appeal to our experience we are told that if the direct method proves unsuccessful, it is "the fault of the exponent." That is, of course, a convenient and comprehensive formula which precludes all discussion or experiment. Personally, the cocksure attitude, far from impressing me, always fills me with suspicion. My own experience is, for me, convincing enough. I was converted to the new doctrine about thirteen years ago. Like all converts I was ardent, enthusiastic, and intolerant. After some years of conscientious practice I have been reluctantly

forced by facts to the position which, I hope, I have sufficiently clearly indicated.

We shall never go back to the old, dead methods. We shall never cease to be grateful to the reformers. Their work will not die, but let us avoid extremes, and, above all, let us avoid intolerance. There is a certain minimum on which we can all agree. It should be our aim to teach the living language in as living a way as possible, provided that accurate and enduring knowledge is imparted. We must try to teach our pupils first to read, secondly to speak, and thirdly to write the foreign language. We must teach pronunciation in a scientific way—first the sounds and the manner of their production, and secondly their orthographical representation. Beyond this no one has any right to dogmatise. Let every teacher feel free to develop his own method along the lines which give the best results in his own case. Results are what we want, and upon actual results should be based all future inquiry and discussion.

TRAINING OF TEACHERS IN NEW SOUTH WALES.¹

By Prof. A. MACKIE, M.A.

Principal of Teachers' College, Sydney.

PRIOR to 1906 training for teaching was by means of apprenticeship. Boys and girls, after the completion of the primary course, were apprenticed as pupil-teachers for a period of four years. On the completion of apprenticeship a small number passed into one or other of the two training colleges. The majority, however, were appointed without further training as assistants in State schools, and thereafter rose to the higher positions partly by length of service, experience, and competency, and partly by sitting for the teachers' examination. In the training colleges the course was short—after one year of training the students passed out as trained teachers and took their place as assistants.

Growing dissatisfaction with this method of providing a supply of teachers was felt, for reasons similar to those operating in England and Scotland about the same time. General dissatisfaction with the school organisations led to a commission being sent to Europe. The report of this commission was the immediate cause of the reorganisation of the educational system which has been proceeding ever since. Further, a syllabus of primary instruction, prepared by Mr. Board when he became under-

¹ Abstract of a paper read before the Educational Science Section of the British Association in Australia, August, 1914.

secretary in 1905, made it clear that a higher standard of qualification was necessary for teachers.

Guiding principles determining the re-shaping of the course of training for teachers were :—

(a) The abolition of apprenticeship or the pupil-teacher system.

(b) College training for all teachers to be employed in the State service.

(c) Longer courses of training than had hitherto been customary.

Since 1906 progress has been steady towards the realisation of these aims : in spite of the very great difficulties in staffing schools in a rapidly developing and widely scattered community, there has been no reversion to the policy of employing wholly untrained persons or persons who have picked up their knowledge and skill by means of apprenticeship only.

THE DEVELOPMENT OF TEACHERS' COLLEGE.

In 1905 the two colleges were abolished. A single non-residential college for men and women was established in temporary quarters.

Up till 1913 a special entrance examination was held for admission to the college, and since 1910 candidates who had passed the University Matriculation Examination were admitted without further examination.

At first the student body was almost wholly composed of those who had passed through a period of apprenticeship, and, in consequence, courses had to be adopted to suit the needs of ex-pupil-teachers. But gradually the supply of pupil-teachers became exhausted, and their place was taken by probationary students. These were boys and girls passing through a course of secondary training at a high school or district school. During the last two years of this course these probationary students were in receipt of scholarships given to assist them in preparing for the work of teaching. During the last two years of their probationary students' course the pupils received some instruction in teaching and some practice in giving lessons under the direction of the headmaster or mistress. The Teachers' College also took a part in the supervision of their practice-teaching during three months prior to entrance to college.

When the high-school courses were re-organised it was decided that the supply of teachers should in future be drawn from those who had completed a four-year course of secondary school work. The entrance qualification is now the possession of a leaving certificate. In 1914, a transition year, a considerable

number were admitted on completion of the first three years of high-school work.

The above change precludes the possibility of any preliminary training in teaching before admission. The high-school pupil who contemplates teaching as his future occupation is not distracted by having to begin his specific professional training before his secondary-school course is completed. The changes outlined above in the character of the student body have been reflected in changes made from time to time in the college course.

The students to whom reference has been made are not sufficient in number to supply the requirements of the teaching service. New South Wales has a scattered population, and this makes necessary a large number of one-teacher schools. Hence, the supply of rural-school teachers is an urgent problem. The reasons which make it impossible to staff such schools with teachers who have had a four-year high-school course followed by a college course of at least two years, are partly financial, partly due to the character of rural-school teaching, and the conditions of life in outlying settlements, and partly the result of the inadequacy of college accommodation at present.

In the past the rural schools were staffed by persons who, after a simple examination, were placed in larger schools for a period of three months' practice, and thereafter were sent to take sole charge of the small rural school.

This method was abandoned in 1909. In 1910 the college provided a course of training, shorter and simpler than those already in operation, and intended to give a short period of training to the rural-school teacher. A short course of six months' training was organised, and has since been continued. Each year about 250 students are trained in this way for rural schools.

The college is organised to provide a variety of courses to meet the varied requirements of the State Department. The courses at present in operation are as follows :—

A short course of six months prepares teachers for the small rural schools.

A one-year course devoted solely to professional work prepares graduates in arts or science for primary-school or high-school teaching. A two-year course prepares either for infant- or primary-school teaching. Third- and fourth-year courses allow of students completing degree courses at the University, or taking up some special branch of work.

The division of time between the two parts of the college training—the academic and the professional—varies according to the course. The general tendency is to increase the amount

of professional work as the college entrance standard rises. But the shorter courses are more predominantly professional than the longer. Further, the practice is adopted of putting the professional training towards the end of the longer courses.

TEACHING PRACTICE for all students in attendance is provided for in the Sydney schools. A large number of schools are made use of in order that only a few may be attached to each school. While engaged in practice-teaching, each group of students is under the direction of a member of the college staff, who acts as supervisor of practice-teaching.

Some years ago considerable opposition existed to the plan of training teachers without preliminary apprenticeship. Experience does not seem to have justified the fears entertained. No doubt the young teacher, like the young medical man, requires a period of practice to make him a competent practitioner. This is secured partly by requiring a fairly long period of continuous practice immediately antecedent to exit from college, and partly by the probationary period prior to the issue of the teacher's certificate of competence. The evidence available goes to show that high-school and college training, followed by a period of probation, produces practitioners of at least good quality, as did the apprenticeship system.

The immediate future development will consist in carrying into effect the principles already indicated. The short course of training will be increased from six to twelve months. A larger proportion of the students will enter after completing a sound secondary schooling. The college courses will become still more professional in character.

Under the direction of the college are two demonstration schools, the head teachers of which hold the position of lecturers in education on the college staff. A small amount of experimental work is carried out in these schools, some of which has been published.

From time to time the college publishes monographs of educational interest. These are mainly the work of members of the college staff. The stimulus of such work is considerable, and efforts are made to allow those members of the staff who undertake investigations the leisure necessary for carrying them out.

Great Cities of the World. Paris, Melbourne, Rome, New York, Berlin. (McDougall.) Paper, 2d.; cloth 3d.—These five little books are cheap, and well illustrated. They should prove useful as supplementary books for home reading in the lower forms of secondary schools, although they are published for class use in primary schools.

EDUCATIONAL PIONEERING IN QUEENSLAND.¹

By J. D. STORY,

Under-Secretary for Public Instruction.

THE difficulties which have to be overcome by the Queensland Education Department, in its efforts to give to each child the rudiments at least of a primary education, will be understood when it is realised that the State contains 670,500 sq. miles; a total population of 656,224; a primary-school population between the ages of five and fifteen of 138,551; individual holdings of 2,900 sq. miles each; and some places a journey of at least two weeks from the departmental base. The success of the department in its efforts may be gauged from the fact that, according to the latest statistical returns of the Commonwealth, the percentage of Queensland children between the ages of five and fourteen who can read and write is no less than 92.69, while the percentage of children of the same age who cannot read is as low as 6.82. These figures, it may be remarked, are the best for any of the Australian States.

As auxiliaries to the ordinary full-time schools, there is a system of travelling teachers, Saturday schools, week-end schools, part-time schools, house-to-house schools, and railway-construction camp schools. The last-named are particularly necessary, because of the rapid extension of railway facilities. The State has already constructed 4,730 miles of railway, at a total cost (including rolling-stock) of slightly more than £34,000,000, which for the last financial year returned £3 8s. 8d. per cent. interest; Parliament has approved of an additional 1,406 miles, on which work has not yet been begun; and there are 301 miles in course of construction at present. Many of the men employed in the construction have their families with them; and provision is made for the education of their children by means of tent schools, which can be readily transported from one camp to the next as the work progresses.

The travelling teacher system is designed to meet the educational needs of districts so sparsely populated, and with families so isolated, that at no one centre can a sufficient number of children be collected to warrant the establishment of a school. The system, which has proved a great success, was initiated in 1901, when one travelling teacher was appointed; there are at present seventeen, and from the beginning of 1915 the number will be increased to twenty. The teacher must be a

¹ Abstract of a paper read before the Educational Science Section of the British Association at the Australia meeting, August, 1914.

man of special qualifications, a knowledge of "bushcraft" being indispensable; but the department supplies him with a buggy, horses, and camp equipment, as well as allowing him the services of a lad to tend the horses and otherwise assist. It is the duty of the travelling teacher to ascertain what scattered families with children requiring education are resident in the district assigned to him, and to visit every such family at least four times a year. He stays as long as possible at each visit, teaches the children, revises the work set at the preceding visit, prescribes the new work to be attempted, and advises and helps the member of the family—usually an elder sister—on whom devolves the duty of instructing the children during his absence.

A much-appreciated feature in connection with the travelling teacher is that he carries with him a stock of school library books for lending to children and parents, and of departmental school papers for distribution. Among his pupils, thus providing a supply of cheap and wholesome literature in the out-of-the-way places to which his duties take him. In the discharge of their duties during 1913 the seventeen travelling teachers covered a total distance of 60,438 miles, visited 900 families, and instructed 1,884 children.

Secondary education in Queensland has always been well provided for, and secondary education is free to all who pass the qualifying examination; there is also a liberal system of sustenance allowances for the children of parents of modest means. Scholarships to the University are also granted, and in addition to free tuition these scholarships carry sustenance allowances.

Compulsory attendance carries with it the obligation to safeguard the health of the children who attend; and, accordingly, a scheme of medical and dental inspection—aiming at the practically useful rather than the scientifically exhaustive—has been evolved. The department has two full-time and four part-time medical officers, one full-time ophthalmic inspector, and three full-time dental inspectors. In addition, the State at large liberally endows its hospitals, contributing £2 for each £1 locally subscribed, with the result that there are ninety well-equipped public hospitals; and at twenty-eight of these the department has arranged that, in return for a small annual payment, the hospital doctor shall attend to the children in his centre.

Queensland upholds the Commonwealth scheme of defence and is giving the movement warm support; male teachers are being trained as cadet instructors, and female teachers in charge of small schools are being given an appropriate course of instruction, so

that they may train their elder male pupils and generally improve the physique of the children in their charge, irrespective of sex.

Queensland has many empty spaces to be filled by a yeoman population; the Education Department recognises that parents will not go to places where their children cannot be educated, and that the department must do its part in encouraging settlement by making education available in every possible way, so that the vision may be realised of a Queensland fully occupied by a contented and happy people, a Queensland forming a strong outpost of the Empire, contributing to her prosperity in times of prosperity and ready to answer her call in the hour of her need.

PERSONAL PARAGRAPHS.

MR. GEORGE HAYDN KEETON, headmaster of Pocklington School, Yorkshire, has been appointed headmaster of Reading Grammar School in succession to Rev. W. C. Eppstein, now a master at Bradfield College. Mr. Keeton, who was educated at Oakham School and Emmanuel College, Cambridge, was formerly a master at Reading School, and was sixth form master at Fettes from 1903 to 1910.

* * * * *

THE death is announced of Dr. G. H. Woollatt, principal of the Technical and Secondary School, Workington. Dr. Woollatt was a Nottingham man, who was educated at the People's College and the University College, and graduated in chemistry at Göttingen. He looked a foreigner, and spoke German well, and was much distressed in the last week of his life to find that his nationality was called in question.

* * * * *

MR. GIRLING, inspector of schools under the Leicester Education Committee, while spending a holiday at Swanage, was taking a photograph when he was arrested and marched to the Studland Coastguard Station. There he was detained for two hours and a half while inquiries were made. "Four days afterwards," says Mr. Girling in the *Schoolmaster*, "I was taking a walk in a wild part of the country near some clay pits, and went down a rough railway track to the sea. I was again watched, and a light engine was sent after me, and brought me back. From that time till my leaving for Leicester I was watched as keenly as a cat watches a mouse. The police advised me not to carry abroad my camera, map, and telescope, and on no account was I to carry an ordnance map of the coast found at my lodgings."

THE effect of the war upon the schools is being anxiously anticipated. Many local education authorities have agreed to give their men on active service the difference between their civilian and military pay, and to keep their appointments open for them on their return. The cost of this and of their substitutes is considerable, and one authority at least has advised its headmasters that the schools must be staffed as economically as possible, and that they must expect women as substitutes for men teachers.

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A HEADMASTER who shall be nameless anticipates that football will languish this term, and that the cadet corps will monopolise all the available time and space.

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A HEADMASTER who is now an inspector of special constabulary, when making his round at night in a truly rural suburb of London saw a light among the trees; he followed it to investigate, and on coming up with it found it in the hand of a keen naturalist, who was catching and bottling moths!

ONLOOKER.

OXFORD LOCAL EXAMINATIONS, JULY, 1914.

HINTS FROM THE EXAMINERS' REPORTS.

SENIOR.—The examiners in *Arithmetic* report that the paper was on the whole fairly well done. It is regrettable to find how frequently carelessness is shown in employing the most familiar tables, such statements as that there are three yards in a foot being by no means uncommon. There is much misunderstanding as to the meaning of an average, and careful instruction requires to be given as to when and to what extent resort should be made to approximations. Marks are still often lost through candidates getting involved in the difficulties of a question before fully grasping what is required, though it is gratifying to observe in this connection that this year fewer cases of inversion of fractions have been sent in. While many candidates are still addicted to systems of laborious calculation, the use of appropriate decimal systems is undoubtedly on the increase.

The examiners in *English History* direct special attention to the following very general faults:—(i) Careless reading of the questions. (ii) Irrelevancy. (iii) Bad choice of questions—weak candidates often taking those outside the range of their knowledge. Of the answers to the E paper, they say, of all the questions least grasp was shown of those dealing with social and economic features of the nineteenth century. Good answers, in fact, on any nineteenth century topic are quite exceptional. Many of those who have done the best work have unfortunately disqualified them-

selves for distinction by omitting to attempt any question below the line.

The most general fault in the *General History* answers is a certain vagueness in regard to chronology. Closer attention also needs to be paid to the exact wording of the questions. It is a very common thing for candidates, when asked to give reasons, to give instead only opinions, unsupported by facts or arguments.

A common fault in the *English Composition* is a tendency to put on paper disjointed observations as they occur to the mind, without any attempt to form grammatical sentences. Attention should be directed to the punctuation, which, in many cases, is extraordinarily bad. The correct use of the semicolon is almost unknown. There is an improvement in spelling, and handwriting is generally good.

Commenting on the answers to the questions on "The Tempest," the examiners report that candidates must learn to grasp the exact scope of a question before they begin to answer it. A somewhat surprising amount of ignorance was displayed as to the meaning of such terms as "tragedy," "comedy," "drama," "purpose of a play," "development of the plot." Even where there seemed to be a certain amount of knowledge of the subject under discussion, many marks were lost by the confused and discursive manner in which the answer was given. Quotations from the plays were very sparingly introduced, but where they were employed, they were generally accurate and apposite. Colloquialisms and familiar expressions were rather too frequently met with. The technical terms relating to dramatic art—*e.g.* "farce," "construction"—were very generally misunderstood. This was responsible for a considerable number of failures.

The quality of the answers to the paper on Shakespeare's "Julius Cæsar" was rather disappointing. There was a distinct lack of papers showing more than a fair knowledge of the play. Especially notable was the failure to provide the explanations required of the passages quoted in the paper, though the contexts were sufficiently well known. Whilst the majority of the candidates showed themselves familiar with the source of the play, many failed to secure highest possible marks from inability to use that knowledge with discrimination.

Of the answers on certain of Tennyson's poems, the examiners report the following defects seem to call for notice:—(i) There was a good deal of careless spelling, particularly of proper names. Some candidates were unable to spell "Tennyson" correctly. (ii) A certain proportion of the candidates avoided direct answers, or answered only after much needless and valueless preamble. (iii) Many candidates, when asked to give reasons for their answer, took refuge in simple description or narration. (iv) There was observable a tendency to slang.

The *English Grammar* paper was on the whole very well done, and the average of marks obtained was higher than usual. Many candidates were unable to give noun, adjective, and verb suffixes, but that was the only question in which there was any great failure. The analysis was satisfactory, and a very fair degree of intelligence was shown in grappling with the ques-

tions of a general character. The style and spelling were above the average, but more attention should be paid to punctuation.

In *French* the examiners say the general impression seems to be that the results are decidedly better than last year. The translation from English into French, especially, showed a marked improvement as regards both vocabulary and accuracy—but, contrary to previous years, the free composition seemed, on the whole, a good deal poorer than the translation. The candidates had very little imagination, many did nothing more than translate the skeleton which had been given them; the vocabulary was quite inadequate, and grammatical blunders were much more frequent than in the translation. The two questions on verbs were either very well or very badly done; in many schools this difficult part of French syntax had been successfully mastered. The other two questions on grammar produced very poor results.

A very fair knowledge of the facts of *Geometry* was shown, but the style in which candidates present their work left much to be desired. Important points in proofs were often ignored altogether, and essential features in construction were inadequately dissected. The number of candidates who could enumerate in intelligible form a geometrical theorem corresponding to a simple algebraical identity was very small. Candidates in the Senior examination should be reminded that power of logical expression should be one of the most important objects aimed at in the study of geometry.

The average standard attained in *Algebra* was fairly good, but the setting out of the work often left a good deal to be desired, particularly in the establishing of identities. There was also reason to believe that the proofs of these offered by some candidates included statements which were known to be illicit. Careless errors such as writing $2x^n$ for $(2x)^n$, $\sqrt{6+2} \times \sqrt{3} + \sqrt{2}$ for $(\sqrt{6+2})(\sqrt{3} + \sqrt{2})$ were very frequent, and necessary explanations were often omitted. The questions most generally well done were those on division and on surds, as well as the easier problem. The equations were not so satisfactorily worked; in the first of these $(b-a)(a^2+b^2)$ was very often stated to be equal to $(a+b)^{-1}$, and in the attempts at a solution of the quadratic by formula errors were constantly found. The use of this method of solution should be discouraged, as experience shows that it very often results in confusion. Pupils should also be taught to consider whether their answers are reasonable and to apply rough checks. The harder problem and the graph were but rarely done correctly. The question on variation showed that many had no real conception of the meaning of "a constant." The idea of functionality seems to be somewhat more generally understood, though many errors were made in the details of the question involving this subject.

The paper in *Theoretical Chemistry* was well answered by a large proportion of the candidates. Descriptive work was usually well done, but many failed to appreciate the quantitative significance of chemical formulæ. Mistakes in chemical equations were very frequent. Theoretical questions were

discussed in a manner which showed that the candidates appreciated the points at issue, though they were seldom able to state the essential ideas with precision or completeness. For instance, few could enumerate succinctly the main points of distinction between a chemical compound and a mechanical mixture.

In *Practical Chemistry* the work was on the whole not at all satisfactory. The analysis was occasionally well done, but a large proportion of it was thoroughly bad. The worst work of all was done on the question which stated that a given substance was either one metallic oxide or another metallic oxide or a mixture of the two, the candidates being required to discover which of the three they had in hand. The answers to the question set to test the powers of observation and description and the knowledge of simple qualitative reactions, were very unsatisfactory. Candidates must realise that an answer to a question of this kind should be clear and concise. It should give a simple account of (a) the result (or results) of the experiment, (b) the inference (if any) to be drawn from the result. Candidates should not be afraid to state if the result of an experiment is negative or if they cannot draw any inference from it.

The results of the examination in *Mechanics and Hydrostatics* indicated too little education and too much preparation for examination. Comparatively few of the candidates showed any grasp of the principles, but familiar pieces of apparatus were well described, and there was an enormous proportion of stereotyped answers applied sometimes correctly but often incorrectly.

In *Domestic Science* the examiners say the standard has been low, and a large proportion of papers have been really bad. In Paper ii., the question upon the effects of damp on foodstuffs has been very badly answered; in Paper i., the lack of trouble which candidates take to understand the questions had been very apparent.

In both papers in *Hygiene* a lack of knowledge has been apparent, but in the answers to Paper i. there has also been a very noticeable degree of carelessness in reading the questions.

JUNIOR.—The work in *Arithmetic* as a whole was distinctly good. The vulgar fractions were, as a rule, correctly done, but many errors were made through copying the data inaccurately. In the question on simple interest the fact that the time was given in days proved a frequent source of trouble, and there are candidates who do not know the number of days in a year. In the answer to a problem involving the use of a formula, complicated and confused work was sent up, much of which it was impossible to follow, essential explanations being omitted and portions of the work done not being shown. The knowledge of tables was often inaccurate and fragmentary, particular confusion being caused by mixing up square and cubic measures. The question on the metric system was not well done; in particular the notion that a cubic decimetre contains ten cubic centimetres was very common.

The outstanding weakness in *Foreign History* was a failure to show a comprehensive view of the whole

period. Many candidates who possessed a fair knowledge of the facts had evidently had little or no practice in using their knowledge to develop any particular theme, and there was an unusual amount of irrelevancy and repetition.

In *English Composition*, in turning the passage of successive simple sentences into a paragraph of complex and compound sentences, few candidates gave sufficient preliminary thought to the matter, and most contented themselves with stringing the clauses together in pairs, without due regard to their subordination.

The Essay work was fair, and, as a rule, irrelevancy, repetition, and excessive length were carefully avoided. There was, however, a decided tendency towards writing for the sake of effect; candidates should try to write only what they really think and feel. Spelling was good, punctuation rather uncertain.

With regard to questions on Shakespeare's "Richard II." demanding character sketches, vague generalisations, unsupported by references to the play, were very common. On the other hand, many candidates showed originality in giving critical appreciations based upon an intelligent study of the text.

Speaking of the work on *Lyra Historica*, the examiners say that where the actual substance of a poem was required, the practice of giving a few isolated quotations with no reference to their setting was very marked, and the quotations themselves were often by no means apposite.

The candidates have shown good knowledge of the subject-matter of the set poems, and much detailed information was supplied, especially in the answers dealing with the Princess and the Dream of Fair Women.

Of the answers to the paper on *Tennyson's Poems*, it is reported that the memorizing of set passages appears to have fallen too much into the background, and the question requiring quotations gave most candidates the greatest difficulty. The general lack of appreciation of the historical references involved in three of the passages selected for explanation calls also for comment. A most pleasing feature of the exercises as a whole is the readiness with which candidates were able to express their ideas, but pupils should be taught to divide up their time equally over the questions they propose to answer; many good candidates find at the end of the allotted time that their work has been badly proportioned.

A very large number of candidates taking *English Grammar* are quite ignorant of the use of inverted commas: otherwise the punctuation of the passage given was usually good. The analysis, too, was well done. Parsing is a somewhat weak point, and there is a want of accuracy in the explanation of grammatical terms, and in the reasons given for the correction of sentences—though the corrections themselves are mostly very good. There is much to be desired in the matter of conciseness.

Many candidates betrayed in their *French* answers an inadequate knowledge of grammar, especially in the employment of the tenses and in the use of the accents. It is gratifying to notice an improvement

in the translation into French, though there were many candidates whose original composition was valueless.

In *Geometry*, the standard of the answers was no better than in recent examinations. For some years the quantity of matter shown up has been steadily increasing, but the quality of the answers shows no improvement. There was a tendency for the candidates to make lengthy but worthless attempts at nearly all the questions, instead of answering carefully those questions which were really within their power. A second reading of their answers might have saved them from such ridiculous errors as " $\sqrt{5}=11\frac{1}{2}$ cm." The conditions under which triangles are congruent were imperfectly known; such answers as "triangles are congruent when three angles are equal," or "when two sides and non-included angle are equal" were quite common. References should be confined to well-known theorems, which should not be quoted by number (even if the text-book used is named), but by a brief enunciation. Contractions should be conventional or quite obvious; such contractions as cr, gr, rt, ch, con, cons, com, are often scarcely intelligible. It is essential that candidates should be careful to distinguish between similar letters or symbols, e.g. Q, D, O, P, or A, H, R, or <, L, L.

A problem involving the construction of a triangle the base, area, and a base-angle of which were given, was well done, except that, when the altitude had been calculated, the position of the vertex was often found by trial and error. In the proof that "all angles in the same segment of a circle are equal" very few candidates considered both acute and obtuse angles.

In *elementary Algebra*, the solution of quadratic equations by formula was very often attempted, with the usual result that the formula itself was either inaccurately remembered or wrongly applied. Neatness in the drawing of the graph was not uncommon: but the full scale available on the paper supplied was seldom taken. Very few of the candidates seemed to realise that a quadratic expression vanishes if *either* of the factors of which it is the product is zero.

Of the *Botany* answers, it is reported with regard to Section i. a good deal of confusion was apparent between substances in *solution* in water and substances in *suspension*. Many descriptions of experiments lacked essential details, suggesting that candidates were more familiar with descriptions of the experiments than with the actual experiments. The answers to Section ii. indicated that many candidates were not clear as to the meaning of "longitudinal section." Both this and the floral diagram often might have been drawn with more care, though some of the figures were excellent.

In the chemical exercises in the *Experimental Science* answers good power of observation was shown, but deductions were often marred by haste or carelessness. The molten globules obtained on reduction of the oxides were assumed to be globules of mercury on account of their mobility; the litharge appearing in the residues was assumed to be sulphur merely on account of its colour. A very little thought would have shown the absurdity of these conclusions.

Confirmatory tests were frequently omitted, chlorine, for example, being identified by smell alone.

In *Theoretical Chemistry*, the work sent in from the majority of centres was good, and showed fair knowledge of elementary chemistry. There is still a tendency to use such terms as atoms, molecules, parts, volumes, indiscriminately. Nearly all candidates showed weakness in describing experiments which they had actually performed, frequently omitting the most important observations in connection with them. The meaning of the given equation in the last question was not stated as completely as it should have been.

There was a general neglect in *Practical Chemistry* of sufficient preliminary dry tests. This neglect did not prevent the better candidates, who knew how to make a solution and how to perform the wet tests properly, from detecting the bases and acids present, but the weaker ones often missed ammonium, lead, and nitrates from this cause. There would have been fewer failures had more known how to test the solubility of a solid in a liquid. Some candidates were content to use, as a solution of a mixture, an aqueous extract which only contained one of the two salts. The written account of the work was done very well in many cases, showing an adequate power of description.

Two points are especially to be noticed in the papers on *Mechanics and Hydrostatics*. First, that a large amount of *unnecessary* detail was included: for instance, long discussions as to the effect of change of weather on a barometer, in giving the description of the barometer. Secondly, important experimental details were omitted, notably in the use of Atwood's machine to prove $s = \frac{1}{2}ft.^2$, and in the use of a screw-gauge. Many candidates had obviously never seen, or at any rate never used, the latter. In finding the acceleration in Atwood's machine with the given masses in *grams*, a very frequent mistake was to take the value of g as 32 ft./sec.^2 , and work in the wrong units.

THE MATHEMATICAL MIND.¹

If the average man were asked what a mathematician is, he might answer that he is a being possessed of a strange aptitude for, and a curious delight in, numerical calculation. Some there might be who would echo the old saying: *Purus mathematicus, purus asinus*; but most people would agree that the mathematician is a lucky sort of fellow with a good head for figures.

It cannot be repeated too often that this idea of the mathematical mind is quite wrong. The mathematician is not merely a glorified chess-player, who can carry the moves of a prolonged calculation in his head and be relied upon in the end to return a correct numerical answer. Certainly there have been mathematicians possessing this faculty. Gauss had it; but Gauss was the exception, not the rule.

We read that Newton, "though so deep in algebra and fluxions, could not readily make up a common

account; and when he was Master of the Mint used to get somebody to make up his accounts for him."

Poisson once remarked to Madame Biot that he could not add so well as his cook; neither did he understand how Gauss and Bessel could be at the same time expert calculators and skilled analysts.

Poincaré was not ashamed to say that he was absolutely incapable of doing an addition sum correctly, and that he was an equally bad chess-player. He could calculate well enough that in making a certain move he would get into trouble. He would pass in review other possible moves, and give them up for the same reason. Then, in the end, he would probably play the move which he had first put aside, having forgotten the danger which he had then foreseen.

Such instances could be multiplied indefinitely; and we see that it is not necessarily a good head for figures and a prodigious memory that make the mathematician. Mathematics and arithmetic are not identical. If they were, mathematics would, in the opinion of some of us, be a dry and arid science.

A mathematical demonstration is not simply a collection of syllogisms. It is a series of syllogisms in a certain order, and the order in which they come is almost as important as their content. The mathematical mind seems to have an intuitive perception of this order; it takes in at a glance the whole of the reasoning, and has no fear of forgetting the elements. These appear to fall into their places without any special effort of memory. With this mathematical sense or taste there is associated the idea of mathematical beauty and elegance. Only the mathematician appreciates it; probably he alone would admit its existence; but for it we claim a reality just as actual as the beauty of the picture, the statue, or the poem.

If this statement of the nature of the mathematical mind be correct, it is not surprising that the mathematical faculty frequently declares itself for the first time when the youthful mathematician enters upon the study of geometry. To Newton the elements of Euclid appeared so clear and simple that it was a waste of time to go through them. A glance at the enunciation of the theorem, and to him the demonstration was obvious. He passed straight on to such books as Descartes's "Geometry" and Kepler's "Optics."

Similar stories, if I remember aright, are told of Euler and Lagrange. Again, Clairaut, at the age of thirteen, had written a paper on the properties of some new curves, which was presented to the Académie des Sciences and printed at the end of one of his father's works.

Clerk-Maxwell published his first mathematical paper at the age of fourteen. For it was at that age that he wrote the paper on the description of some oval curves and those having a plurality of foci, read at the Royal Society of Edinburgh, and published in their transactions for 1846.

And, to give one other instance, M. Frederic Masson, in the charming speech which he delivered on the occasion of Poincaré's admission to the

¹ From an address delivered before the Section of Astronomy, Mathematics and Physics of the Australasian Association for the Advancement of Science, by the president, Prof. H. S. Carslaw Sc.D

Académie Française, tells us that his career was settled when, in the Lycée de Nancy, in the fourth class, he opened a book on geometry. His astonished master, who had hoped to make of him a student of letters, hastened to his mother, greeting her with the words: "Madame, votre fils sera mathématicien." And we read that she was not dismayed.

May I be permitted to say, in passing, that the teachers of mathematics in our schools at the present day must be careful if the study of geometry is to retain its value. Without entering into the vexed question of the extent to which the intuitive method ought to take the place of the deductive, I would only say that the budding mathematician must sometimes be troubled by the slipshod argument which he finds in the text-book placed in his hand. Assuming this story of the youthful Poincaré is true, it is fair to add that it is most unlikely that the book which roused his ardour was Euclid's "Elements." More probably it was Legendre's "Géométrie." But Legendre's book stood the test of more than a century's use on the continent of Europe, and Legendre was a famous mathematician.

The content of the science of mathematics has grown so enormously that there are few, even among professed mathematicians, who can lay claim to a knowledge of more than a part. The physicist, the engineer, and other practical men are inclined to believe that with this development the mathematician is losing sight of what they believe is the chief reason for his existence: namely, to provide useful tools which they may employ in the physical sciences.

When one speaks of the growth of mathematics it is scarcely necessary to point out that we do not refer to the undergraduate course at our universities. Changes in it there have been, and should continue to be. Doubtless those chiefly concerned are inclined to think that it has developed past recognition. But the alterations are mostly in matters of detail or method. In its chief characteristics the course remains the same. It must range over geometry in its wider sense, analysis, and applied mathematics. Its aim is two-fold. On one hand it seeks to provide a suitable introduction, for the student with a mathematical mind, into the science of mathematics. At its close he is ready to devote himself to higher study in one or other of the three main divisions of which I have spoken. The other object before us is just as definite. Our courses, in greater or less degree, have to serve as a portion of the training of the physicist, the engineer, the statistician, or other professional man, of whose equipment the tools which mathematics provides form a valuable and necessary part.

As scientific men we must protest against the view that the path of practical utility is to be that along which mathematical development is to take place.

Some of the greatest triumphs of mathematics have no doubt been won in the conquest of nature and the elucidation of her laws. In the discoveries which marked the nineteenth century, and changed the face of the civilised world, the mathematicians were often found among the pioneers. By many people it is

from this point of view that mathematics is regarded. She is the servant of the sciences. A place of honour may be hers; but it is for service rendered and with the lively expectation of greater benefits in the future.

The truth is mathematics must be treated as any other science. It does not stand in a class by itself. There ought to be no department of knowledge in which the man of science should feel that he has the right to ask the author of any discovery—*Cui bono?* The only question for him should be whether it is true, and what influence it will have in the development of the subject of which it forms a part. The earliest astronomers may have looked upon the stars with their thoughts upon navigation; but some of them doubtless pondered in their hearts the mystery of the universe. Every botanist does not live by agriculture; nor is every geologist on the search for precious stones. It was only in the dark ages that chemistry was confused with alchemy. The quest for knowledge, in itself and for itself, is the common heritage of every science. And "the history of natural philosophy, and even of such a practical science as medicine, shows us that even from the point of view of utility the subjects must be developed of themselves, with the single aim of increasing knowledge."

No one could have foretold, when Galvani touched the nerve and muscle of the frog with two different metals and saw the muscle contract, that the discovery of the anatomist would lead in eighty years to the world being traversed by electric cables from end to end. And it was far from the minds of those who first watched the stream of sparks bridging the gap of an electric machine or flowing from the knob of a Leyden jar, that the phenomena they were watching in a few years would lead to the marvellous triumphs of wireless telegraphy.

To the mathematician the wonderful edifice which the geometer has created, from the simple practical geometry of the Egyptian and the theoretical geometry of the Greek, to the great domain of projective and descriptive geometry, and the realm of differential geometry of curves and surfaces, is as much a matter of pride and satisfaction as any of the theories which have been invented to explain and simplify the facts of experiment and the wonders of nature.

HISTORY AND CURRENT EVENTS.

WRITING early in September, in the heart of Sweden, where news is slow in arriving, and is, moreover, mingled with so many reports which prove later to have no foundation in fact, in the midst of events uncertain in their results, our remarks will probably be ancient history by the time these paragraphs reach our readers. But already what strange ideas are beginning to appear! In the eighteenth century Prussia and Austria, in their rivalry for hegemony in then distracted Germany, could not unite to prevent the spread of Russia westward, and the result was that series of tragedies which is known as the partition of Poland, and the long agony of that unhappy people which has seemed to be a purification for them. Are the Poles at last, now that Prussia and Austria

are united against Russia, to reap the reward of their sufferings? Is Finland to gain something of its desires? Are the Jews of eastern and south-eastern Europe to see an alleviation of their condition? What developments are in store in western Europe?

MEANWHILE, the southern Netherlands are again the "cockpit of Europe." We need do no more than remind our readers of the war which the Dutch waged in the sixteenth and seventeenth centuries for their independence, how the first stage of that war, so far as it was fought on land, ended with the destruction of Ostend in 1609, how the long contest ended with the establishment of the southern Netherlands as an appendage to the dying Spanish Habsburg monarchy, how that appendage was transferred to the Austrian Habsburgs at the bidding of the "sea powers" for the protection of the United Netherlands against France, how the French Revolution broke down the system established by the Peace of Utrecht, how after being part of the French Empire for nearly twenty years, Belgium was annexed to "Holland," and how in 1830 the Belgians revolted and were secured in their position by the international law of Europe. All these changes involved fighting in the unhappy country; we English remember at least the wars of William III. and of Marlborough against France on the disputed borders, and now—

POPE PIUS X. is dead. It seems but the other day that we followed with interest the story of his election and heard that when he left his beloved Venetians for the Conclave, he consoled them for their fears that he would not return, by remarking: "But I have taken a return ticket." Much was hoped from him, but history has repeated itself, and like so many of his predecessors, Pius X. has seemed to us outsiders incapable of guiding the Church of which he was nominally the supreme head. There are many, both members of his own communion and of those who are not, that think the Papacy is controlled by the various committees that under various names advise His Holiness, so that the seeming autocrat is subject to an aristocracy. That aristocracy is believed to be working in the interests of the Society of Jesus, which after its suppression in the seventies of the eighteenth century, was revived among the many "restorations" of the reaction from Napoleonism. One result of this influence is the opposition of Rome to those various endeavours to bring about reform in the Church which have been branded with the name of "Modernism."

THE Pope is dead; looking round on the present condition of Europe we are strongly tempted to add, "and the Papacy too." Think of Gregory VII. (Hildebrand), of Innocent III., to say nothing of Boniface VIII., who, in Dante's phrase, "grafted the sword upon the crook," and is at least reported to have said at the Jubilee of 1300, "I am Pope, I am Emperor." What a mad world our modern Europe would seem to those champions of a united Christendom. And not only has the idea of a universal Christian Rome completely vanished, but the inheritance which Grotius and others secured from the laws of Imperial Rome. The system of international law

seems also in danger of perishing before the might of the stronger. We, who have grown up with the idea of a Europe constituted by a Congress of Vienna and modified only by the achievements of the natural desires of the peoples, regard the violation of the neutrality of Belgium as the introduction of a new order of things (or should we rather call it "dis-order"?) that threatens an overturn of the basis of civilised society.

ITEMS OF INTEREST.

GENERAL.

THE Board of Education gives notice that in consequence of the war, certain changes in the regulations for secondary schools, which were dependent upon the provision of additional funds by Parliament, have been postponed. The regulations in force for the school year 1913-14 are therefore continued for the school year 1914-15. Schools which have been receiving grant under Article 41 or under Article 42 will, where no express notice to the contrary has been given, continue to receive grant on the same terms for the year 1914-15, if they continue to satisfy the regulations in other respects. The regulation for the preliminary education of elementary-school teachers in force for 1913-14 are similarly continued without change for 1914-15. In the administration of the regulations the Board will give every consideration to the special difficulties under which the work of any school or pupil-teacher centre is being conducted on account of national exigencies.

THE spectacle of the British Empire at war with the German Empire is one that thoughtful observers of affairs have for the past fifteen years more and more dreaded and expected to see, but one, all the same, which it is immeasurably lamentable to behold. There ought to have been a place in the sun and upon the earth for both, and there would have been if German politics had remained in the hands of men even so cautious and moderate as William I. and Bismarck. But unfortunately Germany is ruled by Prussia, and Prussia from the days of the father of Frederick the Great has been dominated by a military caste more brutal, tyrannical, and insufferable than any other that modern Europe has produced. In the hands of this caste a German Empire has been created which differs so radically from the British Empire that a life-or-death conflict between the two became almost inevitable.

IN that very suggestive book, "Political Institutions," Herbert Spencer has depicted for us two types of political organism, the military and the industrial. In one the Government is despotic; the army is dominant over the civil population; individual liberty is reduced to a minimum, and the whole of society is "regimented," or organised on the lines of obedience and discipline. The industrial State, on the other hand, is democratic; the army is the servant not the master of the civil population; individual liberty is retained in its widest forms, and society is left to organise itself as it sees best. If Herbert Spencer

had been living now, he would have found his two types almost perfectly illustrated by the two Empires now in the grip of mortal conflict.

THE German Empire is a marvellous piece of military mechanism. The ruling bureaucracy has brought its army organisation and equipment to a degree of perfection which would have made it almost instantly successful over any coalition of enemies less formidable than that which it has actually brought down upon itself. Its population is disciplined and docile. Its civil, commercial, and industrial services are regimented and centralised. It works like an elaborate engine of war, so long as the energy at the middle does not fail. The British Empire is wholly different. To the German bureaucrats it appears to be a mere muddle. It contains all sorts and conditions of men; it displays every conceivable kind of political organisation; its more important members are self-governing, and are so independent that in the present crisis it was possible for South Africa to consider whether she would or would not join the Mother Country in her war; it has no uniform tariff system; nay, even its military system is not unified.

ONE would have said that in a conflict between Empires so differently constituted, the well-organised, militant type must have proved easily triumphant. But that would have been the view of the theorist, of the abstract philosopher, who is so prominent a person in the youthful German Empire as in the untried German Navy of to-day. The British Empire, like the British Navy, is old, and it has learned much by experience, dating from ages when Prussia was a pagan wilderness, and the Hohenzollerns but burgraves of a little town. Above all, its eighteenth-century errors in dealing with the American colonies have taught it that there are securer foundations for dominion than organisation and bureaucracy. Hence it is that when the crisis came, even before the Mother Country sent out a call for aid, the daughter States rallied to her side. This is the triumph of liberty, and the reward of non-interference. Few sights in this world will be more impressive than the spectacle of armies gathered from Canada, Australia, New Zealand, India, and Tibet fighting for the British Empire on the plains of France and Germany. It will be a fruitful object-lesson to Prussian militarists.

MUCH interesting information as to the progress of secondary education in the West Riding of Yorkshire is contained in the tenth annual report of the Education Committee of the County Council for the year ended March 31st, 1914. Attention may be directed to a few of the points raised in the report. The physical well-being of the pupils has continued to occupy the attention of the committee. The committee has during the past year made grants for laying out and for purchasing playing fields at a number of schools, thus making the proper provision of organised games at these schools possible. With a view of stimulating the work done in the schools in physical exercises, the committee has organised an inter-school gymnastic competition for boys. The results of this competition have been so gratifying, and the stimulus

given to the work in the competing schools so marked, that it was decided again to organise a competition this year. The judges in the preliminary rounds were the chief inspector of physical instruction under the Danish Government, and the superintendent of physical exercises under the Surrey Education Committee. The committee has continued to compile statistics and comparisons of the height, weight, and (in case of boys only) chest girth of the pupils, and has circulated these statistics among the schools, thus keeping alive the interest which has been aroused in the physical well-being of the pupils. Closely allied with the question of the physical fitness of the pupils, is that of the provision of an adequate mid-day meal at a reasonable cost to pupils unable to return home in the mid-day interval. In many schools which serve a wide and scattered area, the provision of such a meal is essential, if the health of the pupil is not to suffer, and the committee is at present considering the cases of certain schools where satisfactory provision in this respect is not at present made.

OF the 6,508 pupils in attendance at West Riding secondary schools, 2,944, or 45·2 per cent., of the total number are scholarship holders, and 3,564, or 54·8 per cent., are fee-paying pupils. Similar statistics for 1912-13 were as follows:—Scholarship holders, 3,122, or 44·9 per cent., of the total, fee-paying pupils, 3,827, or 55·1 per cent. of the total. If allowance is made for the reduction in numbers owing to the withdrawal of Barnsley and Dewsbury from the administrative area, there has been a steady increase in the number of fee-paying pupils in the secondary schools, showing that the provision of such schools easily accessible to all parts of the Riding has created a demand for secondary education not previously existing. A decrease in the total number of pupils in attendance is entirely due to the withdrawal of the four schools at Barnsley and Dewsbury from the West Riding administrative area. A comparison of the numbers for this session with those for last session, excluding the four schools in question shows that there has been an increase of 267 pupils.

THE distribution of the pupils, at West Riding secondary schools, according to their ages remains practically the same as last year, and in the length of school life there has been no material alteration. It is still customary for the largest proportion of pupils to leave the secondary schools after a school life not exceeding three years. To remedy this is the most serious problem in connection with secondary education which has at present to be faced. Something may be done by requiring an agreement from all pupils on entry to remain at the secondary school for a definite period or until the end of the school year in which the age of sixteen is attained. Such an agreement is now called for at some schools as the result of pressure from the Board of Education; it is not in every way a desirable remedy, since it sometimes tends to check the flow of pupils into the schools. In some schools the award of a leaving certificate to pupils who have satisfactorily passed through the full school course has been found to have good results.

A further remedy probably is in refusing to admit pupils of fourteen years of age and above unless they have shown by passing a suitable sufficiently searching entrance test that they are capable of benefiting to the full from the secondary-school course. Trustees of scholarship endowments and other bodies responsible for the award of scholarships tenable at secondary schools can also do something towards improving the length of school life by granting facilities for the renewal of the scholarships they award for the full period of school life.

A CIRCULAR has been sent to the head-teachers of senior departments of public elementary schools, and the correspondents of voluntary schools, in Birmingham by the Secretary of Education, Mr. J. A. Palmer, in which it is stated that in consequence of the war, juvenile as well as adult employment is at the present time considerably disorganised, and many boys and girls who have recently left school are experiencing much difficulty in finding work. Others due to leave shortly will no doubt have the same difficulty. In these circumstances, it is very important that no pressure should be put upon scholars to leave school, although they may have reached the age or standard enabling them to do so. Teachers are asked to bear in mind the following points:—(i) Boys and girls should be urged to register at a Juvenile Employment Exchange a week or two before they would in the ordinary course be due to leave school. Situations cannot at once be found in all cases, but every effort will be made to secure suitable places as soon as possible. (ii) Parents should be advised to allow their children to remain at school until a situation is actually secured. All teachers will realise the deplorable effect of a period of enforced idleness spent in the streets. Attendance at school will save children from moral risks, and at the same time fit them the better for employment when it can be obtained. Children will be sent for by the exchanges as situations are obtained for them. This sensible arrangement will, we hope, be followed in other industrial centres.

THE class lists of the Cambridge Local Examinations held in July showed that the total number of candidates entered was 8,942, exclusive of 547 who were examined at Colonial centres. In the Senior examination 1,306 boys and 1,666 girls passed, first-class honours being gained by 104 boys and 36 girls; the standard of merit necessary for exemption from one or both parts of the Previous examination was reached by 731 boys and 569 girls. Of the junior candidates 1,715 boys and 1,056 girls satisfied the examiners, 145 boys and 14 girls being placed in the first class. In the Preliminary examination 329 boys and 302 girls passed.

SCOTTISH.

THE Educational Institute has resolved to institute a Scottish Teachers' War Relief Fund, and in this has secured the co-operation of the Secondary Teachers' Association and the Class Teachers' Federation. The Institute has voted £1,000 from its general funds to inaugurate the movement, and donations

from the other bodies are also promised. In addition, all teachers in Scotland are being asked to contribute to the fund a monthly levy of $2\frac{1}{2}$ per cent. of their salaries. The sums thus collected are not intended for teachers or their dependants as such, but will be distributed from time to time among the various relief funds according to their ascertained needs from time to time. Scottish teachers in this respect are setting a splendid example to all other classes who are fortunate enough to be in possession of a fixed income. While many other sections of the community have had their means of livelihood swept away in whole or in part, teachers have theirs unaffected and assured. This privileged position brings with it its responsibility, and it is most gratifying to find the teaching profession in Scotland rising to the height of this great occasion.

THE Scotch Education Department has issued a circular to managers in regard to questions that may arise owing to the present crisis. It is pointed out that the first and most obvious duty of managers is to see that the education of the children is not unnecessarily interrupted. The War Office, it is stated, is anxious that there should be no avoidable interference with the educational machinery, and has issued instructions to general officers that, where possible, schools and colleges used for billeting troops should be evacuated in order to allow of the schools resuming at the close of the summer vacations. Managers are further advised that no application for the use of a school as a hospital should be entertained until they have communicated with the responsible Red Cross official for the district.

GLASGOW School Board at the last meeting had before it the refusal of the Department to recognise the attendance of selected boy scouts at military centres for the purposes of attendance under the code. The chairman said that the services of these boys was certified by the military authorities to be indispensable at the present time, yet here was a great public department refusing to depart one iota from its fixed rules. The national emergency apparently did not exist for the Department. The vice-chairman said that it was the stupid action of a stupid Department, and on his motion the Board resolved to register the attendances and fight out the matter later with the authorities.

THE officers, non-commissioned officers, and men of the company of Territorials (H Company, 6th Royal Scots) in connection with the Edinburgh Provincial Committee for the Training of Teachers have volunteered in a body and been accepted for Imperial service. It is to be hoped that the Education Department will show itself less hidebound by regulations in its attitude towards these students than in the case already referred to of the boy scouts in Glasgow. The country must see to it that these men are not prejudiced in their future career because of their patriotism at this time of crisis. The qualities called forth in this new field of labour may perhaps do more to render them fit for handling a class than all the lectures of all the college staff.

In view of the present war conditions the Educational Institute has resolved not to hold the Publishers' Exhibition in connection with its annual general meeting. The usual proceedings at the meeting are to be greatly curtailed, and only indispensable business will be taken up.

IRISH.

THE results of the Intermediate examinations which were held last June were published at the end of August. The following is the summary of the passes :

Grade	Boys.			Total
	Senior	Middle	Junior	
Number examined ...	849	1,637	3,860	6,346
Number who passed:				
With Honours ...	159	333	477	969
Without Honours ...	428	699	1,619	2,746
Total ...	587	1,032	2,096	3,715
Percentages of Passes...	69.1	63.0	54.3	58.5
Total in 1913 ...	462	836	1,996	3,294
Percentage in 1913 ...	60.5	51.2	53.1	53.5
GIRLS.				
Number examined ...	452	981	2,397	3,830
Number who passed:				
With Honours ...	112	200	323	635
Without Honours ...	218	459	1,018	1,695
Total ...	330	659	1,341	2,330
Percentage of Passes...	73.0	67.2	55.9	60.8
Total in 1913 ...	282	556	1,257	2,095
Percentage in 1913 ...	68.9	64.6	55.1	59.0

A COMPARISON with 1913 shows that the total number of passes in all grades of both boys and girls and all the percentages of passes in all grades are higher in 1914. Although some of the percentages are not very high, the general result is clearly more satisfactory this year than last. Fourteen candidates among the boys and two candidates among the girls were deprived of the examination for violation of the rules by bringing notes into the examination hall or for having given or received assistance during the examination.

In the comments made recently in these columns on the new programme for 1915 objection was taken to Jane Austen's "Pride and Prejudice" as a suitable school book for boys in the junior grade. It is gratifying, therefore, to know that the Intermediate Board has now offered as an alternative Stevenson's "Treasure Island," about which there can be no doubt as to its attractiveness for boys.

THE Department of Agriculture and Technical Instruction has issued a new syllabus of courses in first aid, hygienic and emergency nursing, and ambulance work, and announces that grants in aid of instruction in these subjects will be made under their programme for technical schools and classes. Any locality wishing to start a class for these subjects should form a small committee of management and apply either to the secretary of the local technical instruction committee or to the Department itself for

recognition. The conditions for payment of grants are similar to those for ordinary classes. The Department must approve the premises, accommodation, and equipment, the programme of instruction and the qualification of the teachers. Attendants must be registered on the Department's registers, each class must receive at least twenty hours' instruction of a practical character in lessons of not less than one hour and a half's duration, and it must be open to the Department's inspection. The teacher should be a duly qualified medical practitioner, where possible, assisted by a trained nurse with suitable experience, but the Department is prepared to consider other qualifications. The payment will be 4d. an hour for each student.

THE Department has issued in the form of a small pamphlet of eight pages a reprint, with illustrations, of the article published in its *Journal* describing the Technical School at Navan in county Meath. This is the fifteenth of the series relating to centres differing greatly in needs and population, and is interesting as showing how the requirements are met of a small country Irish town of 4,000 people. The building is new, opened this time last year, and replacing temporary premises where the work has been carried on since 1907, and has been erected at a cost of twelve hundred pounds, two hundred extra being spent in equipment. The courses are four: (i) introductory, and specialised courses in (ii) commercial work, (iii) woodwork and applied science, and (iv) domestic science.

WELSH.

THE post of principal of the Training College at Caerleon, which was rendered vacant by the death of Sir Edward Anwyl, has been filled by the appointment of Mr. Ivor B. John, principal of the Hull Municipal Training College. Mr. John was an elementary teacher at Swansea, and a student at Cardiff University College. He was the first fellow of the University of Wales, and did three years' research work in Paris. He was in succession lecturer in English at Cardiff College and at the Goldsmiths' College. Before his appointment at Hull he was principal of Dudley Training College. He has done much University Extension work, and took a leading part in the movement for the adoption of the daffodil instead of the leek as the national emblem of Wales.

THE war has, of course, not left Welsh education untouched. Many teachers have been prevented from beginning the term's work at the proper time, either by being detained as prisoners of war or by reason of the disorganisation of tourist traffic, and many have been called up or volunteered for service. In some cases school buildings have been taken for hospital or recruiting purposes; but where possible the military have handed them back in time for the beginning of term. The National Eisteddfod has been adjourned for twelve months.

THE report of the Welsh Department of the Board of Education of the working of the Welsh Intermediate Education Act for the year 1913 is very interesting.

To take first the statistical tables at the end of the report, a glance shows that the total number of pupils has risen from 3,367 in 1895-6, when forty-seven schools had been established, to 13,528 in 1912-13, in ninety-six schools; the number of schools had risen to ninety-five in 1900, in which year there were 7,668 pupils, so that each school held in the year to which the report refers nearly twice the number present in 1900. Naturally there has been much extension of school buildings, and several new schools are either in existence or projected. The greatest number of pupils was in 1908-9, 13,760; in 1911 this had fallen to 13,217, but is now on the increase. Until 1904 boys were more numerous than girls; since then girls have been more numerous; in 1913 there were 6,597 boys and 6,931 girls. Benefits received by pupils in the form of exemptions from fees, of scholarships, bursaries, and maintenance allowances amounted to £37,460.

THERE were seventy-five headmasters in these Welsh schools, most of whom received salaries of between £200 and £400, eight receiving more than £500; twenty headmistresses, half of whom received between £200 and £300; 354 assistant-masters, 326 of whom received between £100 and £200; 329 assistant-mistresses, of whom 235 received between £100 and £150. No assistant-teacher in Wales receives £250, and only sixteen rise above £200. It is understood that a Treasury grant of £2 per pupil is to be made at the beginning of 1915. If this were devoted to the improvement of salaries, it would go far towards making the education authorities what a trades unionist would call "fair" employers; at present there is not one such secondary-school authority in Wales, and few in England. But this grant is very nearly the equivalent of a *halfpenny rate*!

THE review of the activities of the schools themselves is pleasanter reading. School libraries are found in many places, and it is suggested that their use should be extended and a system of circulating boxes in connection with the National Welsh Library should be found. Special subjects are taken in many schools, e.g., agriculture, engineering, etc.; a large number of schools provide a midday meal at very moderate prices; and school magazines are increasing in number and merit. There are many interesting suggestions in the report. The question of lodgings, travelling arrangements, examinations, and inspections, the value of the school record, care of pupils' health—all these are important matters on which valuable comments are made.

THE REALITY OF CÆSAR.

C. Juli Caesaris Commentarii rerum in Gallia gestarum vii., *A. Hirti Commentarius viii.* Edited by T. Rice Hoimes. lxvi+462 pp. (Clarendon Press.) 8s. 6d. net.

THE general reader no less than the scholar will welcome this edition of Cæsar's "De Bello Gallico." It is just what has been wanted by those who have not time or inclination to read Dr. Holmes's larger "Conquest of Gaul"; and, moreover, account has

here been taken of work which has been done both in England and abroad since the completion of the second edition of that work. Not that this is a popular work, in any sense of the word that precludes a high standard of scholarship. Dr. Holmes has a European reputation upon questions of Cæsar's campaigns, and he has here given us a full, comprehensive, and scholarly commentary (printed at the bottom of each page) upon all eight books. But the general reader will be interested in it more than in the usual scholar's lucubrations, because the work has been treated in such a way that the human interest, instead of being killed, has actually been vivified and brought out to live again before our eyes to a degree that has never been done for Cæsar before.

There are prefaced to the body of the text short but pithy discussions of such questions as how and when Cæsar wrote the Commentaries, the text of the Commentaries, the credibility of Cæsar's narrative, the ethnology of Gaul, and how some of Cæsar's camps and other earthworks have been discovered. Such things bring the subject-matter out of that old "unreality" of school books into the real world for us all. In addition, there is a full introduction which gives an excellent historical sketch of the doings of the Gauls from the time of the battle of the Allia up to the Roman conquest of Gaul, together with an examination of their ethnology and civilisation from the earliest times. Especially interesting is the examination of the way in which the notices which Cæsar and other writers have left of this civilisation have been supplemented by the evidence of archæology and in particular by that of coins.

The commentary on the text is not overcrowded, but contains all necessary help which a pupil cannot readily get from the dictionary or from the usual reference books. In fact, the tone of the notes is suggestive rather than didactic; one is made to feel that the difficulties are being discussed with one rather than arbitrarily explained away. Nothing could be better than this for stimulating the student. There is a large, beautifully clear, and excellent map of Gaul in the time of Cæsar, and several other full-page plans and diagrams, all of which have been splendidly executed. At the end is a very useful 30-page geographical index, as it is called, which contains a full discussion of the chief towns and tribes. This is followed by a brief appendix, in which some special points are treated at greater length than is convenient from a commentary at the foot of the page, and by handy indices of proper names and of the notes. No schoolmaster who is taking Cæsar with his classes can afford to be without this edition.

PERSONALITY AND PHILOSOPHY.

Greek Philosophy. Part i., Thales to Plato. By John Burnet. x+360 pp. (Macmillan.) 10s. net.

PROF. BURNET begins by emphasising the importance of personality in philosophical speculation, and the value of this book consists very largely in the way in which the writer has succeeded, not by romancing, but by a careful examination of the records of the different philosophers—viewed always against the background of the spirit of their age—in helping us to realise the personalities of those rather elusive pre-Socratics such as Anaximenes and Herakleitos. The study of Socrates himself—composed from the evidence of Plato's Dialogues—is especially happy in this respect. Xenophon is dismissed, rightly, as it seems to us, as an untrustworthy guide; and the caricature of Aristophanes is explained as referring to the early period of Socrates's life, when he was primarily interested in the physical speculations of the Milesians and

others. But we must admit to an uneasy feeling that some of the virtues of Plato have been fathered upon Socrates.

The volume is divided into three books, which treat respectively of "The World," "Knowledge and Conduct," and "Plato." Some of the best parts of Book I. deal with an examination of Pythagorean music and medicine (the "purge of soul" and the "purge of body") for an indication of the meaning of "The Limit," and with an explanation of the riddles of Herakleitos as a development of the Milesian doctrine of evaporation and liquefaction. The account of Parmenides does not, perhaps, give sufficient emphasis to his services to the philosophical development in reducing previous theories to their logical *impasse*. But, on the whole, this account of pre-Socratic philosophy is far the best that is as yet available for the student.

Book II. is equally good. We have commended already the sketch of Socrates; other good points are the influence of Zeno on the Socratic dialectic and the indication of the real political reasons for the condemnation of Socrates. There are minor points on which Prof. Burnet is not entirely convincing, as, for example, the remark that "allegory and myth are not employed to express something above reason, but to adumbrate what is below reason, . . . It has its place half-way up the scale and not at the top" (p. 168).

This brings us to the third book on Plato; and we must say that we find it the least satisfactory part of the volume. To put it shortly and in conformity with Prof. Burnet's opening *dictum*, we miss the personality of Plato. This may partly be due to the ascription of so much to the historical Socrates, but there seems also a failure to grasp that spirit of Plato which is so admirably revealed in Prof. Stewart's works on "The Myths of Plato" and "The Platonic Ideas"—the first of which is mentioned once, and the second not at all. In his preface Prof. Burnet states "there are certain parts of Book III. where I have had to state my conclusions baldly in the hope that I may have a later opportunity of discussing their grounds." We shall look forward to that later opportunity, for we admit that a book on the *history* of philosophy cannot be expected to deal adequately with Plato. At the same time we feel that, in spite of the neglect by students of the later "intellectual" dialogues of Plato, which are so difficult, yet a history of philosophy is not the place in which to give them the prominence which Prof. Burnet has done. And, taking Prof. Burnet's account as it stands, we feel that the contribution of the *Theaetetus* to the epistemology of the time is, if not actually underrated, at any rate, not adequately recognised. But, in spite of all this, the volume remains by far the best short history of Greek philosophy which has yet been published.

NEW SCHOOL PLAYS.

(1) *Teachers' Handbook to Harrap's Dramatic History*. By Fred. E. Melton. 127 pp. (Harrap.) 2s. 6d. net.

(2) *History by the Dramatic Method*. By Viola Compton and Jean Anderton. Teachers' Book, iii. 184 pp. (Nisbet.) 1s. 6d.

(3) *Chambers's Dramatic History Readers, Early Days in England*. By William Hislop. 128 pp. (Chambers.) 1s.

(4) *Dramatised Recitations*. By Harold Drum. 64 pp. (Blackie.) 8d.

(5) *The Sword in the Stone*. 40 pp. (6) *Midsummer*

Fairies. 16 pp. (7) *The Pudding made of Plum*. By S. Sproston. 23 pp. (Year Book Press.) 9d., 6d., 6d. net.

(8) *The Bey of Bamra*. By F. Maynard Bridge. 46 pp. (Year Book Press.) 9d. net.

(1) TEACHERS who had already become acquainted with the admirable "Dramatic History Readers" prepared by Mr. Melton have been looking forward to the "Teachers' Handbook," which concludes the series. Ample acknowledgment is made in the preface of the sources whence the dialogues in previous volumes were compiled. Mr. Melton claims no exaggerated value for the so-called "dramatic method" in teaching. Every good teacher, consciously or not, makes use of the dramatic instinct in his pupils, and few teachers worthy of the name are without some dramatic instinct of their own. This handbook covers a wide area. The writer is an enthusiast for history as a subject of learning, and for drama as a method of teaching. But he wisely points out that pupils may be "fed up"—to use the slang phrase—with playing-acting, and may even enjoy the multiplication table and such mechanical inventions for a change. He is clearly of opinion that certain facts must be learned during school life, and that a certain amount of stiff brainwork must go to the learning of them.

Chapter iii., entitled "History and its Relation to Other Subjects," contains many useful and fascinating hints about the interconnection of work in all subjects of the curriculum, and well-thought-out plans for the economy as well as efficiency of school labour.

The hints about costume, and the resourcefulness of children and teacher therein displayed are most inspiring. Some actual plays and exercises composed by children are quoted. These and the photographs of drawings, costumes, etc., make it clear that the methods described were actually carried into effect.

(2) Another praiseworthy effort on somewhat similar lines is "History by the Dramatic Method," by Viola Compton and Jean Anderton, which also appears to be one of a series. The three little plays, giving the story of Godwine and Harold, are simply phrased, and careful directions are given for action and costume. Indeed, stage directions such as "Ulf rises and bows mockingly," or "Godwine takes no notice of the sarcasm," appear to be redundant. The authors have, however, used their own brains, and have evidently expected brainwork from their pupils. It is perhaps worth remarking that neither of the series above mentioned would have come into existence without the difficult and forgotten pioneer work of others, who see their cherished and derided ideas suddenly becoming fashionable.

(3) The same may be said for a little volume in Chambers's "Dramatic History Readers," suitable for class-room work for early standards. It has some features of its own, and its unambitious character commends it.

(4) "Dramatised Recitations," by Harold Dunn, contains several old favourites, such as "Hubert and Arthur," which should not be forgotten, with some good little new pieces—"The British Slaves," "Canute and His Followers," etc., by the author. The style of these is superior to much of the kind.

(5-8) The plays issued by the Year Book Press appear to be arranged principally for the sake of the incidental music, and answer their purpose fairly well in that respect. The "Sword in the Stone," a very simple version of the legend of King Arthur, is in doggerel verse, without incidental music. It is quite suitable for children of ten to thirteen years, and is far the best of the batch. The better of these books, it is to be hoped, will ultimately oust others of little educational value which have reached us.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Willkommen in Cambridge. By Karl Breul. 40 pp. (Cambridge University Press.) 1s. 6d. net.—There is something almost distressing in the appearance of this admirable "Welcome to Cambridge," from the pen of Prof. Breul. No one has laboured more earnestly to make his countrymen understand England, and thus to create friendship between the two great nations that are now at war. This pamphlet is a very successful attempt to describe the work of the University of Cambridge, of which Prof. Breul has so long been a distinguished member. May the day soon come when German students, no longer enemies, accept this warm invitation to visit Cambridge. So well written is it that the University Press might well consider the advisability of issuing it in English. There are many visitors to Cambridge who leave it with the haziest ideas about the University and the "men."

Petit Recueil de Chants Français. By H. Carter. Large edition, iv. + 52 pp.; small edition, v + 81 pp. (Oxford University Press.) 4s. 6d. net.; 2s.—Mr. Carter, headmaster of the Whitechapel Foundation School, has long shown keen personal interest in the French teaching in his school, and has made a speciality of the singing of French songs. These he has collected with excellent taste and musicianly feeling, and it is well that they are now available in the handsome form which the Oxford Press has given them. The large edition, in imperial 8vo, contains the words in large type and music in staff notation, with accompaniments; the small edition contains the words and tunes in both staff notation and tonic sol-fa. Mr. Carter has rightly included such well-established favourites as "Il était une bergère" and "Ma Normandie"; many, however, will be welcomed as new—though they are really revived from the past. The amusing "Les grandes Vérités" has been given a Beethoven melody; Mr. Brooksbank has supplied a graceful tune to "Ma fortune est faite," by Désaugiers; Gallet's "L'heureux accord" has a tune taken from a manuscript song-book in the British Museum. In addition to the forty-two songs there are five psalms and, last of all, a French rendering of Luther's grand "Eine feste Burg ist unser Gott." All who know the value of French singing in their classes owe a debt of gratitude to Mr. Carter for his admirable labour of love.

Manuel Pratique de Prononciation et de Lecture Françaises. By L. Bascan. 228 pp. (Dent.) 2s. 6d.—M. Bascan's manual is written in simple French and is manifestly the work of an experienced and enthusiastic teacher. Its particular value lies in the exercises, which are very copious, and in the practical hints for overcoming difficulties. A section on the production of sounds is followed by a full treatment of the sounds taken separately. Then the sounds of connected speech are discussed. The fourth section contains texts in phonetic transcription and in the ordinary spelling, with notes on the subject-matter and on the pronunciation. After this there are a number of fully annotated texts in the ordinary spelling only. The book is a careful piece of work, and should do good service.

Simple Lessons on Free Composition in French. By G. Soullier. 67 pp. (Relfe.) 1s. 4d.—Some preparatory exercises of a useful type, requiring some knowledge of synonyms, word-formation, etc., and

others in which isolated words have to be construed to form sentences, etc., are followed by a section in which various subjects are first dealt with conversationally, which leads up to the writing of free compositions. The third section gives various subjects for treatment, with useful helps. The work has been skilfully done, and the book is clearly printed. A curious thing is the frequent spelling of "faites" as "faites," and of "dites" as "dites"; otherwise there are not many misprints.

A Class-Book of German Conversation and Free Composition. By T. Dyson. (Harrap.) 1s. 3d.—This book may be described as a classified vocabulary, arranged not in isolated words, but in a connected form, and well adapted to form the basis of conversational work, which may lead up to free composition. There are also some grammatical sections. In the hands of a good teacher this little book should produce very satisfactory results, especially in the direction of extending the pupil's vocabulary, which is too often neglected, but is very necessary if reading the foreign language is to become a pleasure.

Selections from Classical German Literature. By K. H. Collitz. xviii + 666 pp. (Oxford University Press.) 7s. 6d. net.—The present volume deals with German literature from the Reformation to the beginning of the nineteenth century. The selection starts with Luther and concludes with Goethe and Schiller; but it is explained that some of Goethe's later works will find a place in the volume of selections from nineteenth century literature which, as we are glad to learn, Miss Collitz is preparing. A careful examination of the list of contents shows that the compiler has done her work in a scholarly and judicious way. We may occasionally regret an omission (thus it is odd that not a single Meisterlied should appear under Hans Sachs), but what is given is always typical and worth reading. The footnotes give useful help, and there is a valuable bibliographical section. Pictures of all the more noteworthy writers enhance the interest of the book, which may be recommended to all students of German literature, and might well find a place in every school library.

Classics.

The Teaching of Greek at the Perse School, Cambridge. 146 pp. (Published by the Board of Education.) 1s.—This is No. 28 of the Board of Education's Educational Pamphlets dealing with Educational Experiments in Secondary Schools, and is complementary to that on "The Teaching of Latin at the Perse School." The report is in five sections, with two appendices. Section I. is introductory, describing the now well-known aims and methods of the oral system of teaching languages, ancient and modern, in use at the Perse School. Section II. describes their particular application to Greek. Section III. gives reports on the work of each year in the first four years of the course, with specimen lessons. Section IV. contains an analysis of the composition done in selected terms of the first four years, and Section V. a report on the more advanced work of the sixth form. The first appendix gives the vocabulary of five selected boys, and the other appendix has exercises and specimens of work done by boys under the method used. Greek is begun at the average age of fourteen, and is taught on the basis of a four-year course. Although the oral method is used, the initial stages are easily passed in Greek, owing to the advantage of a preliminary knowledge of Latin. Great care is taken to use a

correct pronunciation. The pamphlet contains much detail well worthy of study by all teachers of Greek, and not merely those who are adopting the Perse School reforms.

Villa Corneliiana. By E. M. Carter. A Wall Picture. 40×60 in. (Oxford University Press.) 10s. 6d. net.—This is a wall picture in colours intended to be used in the first year of teaching Latin by the oral method. It is a new idea for Latin, and resembles the wall pictures used for teaching modern languages. The colouring is bright and effective, and the number of objects introduced is really remarkable. The garden of the villa with a corner of the house and a diminutive portico is shown, and a wide view over the countryside is introduced. A gentleman, said to be one of the Scipios, is drinking, and his family are playing round him, none of them at all perturbed by a terrific thunderstorm raging just up the road. A clever teacher would no doubt be able by means of this picture to introduce into his lesson a wide variety of Latin words, and to interest his pupils in some Roman customs, but it does not seem to us that apart from such explanation a boy or girl would carry away from this picture any characteristic or true idea of ancient Roman life. The spirit of antiquity is absent. Instead of a fancy view such as this it would be sounder to take a photograph of some Roman site or villa as a basis and to make it alive by using it as the background of some piece of actual ancient life. Don't try to make the Romans look as modern as possible, but draw upon the pupil's imagination by taking him back to some reality of the past. The excavations in the Forum and elsewhere, the ruins of Pompeii, and the sculptures on Trajan's column offer varied lines of suggestion.

Caesar, Gallic War. Books I., IV., V., and VI. Edited by E. S. Shuckburgh. xxxii+152, xvi+89, xxiv+137, xxii+116. pp. respectively. (Cambridge University Press.) 1s. 6d. each volume.—These are new illustrated editions of volumes in the "Cambridge Elementary Classics." Each volume is provided with introduction, notes, and full vocabulary, but the main features of the present as compared with the original edition are the marking of vowels long by nature and the addition of numerous excellent illustrations taken from Trajan's column, and from other archaeological objects in the museums of Europe. If anything can make boys interested in *Cæsar* these handsome little volumes will do it; they are well printed, and the illustrations, which are beautifully clear, bring the concrete things before the mind. There is a map to each volume. We understand that it is intended to bring out further revised editions in a similar style, as well as to add entirely new volumes. Perhaps we may hope in these to find "hidden quantities" also marked.

Proceedings of the Classical Association, January, 1914, Vol. xi., with Rules and List of Members. 196 pp. (Murray.) 2s. 6d. net.—This useful annual contains an indispensable summary of what is being done in the classical world. The papers, reprinted along with the discussions which followed at the meetings, include "The Teaching of the Classics as Literature," by Mr. R. W. Livingstone; "The Underworld and the Way There," by Mr. W. C. F. Anderson; "Museums and the Classical Revival," by Prof. H. Browne; Sir Frederick Kenyon's presidential address on "The Classics as an Element in Life"; "The Origin of Greek Tragedy," by Prof. Ridgeway; and "The Scamander Ford," by Miss Stawell. Perhaps the most interesting thing for practical schoolmasters is the report of the discussion on "Oral Methods in Teaching Classics."

The Shorter Aeneid. By H. H. Hardy. xxi+212 pp. (Bell.) 2s. 6d.—This is an excellent idea, enabling schoolboys to read their Vergil as a whole instead of reading an isolated book or two or else mere selections. It is seven years ago since Prof. Arnold first gave teachers the idea by his "Aeneae Facta et Fata," which contained the substance of Books I., II., and IV. The present volume seems an improvement in that the text is less cut up, but it lacks illustrations. Those who are fortunate enough to be able to read through the whole of the *Aeneid* while at school will, of course, have no need of such a book as this, but for the average school it should be a godsend. By the insertion of English prose summaries the actual bulk of the *Aeneid* has been reduced to something less than half. These summaries are concise, and are written in appropriate style, but they do spoil the Latin atmosphere to some extent. Why did Mr. Hardy not think of *Latin* prose summaries? They would then have been even shorter, and the book would have gained immeasurably in effect. As to the parts omitted, or rather summarised, it would be churlish to complain, for the book is not meant for the adult reader. Suffice it to say that the deletion of lines and passages has been done in a sensible way, and most of what is likely to appeal to schoolboys has been left entire. There is a preface and short introduction dealing with the purpose and significance of the *Aeneid* by Prof. H. E. Butler, which tells a boy as much as he needs to know about Vergil in a simple and unobtrusive way. The notes, twenty pages on the whole *Aeneid*, are delightfully brief and to the point, a pleasant change after the overloaded commentary which has become too common in school editions. They deal largely with proper names, references to Roman customs and traditions, etc., and are almost a model of what is required in a school edition.

English.

Theory of Poetry in England. By R. P. Cowl. 313 pp. (Macmillan.) 5s.—This book is a mine of quotations for the critic, and in an illuminating preface the writer says truly that the study of poetry and criticism becomes more fruitful when associated with the study of literary theory. Divorced from theory, the study of poetry is at best unscientific. All this may be granted; but it would be open to a collector of signposts of error to show us how diametrically opposite views of the very bases of criticism may be held by the best critics in one and the same decade. It would seem that, first of all, the base of the theory has to be laid, and then the structure may be laid on it. As soon as this is done, the would-be critic may range himself on the side of Swinburne or Ruskin, Pater or Francis Thompson; and all of them are critics and modern critics. The book is divided into sections which deal with the theory of poetic creation, limitation of nature, translation, subject-matter, style and diction, metre and versification; and under each section we have the *ipsissima verba* of the critics from Sidney to Arnold and from Puttenham to Peacock. Thus each critic may find his pet theories supported; and until the end of the world critics will have pet theories. At present our criticism is chaos or compromise; perhaps the former necessitates the latter. A very much fuller subject index would be a boon in a second and enlarged edition of the book.

Modern English Literature. By G. H. Mair. 310 pp. (Williams and Norgate.) 6s.—This book is an expansion of the little volume in the Home University Library. When reviewing that volume we took ex-

ception to "modern" as applied to Chaucer; Mr. Mair defends the term. This longer essay, which is accompanied by portraits, is divided into ten chapters, quite orthodox in their nomenclature. But as soon as we open the book proper it is seen that the writer is full of suggestion. "Across five centuries Chaucer and Dickens shake hands"; "Keats learned from Spenser the best part of his music"; "the Elizabethan age was intoxicated with language"; "the translation of the A.V. was virtually anonymous"; "She stoops to Conquer" is trite, like "You never can tell"; "Hardy's paganism is little capable of light or joy." These phrases, taken at random, make the reader stop, to agree or to think, and he feels in either case as though a service had been done. Mr. Mair always has his eye on to-day; but he does not bow his knee in the Rimmon temple of the passing hour. Instead, he frankly tells us that George Eliot is inferior to Mrs. Gaskell and that Dickens's faults are not so deep-set as Thackeray's. What the professional critics will make of Mr. Mair is doubtful; but the disturbing question is this: "Is not Mr. Mair himself a professional critic?" If so, W. D. Howells and Mr. Robertson might be asked to join him in a work on the bases of literary criticism.

Landor's Imaginary Conversations. Edited by F. A. Cavanagh. 246 pp. (Oxford University Press.) 2s. 6d.—We are always warned that Landor is for the scholar; and it is doubtful if, apart from his turgid life and a very few poems, he has ever gained the ear of the reading public. Meredith and Browning and Henry James, none of whom can be said to be easy of digestion, have a far wider circle of readers than this leonine and romantic writer of fine prose. It is not for want of advertisement, either from Landor himself or his friends. Mr. Colvin calls him a classical and Mr. Saintsbury a romantic writer; so hardly can criticism discern what she herself means. It is interesting to compare Mr. Cavanagh's introduction with that of Mr. Havelock Ellis; both are laudatory with discrimination, and both retell the well-worn anecdotes. Both pitch on nine conversations in common; but both, alas! omit the one piece which, according to Charles Lamb, only Shakspeare or Landor could have written. It is a great pity; for this piece, even in a small extract, would have set before the reader what might convert him to a further reading of Landor. The present volume contains most useful notes; and it is to be hoped that Landor's Horatian praise of his own work may be verified when he "dines late."

Butler's Sermons. Edited by W. R. Matthews. 257 pp. (Bell.) 3s. 6d.—This is not the only edition of Butler published by Messrs. Bell; but it is new, it has a weighty introduction, and is accompanied by analyses and a few notes. The fifteen sermons preached at the Rolls chapel and the dissertation upon the nature of virtue are included. Probably the teleology on which Prof. Matthews insists will make this massive English read beyond the usual circle of students; for there never was a time when "purpose" was more doubted or when the argument for it was more easily received. Yet Butler is, on the whole, a student's writer; and no justice has been done to the virility of his prose. Common sense, too, is the warp of every page, and people to whom the Serious Call makes no appeal turn with relief to the sermon on the government of the tongue and the three essays (more essays than sermons) upon human nature. The editor refers to the eulogistic pages in the ninth and tenth volumes of the Cambridge History, in the bibliography of which further guidance may be found to the writings and character of the great bishop.

History.

Contemporary American History. By C. A. Beard. vii + 397 pp. (New York: The Macmillan Company.) 6s. 6d. net.—Prof. Beard, of Columbia University, found his pupils ignorant of contemporary history, and no book exactly suited to their needs. He has therefore written a straightforward, impartial account of United States party politics since the year 1877 almost to the present time. It is not addressed to a British public, and readers on this side the Atlantic will not always understand his allusions or his technical terms. But to those who know some United States history already, this book will be useful. The picture he draws of the United States in the latter part of the nineteenth century is not pretty, and the impression we gather from his story is that politics there consisted mainly of unprincipled party strife complicated with self-seeking intrigues of capitalists and labourers, east and west. But during the last twenty years there has been an endeavour, partly successful already, to purify the politics of that country and to legislate in the interests of the people at large rather than of the "bosses" and the financial magnates. The introduction of an income tax on British lines is one among other symptoms of the new policy. We therefore recommend the book in spite of its difficulties for us here, because it is a running comment on the working of a "written constitution." How elastic such a thing can be is one of the morals one can draw in the perusal. Another lesson for us may be drawn from the entire absence of even the slightest allusion to ecclesiastical questions or even to religion in any of its ordinary forms. Two chapters are headed respectively, "Growth of Dissent" and "Revival of Dissent," phrases which astonish British readers when they find that the "dissent" is that of rebels from one of the main political parties. There is an index as well as a bibliography.

Geography.

- (1) *The School and College Atlas.* 103 maps. (Bacon.) 3s. 6d. net.
- (2) *Junior Contour Atlas.* 49 maps and diagrams. (Relfe.) 8d. net.
- (3) *The Junior Geography and Atlas.* By W. R. Taylor. 79 pp. Text opposite a full-page map. (Relfe.) 1s. 6d.
- (4) *The Atlas Geographies. Senior Geography: The British Isles.* By T. Franklin, E. D. Griffiths, and E. R. Shearmur. 120 pp. (Johnston.) 1s. 10d. net.

No. 1 is a mixture of good new style maps, printed in vivid colours, and as a rule easy to read and with a due sense of proportion in regard to the inclusion and exclusion—which is more important—of names, and of apparently old maps, with the ancient herring-boning for mountain ranges and an overwhelming accumulation of names. For example, New Zealand is shown by a full-page contour map of striking simplicity, and two full-page maps, one of each island, where the names are so numerous that it has been found necessary to inset four small maps on a larger scale of the four chief towns.

The contour maps in (2) are sufficiently numerous for junior pupils, but the selection of shades of colour give the maps a dead appearance, which is dispiriting. There is a wise paucity of names.

In (3) many ideas are perpetuated which the present generation of geographers has outgrown. For example, there are no contours; and in the map on India, physical, a thick black line is labelled Western Ghats, Neilgherry Hills, Eastern Ghats. Two pages of text are given to India and a ten line paragraph disposes of the farm work of the people, while nearly

four times as much space is given to a historical sketch which begins with migration of people into India more than 3,000 years ago. The text is necessarily restricted in amount, and this fact leads to strange exclusions, e.g., there is no mention of the coal-mining in the Rhine basin of Germany.

By contrast with (3), "The Atlas Geography" is a modern production. Contour maps, illustrative diagrams, a completer text, which is illuminating, and sets of exercises for the pupil provide a combined atlas and text which will be found useful by many teachers. We have had occasion to note the earlier volumes of this series, and the present work is well up to the standard of the previous issues.

The Alps. By Arnold Lunn. (Home University Library.) 256 pp. (Williams and Norgate.) 1s. net.—One aspect of the Alps has been admirably treated in this series by Prof. Grenville Cole in the volume "The Growth of Europe." Mr. Lunn provides the general public with an interesting and readable account of the Alps in relation to mountaineering. The story of man's conquest of the Alpine peaks provides a stimulus to our desire to emulate the great climbers of the past and to our interest in the winter sports of Switzerland. The subjective aspects of man's attitude towards great mountains are well described in this book, which should find a wide circle of readers among pupils and teachers.

Suggestions for a Course in Climatology in Correlation with Geography. By W. E. Whitehouse, with a preface by Dr. W. N. Shaw. 31 pp. (Aberystwyth: University College of Wales.) 1s.—Mr. Whitehouse was formerly Gilchrist student in geography, and is now assistant-lecturer in physical geography at Aberystwyth. His little book is a useful summary of hints, exercises, etc., which will be invaluable to those teachers who have yet to embark upon experimental work on climate as a portion of their course in geography. There is a useful bibliography as well as a summary of the various meteorological publications.

Common Commodities of Commerce: Linen. By A. S. Moore. 132 pp. (Pitman.) 1s. 6d.—Teachers of geography should find this book of vital interest and of great use. They will be able to grasp the complete process by which linen is produced, and will have a thorough knowledge of an important British industry. Mr. Moore has done his work thoroughly, for there is a historical introduction and the book closes with a description of the workers and the conditions of work. The book should find a place in school lending libraries.

Canada To-day and Yesterday. By D. W. Oates. (Tales of Travel.) 205 pp. (Harrap.) 1s. 3d.—By means of extracts from historical narratives, such as those of Parkman, and traveller's tales, with the assistance of many excellent illustrations, Mr. Oates presents a stimulating panorama of Canada as a country of boundless opportunity. He says little of the people who are there, but his book is none the less valuable from many other points of view. A book for use as a supplementary reader.

West Indies and Guiana. Six lectures prepared for the Visual Instruction Committee of the Colonial Office. By A. E. Aspinall. 152 pp. (Philip.) 8d. net.—The sixth set of lectures issued in connection with the scheme of visual instruction by means of lantern slides deals with the portions of the British Empire in Central America and also the Falkland Islands. This set almost completes the Imperial Survey which has been undertaken. Mr. Aspinall continues the work in the spirit shown by his prede-

cessors, Mr. Mackinder and Mr. Sargent. The illustrations contained in the book are excellent specimens of the pictures which are included in the complete set of 375 slides.

Science and Technology.

Industrial Chemistry for Engineering Students. By Prof. H. K. Benson. 431 pp. (New York: The Macmillan Co.) 8s. net.—Dr. Benson's manual purposes to describe from the point of view of chemistry the more common materials used in the various branches of engineering, and further to give the prospective engineer a working knowledge of the chemistry of the processes with which he will deal during his professional career. Starting with general operations and apparatus, the book deals with the transportation of materials, grinding, mixing, calcining, evaporating, distilling, filtering, and drying, all on the big works' scale. Each of these sections is excellently illustrated by diagrams of the actual type of plant employed. The atmosphere is next treated from the points of view of ventilation, refrigeration, and the utilisation of its nitrogen. Industrial water claims attention chiefly as it concerns the raising of steam, hence softening plants, corrosion, and boiler scale, are adequately dealt with. Similar useful chapters follow on combustion, destructive distillation, fuel, oils, lubricants, the smelting of iron, steel, alloys, clay products, porcelain, cements, paving materials, paints, varnishes, cellulose products, and explosives. This summary illustrates the comprehensive scope of the work, which, however, is not marred by a merely sketchy treatment. The descriptions, while necessarily concise, are clear and luminous, and amply illustrated. It should be found indispensable to the student of engineering, not only in America, but also in this country.

A Junior Chemistry. By W. D. Rogers. 376 pp. (John Murray). 3s. 6d.—Mr. Rogers's little book was designed originally to fit the syllabus of the Junior Examination of the Central Welsh Board. It has been expanded, however, to cover the ground needed for all kindred examinations of a similar standard. The course of work is divided into four parts, each of which forms a complete and self-contained unit. Part i. deals with matter and heat, physical methods of purification, solution, crystals, water, and hydrogen. Part ii. describes the chemistry of oxygen, water, air, limestone, carbon dioxide, carbon monoxide, carbon, acids, bases, and salts. Part iii. proceeds with the study of sulphur and its chief compounds, nitrogen and its oxides, ammonia, chlorine and hydrogen chloride, whilst the laws of combination, equation building, phosphorus, and ozone, are treated in the last part. Although the splitting up of the book into these arbitrary divisions seriously militates against the continuity of the subject, yet the scheme is thoroughly practical and is well calculated to bring the student into the examination room in an excellently prepared condition. One or two points of detail should be noted: on p. 125 the author describes experiments with solid crystalline ammonium nitrite. The reviewer has failed to trace this substance as being for sale either in this country or in Germany. Carbon bisulphide (p. 31) should not be given out to young students, nor is the preparation of sodium amalgam by them to be recommended (p. 91), since not only is there a risk of particles of sodium flying about, but also the mercury vapour which is evolved is particularly irritating. The heading of the chapter on oxygen (p. 91), "Symbol O, atomic weight 16, molecular weight 32, density 16," is a delightful glimpse of a bygone age in the teaching of chemistry. The defini-

tion of a peroxide as one which contains a larger amount of oxygen than usual is scarcely scientific. The Brin process (p. 123) is scarcely the modern way of making oxygen, and the use of the terms hydroxide and hydrate synonymously is not in accordance with current ideas.

An Introduction to the Study of Organic Chemistry. By H. T. Clarke. 484 pp. (Longmans.) 6s. 6d.—Dr. Clarke has produced a valuable addition to our text-books on organic chemistry. He has preferred to keep quite separate the purely structural and systematic side of the science from the laboratory aspect. Thence we have, as a result, a logical and convincing presentation of the subject. It is impossible to imagine nowadays a student working at organic chemistry without adequate laboratory experience, and therefore it is not necessary to load up his theoretical text-book with details which he can acquire for himself at first hand. The scope of the book is that demanded by the new syllabus in organic chemistry (lower examination) issued by the Board of Education. It is rather a moot point whether such an examination has sufficient permanence to warrant the provision of a special text-book, but Dr. Clarke may rest assured that his work stands apart from the purely examination books, and will doubtless be read by the general student as well as by the examinee. The course of work which the author outlines is good and sound. He devotes two chapters to a rapid exposition of the simplest features of the chemistry of the carbon compounds and to the relationships of the more important derivatives obtainable from ethyl alcohol, the aim being merely to allow the student to familiarise himself with the structural formulæ of the chief types of organic compounds. Then follows a brief description of the methods of analysis and the determination of molecular weights. The rest of the book is descriptive and contains an account of such of the chief groups as are studied in a pass degree course; indeed, the book carries more of the style of the university college than of the technical school. The get-up and printing are excellent, and altogether the book is one to be recommended cordially.

A First Book of Chemistry. By W. A. Whitton. 150 pp. (Macmillan.) 1s. 6d.—Mr. Whitton has produced a very interesting introduction to chemistry which will be of use not only to the young pupil who is commencing the subject as part of his school curriculum, but also to the general reader who wishes to find how and where chemistry enters into the problems of everyday life. The book treats of solutions, the phenomena of burning, oxygen, hydrogen, and water, as well as many of the common elements and their chief compounds, in a simple and lucid way. The commercial importance of a variety of substances is clearly indicated, and several industrial operations are described, notably those for the manufacture of sulphuric acid, iron and steel, glass and porcelain. The get-up of the book is pleasing, whilst the illustrations are numerous and to the point. Altogether it is a worthy member of a useful series.

Astronomy. By Camille Flammarion. Pp. xi+191. (Constable.) 2s. net.—M. Flammarion is well known by his many popular writings upon astronomy. In this little volume, which belongs to the "Thresholds of Science" series, he gives a simple and interesting account of the movements of the earth and the characteristics of the chief celestial bodies. There is nothing particularly distinctive in the book, and as distances and other dimensions are expressed in metric units, on account of the volume having been translated from

the French, readers unfamiliar with the metric system may have a difficulty in comprehending them. The picture of Saturn is very poor, and such statements as "the earth is a star—like the moon," or "the moon is not the star of all night," though probably literal translations, are misleading. But the author has a style of his own, combining imagination with full knowledge of astronomy, and there may be many who will find this rendering of it into English attractive.

Examples in Easy Practical Drawing. By E. Sankey. Book I., 66 pp., 8d. net; Book II., 66 pp., 8d. net. (Edward Arnold.)—The examples contained in these little books are intended to cover the syllabuses of the Union of Lancashire and Cheshire Institutes, of the National Union of Teachers, and of similar institutions in the first-year preliminary technical course of practical drawing. Explanatory remarks have been reduced to a minimum. Many of the examples included are of an ordinary geometrical character; at the end of each set two exercises for practice in freehand sketching are given. Some of the examples have a practical bias, and in these the author is not always quite sound. Thus, on p. 24, Book II., is given a question in which a waterworks' manager wishes to replace two water-pipes of given diameters by one which will carry exactly the same volume of water, and the diameter of the new pipe has to be found. It is evident from the answer given that the author wishes the pupil to find the diameter of a circle having an area equal to the combined areas of two other circles. This, however, is not an answer to the question propounded, as those of our readers who are familiar with hydraulics will admit readily.

Miscellaneous.

The Bible of To-day. By the Rev. Alban Blakiston. xvi+240 pp. (Cambridge University Press.) 3s. net.—This book is a welcome and necessary addition to the rapidly increasing literature on the Bible. It is more by way of being a guide to a study of the higher and lower criticisms, or a taking stock of the positions arrived at, than a new light on old problems. It only comprises four chapters, but they are wonderfully comprehensive, and they adequately serve the purpose of either a summary of the commonly accepted results of critical literary research in Holy Writ, or a sound starting point for specialised study of the literature and message of the Bible. Apart from the author's irritating habit of beginning so many of his sentences with "And"—more than one hundred and twenty cases occur in the book, on several pages two successive sentences so offend, and almost invariably the sentence would gain by the simple deletion of the word—and one or two dogmatic statements of conclusions which are scarcely yet beyond the realm of controversy, we have nothing but high praise for this sound and timely book. A full table of contents—really an analysis and summary of the whole work—a full bibliography at the end of each chapter, and a carefully compiled chronological table, are valuable features. Mr. Blakiston has handled his difficult theme with success and has produced a volume acceptable from the devotional point of view as well as from that of literary study. It is frank, courageous, and yet reverent.

The Book of Genesis. By Dr. Herbert E. Ryle. lxviii+477 pp. and 2 maps. (Cambridge Bible for Schools.) 4s. 6d. net.—The Cambridge Genesis has been eagerly looked for by Bible students for many years, and now that it has appeared we can emphatic-

ally say in hearty commendation and with complete satisfaction that it proves to be more than worth having been waited for. It is wonderfully full and complete, and much more scholarly than many of the volumes in this series. Generous acknowledgments are made to the larger commentaries on Genesis already in existence. Allowing fully for all indebtedness, we need scarcely say that there is herein enough of Dean Ryle's capable work to make the book take rank with any of its predecessors as a standard commentary on this most difficult book of the Bible. Its issue will add considerably to the already high reputation which this series deservedly holds.

Our Bible in the Making. By Dr. J. Paterson Smyth. 213 pp. (Sampson Low.) 2s. 6d. net.—Dr. J. Paterson Smyth's name on the title-page of a book is as a rule a guarantee of sound and thought-stimulating contents. "Our Bible in the Making" is no exception to this rule. The book is eminently readable, free from technicalities, pedantry, and controversial difficulties, and tells the mysterious and fascinating story of the "Making," clearly and well. The arrangement, excellent type, and illustrations, give added value to a work of charm and interest.

Religious development between the Old and the New Testaments. By Canon R. H. Charles. 256 pp. (Williams and Norgate.) 1s. net.—This is a worthy addition to the "Home University Library" series. Canon Charles is herein traversing little trodden and difficult ground, and by the clearness with which he has developed his arguments, merits the gratitude of student and general reader alike. Where the whole book is so good it is perhaps invidious to particularise, but the chapters, "The Kingdom of God," "The Messiah," "Forgiving One's Neighbour," and "Re-interpretation and Comprehension," will, perhaps, by their strength and grace, most impress the average reader.

EDUCATIONAL BOOKS PUBLISHED DURING AUGUST, 1914.

(Compiled from information provided by the Publishers.)

Modern Languages.

"Exercises on French Irregular Verbs." By E. Bourdache. 160 pp. (Harrap.) 1s. 3d.

"La Belle Nivernaise." Edited by W. M. Daniels. 154 pp. (Harrap.) 1s. 6d., with vocabulary.

"Les Boulinard." Edited by F. G. Harriman. 124 pp. (Harrap.) 1s. 6d., with vocabulary.

"Krambambuli." Edited by Prof. Hohlfield and Gustav Hein. 61 pp. (Harrap.) 8d.

Victor Hugo: "Bug Jargal." Edited by R. R. N. Baron. (Direct Method French Texts.) 281 pp. (Mills and Boon.) 2s.

E. T. A. Hoffmann: "Meister Martin." Edited by Ludwig Hirsch. (Direct Method German Texts.) 131 pp. (Mills and Boon.) 1s. 6d.

Classics.

Virgil: Aeneid, Book ix., Introduction, Text, Notes, and Lexicon. Edited by J. F. Richards. (School Latin Classics.) viii+174 pp. (Clive.) 1s. 6d.

"Stories of Greece and Rome." Twelve stories from the Iliad, Odyssey, Aeneid, and other sources of Greek and Roman legend told in a simple way. By Hilda Johnstone. (Longmans.) 1s. 6d.; prize edition, 2s. 6d.

English: Grammar, Composition, Literature.

"Practical Course in Intermediate English." (An Introduction to Secondary English.) By Edw. Albert. 288 pp. (Harrap.) 2s.

"Haliburton Reader IV." By M. W. Haliburton. 265 pp. (Harrap.) 1s. 3d.

Shakespeare: "The Merchant of Venice." Edited by G. H. Ball and H. G. Smith. 136 pp. 1s. Plain Text. 76 pp. 6d. net. (Mills and Boon.)

"Material for Précis Writing." Compiled by H. A. Treble. xiv+276 pp. (Rivington.) 3s. 6d.

"The Parts of Speech." Part i. By W. B. Irvine. 36 pp. (Relfe.) 3d.

Lamb: "Six Tales from Shakespeare." Edited by F. Gorse. 112 pp. (Relfe.) 1s.

History.

"Early Days in England: 55 B.C. to 1066 A.D." By Wm. Hislop. (Chambers's Dramatic History Readers.) (Chambers.) 1s. Most of the incidents dealt with in this brightly-written book are also made the subjects of simple historical plays, which are adapted for representation by children.

"Greek History for Schools." By C. D. Edmonds. xviii+330 pp.; 37 plates, 5 text-figures, 14 maps. (Cambridge University Press.) 5s. net.

"Ballads and Poems Illustrating English History." By Frank Sidgwick. vi+184 pp. (Cambridge University Press.) 1s.

"Mohammed." By Edith Holland. (Heroes of All Time Series.) 192 pp. (Harrap.) 1s.

"Alexander the Great." By Ada Russell. (Heroes of All Time Series.) 192 pp. (Harrap.) 1s.

"Augustus." By René Francis. (Heroes of All Time Series.) 192 pp. (Harrap.) 1s.

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Teachers and the Army.

INQUIRIES having been received at the offices of this association as to what action should be taken by governing bodies of secondary schools in regard to teachers and officials who desire to serve in the Army or Navy during the present war, it has been suggested that governing bodies and school managers might indicate their willingness to pay any members of the staff who join the colours a salary equal to the difference between their present salary and any military pay they may receive, and that their posts should, if possible, be kept open for them on their return.

I venture to convey to you this suggestion, having regard to the resolution of the House of Commons, on September 10th, on the motion of the Prime Minister, voting an additional 500,000 men for the Army.

PHILIP MAGNUS, Chairman.

The Secondary Schools Association, 25 Victoria Street, Westminster, S.W.

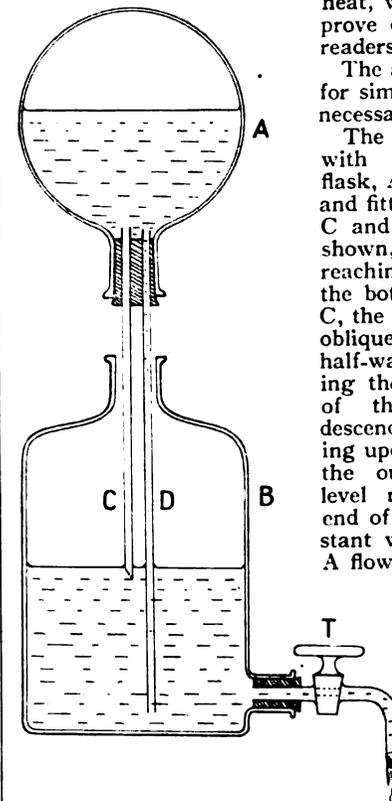
A Model for Use in Teaching Latent Heat.

I am sending you a diagram of a mechanical model which I have found useful in explaining the cooling curve of paraffin wax and the subject of latent

heat, which I think may prove of interest to your readers.

The apparatus is shown for simplicity without the necessary supports.

The bottle, B, is filled with water; and the flask, A, filled with water and fitted with two tubes, C and D, is inverted as shown, the tube, D, reaching to the bottom of the bottle; and the tube, C, the end of which is cut obliquely, reaching about half-way down. On turning the tap, T, the level of the water in B descends at a rate depending upon its height above the outlet. When the level reaches the lower end of C it remains constant while the water in A flows through the tube D into B, air entering the tube, C, and rising into A. This continues until A is empty, and during this time the level in B and the rate of outflow at T are constant. The



level of the water in B then falls, and the rate of outflow gradually decreases. The water in A represents the latent heat of fusion of the wax, and the level of the water in B

represents the temperature of the wax. The level of the lower end of C represents the melting point and the level of T the temperature of the surroundings. The experiment illustrates the facts that the temperature remains constant until the whole of the latent heat has been given out, and that during this time heat is being radiated at constant rate; that the temperature of the melting point is independent of the rate of loss of heat, and also the fact that the rate of loss of heat decreases as the temperature of the wax approaches that of its surroundings.

THOMAS W. PAGE.

Municipal Secondary School, Cardiff.
September 8th, 1914.

Decimalisation of English Money.

FROM the facts that in a recently published textbook on arithmetic, some four pages are devoted to the evolution of a system for the decimalisation of English money at sight, and that in most modern books on arithmetic space is given to the subject, it appears that the matter is of some importance.

The methods which have appeared up to the present are fraught with rules as to adding or subtracting extra quantities under certain conditions, too dangerous to inspire confidence. Moreover, the subject is treated too much as if the representation of English money in decimal form were an end in itself, rather than a process for simplifying computation.

There is one important coincidence from which it is possible to decimalise English money quickly and accurately. It is that a thousand farthings are equal in value to one pound and tenpence. This fact seems to have escaped the authors of modern text-books.

The principles of the system are as follows:—

$$1000 \text{ farthings} = \pounds 1 + 10d.$$

$$\therefore 1 \text{ farthing} = \pounds 0.001 + 0.01d.$$

In metric language a farthing equals a millipound ($\pounds 0.001$) + a centipenny ($0.01d.$), or a millipound equals a farthing — a centipenny. It follows that

$$n \text{ farthings} = \pounds 0.001 \times n + 0.01d. \times n.$$

$$\text{e.g. } 13 \text{ farthings} = \pounds 0.013 + 0.13d.$$

A few examples will best illustrate the new system. It is assumed that the decimal forms of the florin, shilling, and sixpence are readily recognised as $\pounds 0.1$, $\pounds 0.05$, and $\pounds 0.025$ respectively.

(i) Represent in decimal form $\pounds 2 \text{ } 17s. \text{ } 8\frac{3}{4}d.$:—

$$\begin{aligned} \pounds 2 \text{ } 17s. \text{ } 8\frac{3}{4}d. &= \pounds 2 \text{ } 17s. \text{ } 6d. + 11 \text{ farthings.} \\ &= \pounds 2.875 + (11 \text{ millipounds} + 11 \text{ centipence.}) \\ &= 2.875 + \pounds 0.011 + 0.11d. \\ &= \pounds 2.886 + 0.11d. \end{aligned}$$

which is a useful form for computation.

(ii) Convert $\pounds 3.687$ into $\pounds \text{ } s. \text{ } d.$:—

$$\begin{aligned} \pounds 3.687 &= \pounds 3.675 + \pounds 0.012. \\ &= \pounds 3 \text{ } 13s. \text{ } 6d. + (12 \text{ farthings} - 12 \text{ centipence.}) \\ &= \pounds 3 \text{ } 13s. \text{ } 9d. - \text{an amount less than half a} \\ &\quad \text{farthing, and therefore negligible.} \end{aligned}$$

(iii) Find the cost of 100 articles at $\pounds 1 \text{ } 18s. \text{ } 10\frac{3}{4}d.$ each :—

First Method.

$$\begin{aligned} \pounds 1 \text{ } 18s. \text{ } 10\frac{3}{4}d. &= \pounds 1 \text{ } 18s. \text{ } 6d. + 19 \text{ farthings.} \\ &= \pounds 1.925 + \pounds 0.019 + 0.19d. \\ &= \pounds 1.944 + 0.19d. \end{aligned}$$

$$\begin{aligned} \therefore 100 \text{ articles cost } &\pounds 194.4 + 19d. \\ &= \pounds 194 \text{ } 8s. + 1s. \text{ } 7d. \\ &= 194 \text{ } 9s. \text{ } 7d. \end{aligned}$$

Second Method.

$$\begin{aligned} \pounds 1 \text{ } 18s. \text{ } 10\frac{3}{4}d. &= \pounds 1 \text{ } 19s. - 5 \text{ farthings.} \\ &= \pounds 1.95 - (\pounds 0.005 + 0.05d.). \\ &= \pounds 1.945 - 0.05d. \end{aligned}$$

Hence 100 articles at $\pounds 1 \text{ } 18s. \text{ } 10\frac{3}{4}d.$ each, cost $\pounds 194.5 - 5d.$; or $\pounds 194 \text{ } 10s. - 5d.$; or $\pounds 194 \text{ } 9s. \text{ } 7d.$

(iv) Find the simple interest on $\pounds 285 \text{ } 14s. \text{ } 7d.$ for three years at 4 per cent. :—

$$\begin{aligned} \text{Principal} &= \pounds 285.725 + 4 \text{ farthings.} \\ &= \pounds 285.729 + 0.04d. \\ \text{Interest} &= \pounds 285.729 \times \frac{12}{100} + \frac{0.04d. \times 12}{100} \text{ (negligible)} \\ &= \pounds 34.287. \\ &= \pounds 34 \text{ } 5s. \text{ } 6d. + 12 \text{ farthings} - 0.12d. \end{aligned}$$

(negligible).

$$= 34 \text{ } 5s. \text{ } 9d.$$

(v) Multiply $\pounds 1 \text{ } 13s. \text{ } 7\frac{3}{4}d.$ by 231 :—

$$\begin{aligned} \pounds 1 \text{ } 13s. \text{ } 7\frac{3}{4}d. &= \pounds 1.675 + 7 \text{ farthings.} \\ &= \pounds 1.682 + 0.07d. \end{aligned}$$

$$\pounds 1.682 + 0.07d.$$

$$\begin{array}{r} 231 \\ \times 1.682 \\ \hline \end{array}$$

$$\begin{array}{r} 231 \\ \times 0.07 \\ \hline \end{array}$$

$$1.682$$

$$50.46$$

$$336.4$$

$$\pounds 388.542 + 16.17d.$$

$$= \pounds 388 \text{ } 10s. \text{ } 6d. + 17 \text{ farthings} - 0.17d. + 16.17d.$$

$$= \pounds 388 \text{ } 10s. \text{ } 10\frac{1}{4}d. + 1s. \text{ } 4d.$$

$$= 388 \text{ } 12s. \text{ } 2\frac{1}{4}d.$$

As the above examples show, the method appears to have possibilities. Of course, as compared with other methods of computation, the choice of the decimal method is a matter of judgment. The advantage of the system now given over those found in present text-books is that there is no doubt as to degree of accuracy.

A. H. BELL.

Sheerness Technical Institute.

German Handwriting.

Die Deutsche Fortbildungsschule has recently discussed at some length the question of handwriting for commercial purposes. Not one of the specimens recommended is in Gothic.

I should like to know the experience of those who, like myself, do not teach German but have a considerable correspondence with German-speaking peoples. I find that official communications are usually typewritten, that private correspondence dealing with scientific matters is invariably in Roman, whilst domestic correspondence in Gothic is rare and is indicative either of antiquity or pedantry.

So many teachers of German have confessed that "German handwriting" is a convenient way of killing time with a dull class that I must consider the teacher of German as out of court.

P.

The School World.

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

COMMERCIAL EDUCATION FOR GIRLS.

By SARA A. BURSTALL, M.A.

Headmistress of the Manchester High School for Girls.

FOR some years past vocational education has attracted much attention, and experiments of various kinds have been made in developing particular types. The most remarkable example—one that has a strong appeal at the moment—is the system at Osborne and Dartmouth, which has already sent to our ships officers of sixteen years of age, competent to take their share in the work of national defence on the North Sea. Domestic training for girls is popular everywhere, and the present need for the primitive activities of women is likely to secure even more attention being given in the future to training for home life and for making a living on the land. Commercial instruction, as we all know, has for long been received by a large number of girls who wished to earn their own living in what is supposed to be an easy way. In the present dislocation of trade, women clerks are out of work, and even the better type of secretary finds it hard to retain or secure employment. For the moment, therefore, commercial education for girls is out of favour. We believe this, however, to be a mistake.

When the war is over, a very much larger number of women will find themselves obliged to earn a living. Trade and industry will ultimately revive, and there will probably be a much greater amount of national and social organisation of various kinds. Thus there will be in the future plenty of work for really well qualified women clerks and secretaries, and it is to prepare our girls for such opportunities that commercial education at this time should be directed. It is easier now than it was six months ago boldly to state that clerking is not men's work; it is much better suited for women, provided only they

have a proper training. Many employers find by experience that women make more efficient clerks. They have a gift for detail, they take more interest in their work, and their sympathy and tact, which are part of their gifts as women, make them much better able to be of real help to a principal. A woman of some natural gifts and sound training is often content to remain as a secretary or clerk, when a man of corresponding ability would not be satisfied unless he had more room for initiative and adventure. However, if women are to take an increasingly important part in this necessary section of national work, they must be really well educated for it. The value of their services has unfortunately been discounted owing to the performances of the ill-educated young women with pearl beads round their necks, who mechanically learn the mechanical elements of typewriting and shorthand, and have no foundation of sound general education. Too often such girls have very little sense of responsibility, and still less sense of duty. They crowd the offices, and the excellent work which is done by many of the more helpful and better-bred women is ignored and overwhelmed.

It is easy to say what commercial education is not. Let us try to sketch what it is or ought to be. First, it must be a real education; it should be prolonged until *at least* seventeen years of age, when the maturer thought and manners, the fuller sense of responsibility of the young woman, have had some opportunity of developing under the influence of cultivated women teachers and in the environment of the discipline and corporate life of a school. The Vice-Chancellor of Leeds has often reminded us that in education "time is of the essence of the contract." This is indeed true of the training of a girl clerk or secretary; she needs time spent in a certain right kind of atmosphere, favourable to the cultivation of the qualities needed for her particular vocation—meticulous accuracy, earnestness, business-

like habits, personal neatness, a certain type of manner, sympathetic yet not fussy, deferential but not servile. More important than these is the development of a high sense of honour, of a certain professional feeling and tradition, which will make the girl clerk instinctively say to herself, in her first post, "that is the sort of thing we don't do." It is, perhaps, better for the pupils to be taught in the department of a school rather than in a separate institution. The very strength of their own class consciousness, which is, as we have seen, desirable, needs the corrective of wider life and of mixing with girls who are preparing for other callings. They can also learn the great lesson of service better if they are constantly doing things for the rest of the school, from typing reading material for the juniors to manifolding Latin prose for the sixth, and circulars for the Head.

There is some difference of opinion as to how far and what age general education should be specialised and, as it were, coloured by vocational influences. Some authorities prefer that a girl should take her senior school certificate, *e.g.* matriculation, and then concentrate on the technical arts and the special vocational subjects. The present writer strongly dissents from this view for the average girl, so long as matriculation is what it is. Her reasons are:—First, there is not, as a rule, time, if a girl is to have the two years in the secretarial department which are necessary for the acquirement of the right tone. Secondly, the matriculation course is not only not helpful, but is in some respects a hindrance to the stability of the structure of vocational work to be added afterwards. It would take too long to elaborate this thesis, but it has the weight of some experienced professional opinion. Thirdly—and this is the most important reason of all—the moral effect of vocational education is extraordinarily strong, and in many cases it is much better for the girls to be brought under this, instead of being driven (or allowed to drift) through an ordinary school course which does not in the least appeal to them. Academic studies are not suitable for everybody, and many girls develop much greater accuracy, keenness, and real intellectual power when they are face to face with the special subjects that they must learn, to enable them to fulfil their aims in life. This principle is seen in perhaps its strongest manifestation in the progress our recruits in the new army are making at present in the arts of war; they learn ten times faster than unwilling conscripts.

In a vocational department of a school the subjects of general education must be

specialised and coloured by the needs of the vocation. For commerce, history should become civics; geography less scientific and more topographical; arithmetic should deal with problems of exchange, book-keeping, and quick calculation; literature should be rather modern prose than Elizabethan poetry. Besides these general subjects, every vocational course must have a solid core of hard work. Science supplies this in the housewifery department; at present shorthand supplies it in a girl's commercial course. This subject is of real educational value if it is properly taught; it develops accuracy and it is logical. On the other hand, it does not require the grasp and the intellectual power for proficiency that Latin and mathematics need; thus many more girls can learn it properly, and it is suited as intellectual discipline for the less able girl. If typewriting is to be educational, it must be taught on the "touch" method, which is the best for speed and accuracy at later stages, though it takes very much longer to learn. This method, which is essentially the same as that of piano-playing, requires at first an intense concentration which has a very real moral value. Typing, too, brings home to the most careless pupil the need for accuracy to secure proficiency. A good deal of school time must be given to these technical subjects, but headmistresses are quite willing to arrange this when they realise the value of the technical subjects as discipline.

English is, of course, of vital importance, though girls and parents do not always realise this, and requests for exemption are not infrequently made. Formal lessons in essay-writing are often found necessary, and in any case the reading of good prose must be encouraged. The use of a form library, and in class rapid reading of books like "Pride and Prejudice," "Silas Marner," Thackeray's "Round-about Papers," are probably better than formal careful study of one set book. Training in English phonetics is necessary for the sound study of shorthand, but this may have been given at an earlier stage. Throughout the commercial course letter-writing must be taken, and developed in the second year into the more technical correspondence (which need not be ungrammatical), and may follow business forms. Girls will find posts of various kinds, and should have practice in writing invitations and other social letters, memoranda, reports, etc. It is quite possible to train them to deal with a principal's correspondence from his notes or brief directions, and so save him the burden of dictating every word. This is a power which principals always appreciate. With correspondence will

come a certain amount of business routine, filing, the use of card-indexes, manifolding, *précis*, etc. Details of any particular business the girls can learn when they are settled in it. This point applies also to book-keeping; principles of accounts should be taught, but firms vary so much that the formalities of book-keeping can be best learnt in the business house. All commercial education should include some elementary economics, exchange, function of banks, currency, transport, etc. Girls from eighteen to nineteen could follow formal economics, a study of very valuable kind, and obtain a wider outlook. There is little time for geography, but one period a week for half a year may well be devoted to the old-fashioned type of work, learning where places are, steamer routes, use of Bradshaw, etc.

The importance of the study of modern foreign languages by English girls will undoubtedly be realised more fully now than in the past, and there will be more openings for foreign correspondents than ever. In the commercial department as much time as possible should be given to languages, but each girl should not learn more than two, French not necessarily one of these. In some parts of the country there is a marked demand for German, and Spanish is generally very valuable. In two years a good deal of the latter tongue can be learnt, especially by girls who have had some Latin in the middle school. In Lancashire, Portuguese is useful. One would like to introduce Russian, but it is perhaps too difficult for school study. The Handelsklassen of the Höhere Töchterschule in Zürich form an excellent model on this side of commercial education. There four languages are studied: German, French, Italian, and English. There must, of course, be some basis of earlier knowledge in French and German before a girl enters the secretarial department. Drawing and lettering are valuable if only time can be found to keep up the practice of art. In the opinion of the present writer, there is no time for mathematics and science, and no profit in their study after the middle school, for the girl who is specialising in secretarial work.

The following plan is suggested for a thirty-period week without including home-work. The course is heavy, but as it prepares directly for life, no one is likely to complain of it, and with careful watching, good food, and *no distractions*, girls can follow it quite safely.

The numbers refer to periods per week.

Scripture and English	...	...	...	...	4
Arithmetic and Accounts	...	...	...	...	3
Civics, Geography, or Economics	...	...	...	...	2
Correspondence	...	...	...	...	2
Shorthand	...	...	...	...	4

Typing	...	...	...	...	6
Gymnastics	...	...	...	...	1
Modern Languages (two)	...	...	...	...	8

This may be compared with the Zürich table:—

A 36-Period Week.

German, French, English, each	...	...	...	3
Commercial Correspondence	...	...	...	2
Accounts	...	...	...	4
Commercial Geography	...	...	...	2
Natural History	...	...	...	2 (first year)
Chemistry and Knowledge of Materials	...	...	...	2
Commercial Law and Hotel Management	...	...	...	2
Writing and Typewriting	...	...	...	4 or 3
Gymnastics	...	...	...	2
Practical Work	...	...	...	3
Optional Italian or Spanish	...	...	...	3
Singing	...	...	...	1

These statements as to subjects and balance of curricula may appear somewhat dogmatic; they are the result of experience in a particular environment only. In another district a different balance of subjects may be required. Indeed, perhaps the most important principle in drawing up a scheme of commercial education is that the scheme must suit the demand of the particular locality. Education and life are in very close connection in matters of this kind; a department which is to do this work effectively must adapt itself most carefully to the conditions and requirements of the industry, the commerce, and the social life which it has to serve.

PHONETICS AS AN AID TO ENGLISH TEACHING.

By WALTER RIPPMMANN, M.A.

NOT long ago I had occasion to interview a young fellow who had been privileged to receive his education at a school well-known for its successful teaching of modern languages. I was not disappointed in his knowledge of French and German; that was distinctly good. He could speak with considerable facility, and his pronunciation afforded evidence of sound phonetic training. But—and here is the point I wish to emphasise—his articulation of English was deplorable. Apart from weak adjustment in most sounds, he had a horrible throat *r*, and his *l* was scarcely recognisable. It cost quite an effort to understand his speech.

Defective speech like his makes me feel like a doctor keen to help a patient. In a short time the hints I gave had worked a considerable improvement. Unfortunately, I have lost sight of him, and do not know whether he has sufficient perseverance in the struggle against his old habits.

I am not going to give the name of the school, or of its headmaster—a man of keen intelligence and a good English scholar—for this case does not appear to be at all exceptional. Here was a boy who went on pronouncing his mother tongue badly throughout his school life; he knew that people often had trouble in understanding him, and his masters and schoolfellows even made fun of him on that account; but—so he assured me—*no one had ever attempted to help him to better speech*, until he chanced to come under my observation. They had taken infinite pains over his French and German sounds; his English sounds had been neglected. Yet for anyone with some knowledge of English phonetics the task of substituting good sounds for his bad would have presented little difficulty, especially at the time when he entered school.

It is when a child first passes from home into the hands of the teacher that its speech should receive immediate attention. This is of supreme importance where the home speech is bad; and taking the children of the nation as a whole, the proportion of those who enter school with good clear speech is insignificant. Yet speech is the means by which all intercourse between teacher and pupil is carried on in the early stages, and even later it remains the chief instrument of instruction.

The child's speech is defective in various ways. With the vocabulary we are not here concerned, though the inadequacy of that is a matter deserving more study than it has received. The child may not possess certain speech sounds at all; thus, it may come to school without *r* or *th* in its speech, substituting other sounds where these occur in a word: or the child may have acquired from its environment sounds not found in good speech: or it may use right sounds in the wrong place. By the time the child comes to school it has uttered the wrong sounds many thousands of times, and consequently bad habits of speech have been firmly established. With every year the problem of eradicating them becomes more difficult.

It stands to reason that it is one of the earliest duties of the teacher to make his pupils speak clearly and well; and those who are concerned with the "infants" should therefore be fully equipped for this task. They should show the little ones how to breathe properly; for breath is the material of speech, and the importance of good breathing for the general health cannot be overrated. They should make them utter the sounds of standard speech, singly and in combination, individually and in chorus, in monotone and in musical form. When a child does not

possess a *th*, for instance, but uses *f* or *v* instead, it should be shown how the *th* is made—a matter of no great difficulty; if it lisps, it should be taught to produce a good *s*; and so on. It is not too much to say that we might expect a knowledge of such elementary phonetics, not only from every teacher of the young, but from every educated person. If all were well, the mother and the nurse could be trusted to provide our little ones with the correct sounds.

This, however, is far from being the case at present. The educated person is woefully ignorant of the sounds of his mother-tongue; which does not prevent him from laying down the law with the utmost assurance on all questions of pronunciation. Recent discussions on spelling reform have led a good many to air their views in the Press, and it were easy to collect an anthology of remarkable pronouncements which would be extremely funny if they were not evidence of widespread ignorance. That this is the result, in large measure, of the stultifying effect of our irrational spelling, I have no doubt.

As things are now, we must sorrowfully confess that the teachers of the young often let the children pass from their hands without supplying that training in speech which they might give very easily, and which would enhance the efficiency of the school work generally. Neglect of the vocal organs leads to waste of effort for two reasons: the children speak indistinctly, and they fail to hear well. It is not sufficiently realised that greater precision in the use of the vocal organs is accompanied by an improvement in the hearing of speech sounds. A good deal of what the teacher is tempted to regard as inattention or perhaps deafness is really the result of neglected ear-training.

Defective speech not having been remedied in the early stages of education, it becomes necessary to consider what the secondary school can do to improve the pupils' speech. For the sake of simplicity, I shall confine myself to the modern type of public secondary school, which has been so successfully fostered by the Board of Education. As a rule these schools receive a certain proportion of pupils from preparatory schools at the age of nine or ten, and there is a considerable influx of "free placers" and other ex-elementary pupils at twelve or thirteen.

The grounding of those who enter the secondary school at the earlier age is generally a very uncertain quantity. In the matter of speech they are, on the whole, perhaps superior to those who enter at the later age; in other respects their knowledge of English is, as a rule, not good. It is consequently

found advisable to set aside a good deal of time for the study of the mother tongue, and part of this should undoubtedly be allotted to systematic training in speech, with the use of the phonetic signs. At least a period weekly, for a year, should be given to this important work, which should precede the learning of the first foreign language. Fortunately, the conviction is gaining ground that one or two periods a week for French "to give them a start" is sheer waste of time; French is now begun a little later, and thus additional time is set free for English.

The case of the ex-elementary pupil who enters the secondary school at twelve or thirteen is different. French must be taught at once; and none of the English periods can well be spared for phonetics. At the same time it is important that the teaching of a good English pronunciation should be taken in hand immediately. The simplest expedient, which has the additional merit of not interfering with the time-table, is to devote all the French lessons, for the first three weeks or so, to intensive work at English sounds. It may seem a little hard on the French teacher; but, after all, it is a great advantage in the teaching of the French sounds to be able to build on a good knowledge of English phonetics. It will also make it necessary for the French teacher to study the English sounds with some thoroughness; neglect of this affords the explanation why so many French teachers of their own language failed completely to impart a good pronunciation.

The form which the teaching should take cannot be rigidly laid down; it must vary somewhat according to the special difficulties and weaknesses of the pupils. There are far-reaching differences between the speech of a London child, a Yorkshire child, and a Welsh child. But in general we may say that the training necessarily includes breathing exercises, drill in the individual sounds, and practice of connected speech. As there must be correlation in the school work, the teacher of phonetics will act in consultation with the teacher of physical instruction as regards breathing exercises; with the teacher of singing, as regards individual sounds; and with the English teachers, with regard to connected speech. Of course, it is quite possible that the teacher of phonetics may also be intrusted with the teaching in one or several of the other subjects mentioned.

Owing to the inadequacy of our spelling, it is desirable to use standard symbols, each of which stands for one sound and no other; and the same signs, with certain limitations, should be used for all vocal sounds uttered by the child in school. The only alphabet that

fulfils these requirements is that of the International Phonetic Association, which is now well established wherever in this country phonetics is seriously taught. It is manifest that when a child is given one set of signs in its English lessons, another in its French class, and again another in singing, it must become hopelessly confused. Incidentally, it may be mentioned that those who lay stress on the good pronunciation of the classical languages will be well advised to make use of these same symbols. It is not rare to find very English sounds masquerading as "reformed Latin pronunciation."

There remains a serious question: What is good English speech? The very fact that such a question can be put indicates how little attention we have paid to the spoken word in our educational work. There are even some who would deny the necessity of determining the standard of pronunciation, while others maintain that several standards should be recognised.

No one, I imagine, thinks that we should make no attempt whatever to influence the speech of the schoolchild; but, if we are to correct it at all, we must have some ideal speech in our mind to which we try to make the child's approximate. We want our pupils to speak clearly and pleasantly, because indistinct and ugly forms of speech are not only wasteful but unsocial. They are wasteful because they often cause unnecessary effort to produce and to understand. They are unsocial just as a bad handwriting is unsocial. The best form of speech is that which enables the hearer to apprehend our meaning in such a way that nothing in the manner of our speaking distracts his attention from the thought to be conveyed. If our speech is peculiar to a district, it will be satisfactory only if our hearer also uses that particular form of speech; if not, it will interfere with his direct apprehension of what we say. If we pronounce certain words differently from other educated people, they will attract attention whenever they occur. If we talk through the nose, or in a persistently high pitch or sepulchral tone, our words will not produce as good an impression as their content may merit. If we use certain sounds that are associated with the speech of people of inferior social standing, we may seriously retard our progress in the career we have chosen.

The practical importance of clear pleasant speech without personal, local, or social idiosyncrasies is manifest; and from these considerations alone we are well advised to cultivate it in our pupils. From the aesthetic point of view also; for it is certain that we can only then appreciate to the full the beauty of

the finest literature, prose as well as poetry, if we hear it well read or recited, or if in reading it suggests the true sounds to us. All attempts to develop a love of the spoken word by the exquisite presentation of great works are to be welcomed; but even within the walls of the classroom the teacher can do much to show the music that lies in our language.

We are not yet in a position to lay down what is "good English speech," but we are getting nearer to it. The pronunciation of the educated is becoming more and more uniform; it is far more so than a century ago. As the number of those interested in phonetics increases, the demand for a well-established standard will grow urgent.

Two objections to efforts made in this direction may sometimes be heard. Some say it would be monotonous if all spoke alike. This shows a misapprehension of what is aimed at: it is a standardising of sounds, not of intonation. The expressiveness of our speech depends on variations of pitch and stress and pausing, not on varieties of pronunciation. Others fear that the determination of a standard would lead to the extinction of dialects, whereas the very opposite is true. Our teachers and pupils would realise the true relation between the standard speech and the dialects; they would take a fresh interest in both. It is only the peculiar varieties of speech in our great towns, of which some forms of Cockney may serve as examples, that would suffer; and we are probably all agreed that that would be an advantage.

In this article we have kept in view only our own immediate needs, but there are others farther afield who want to know what they are to regard as "good English speech." It is reasonable to assume that when we have emerged from the present crisis the English language will spread more rapidly through the world than ever before; and we may well regard it as a sacred duty to help our distant fellow-subjects as well as foreigners to acquire our language at its very best; and that means clear speech—not to mention clean spelling.

EXPERIMENTAL METHOD.

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THE merit of scientific observation lies in the direct appeal to Nature for truth instead of to authority. Whenever man has seen things for himself, and has not been content with vicarious observation, he has taken a decided step towards the emancipation of the human race from the trammels of traditional doctrine. But modern science de-

mands something more than an open eye for its advancement; it requires the kinetic quality of mind that tests by experiment the things which might be, as well as observes things as they are.

Scientific observations of natural phenomena were recorded four thousand years or more ago, but recognition of the essential importance of experimental science of the modern type is only about three centuries old, though the method was adumbrated at an earlier epoch.

As an observer and a recorder Aristotle surveyed the whole realm of Nature in his works, and had familiar knowledge of a thousand varied forms of life. He brought together an immense amount of accurate observation and examined it with skilful reasoning, but he was often led astray by pre-conceived ideas, and based his conclusions upon reports which were more curious than important. What he and other ancient philosophers particularly lacked was the method of inquiry by experiment. It is true that Pythagoras, in the sixth century B.C., is credited with the use of a monochord, or single stretched string, of which the length and tension can be varied, to determine by experiments the law that the pitch of a note is inversely proportional to the length of the vibrating musical string, and to discover numerical relations between the various notes on the musical scale. It is also true that Ptolemy, in the second century A.D., determined by experiment the refraction or amount of deviation which a beam of light undergoes, from its original direction, when passing from air into water, or into glass. But these determinations, and the work in acoustics by Pythagoras, represent the sum total of experimental research in Greek science.

There was an interval of a thousand years between Ptolemy's investigations in optics and the experiments made by Alhazen, whose substantial studies of reflection, refraction, vision, the human eye and related subjects are the outstanding contributions of Arabia to physical science in a period during which the Arabs were in advance of the whole world in intellectual and industrial activity. It was chiefly upon the researches of Alhazen that Roger Bacon based the principles of optics expounded by him. This Franciscan Friar of the thirteenth century anticipated many later discoveries in physics and chemistry, and though he did not actually discover the telescope, he described in detail the properties of lenses and how they could be used to make distant objects appear nearer.

Seneca refers to the fact that a glass globe filled with water has the property of magnify-

ing letters near it, but the earliest mention of crystal lenses appears to be in Roger Bacon's "Opus Majus" (1276), where they are described as instruments "useful to old men whose sight is weakened, for by this means they will be able to see the letters sufficiently enlarged, however small they may be." Roger Bacon may perhaps be regarded as the inventor of the simple magnifying glass, but microscopes did not come into use by naturalists until after the invention of the telescope about 330 years later.

Roger Bacon was the earliest philosopher to insist upon the value of experiment in scientific investigation. "We have," he said, "three means of knowledge—authority, reasoning, experiment. Authority has no value unless its reason be shown; it does not teach: it only calls for assent." Again, "Armed with experiment and calculation, science must not be content with facts, though these may have their utility; it seeks truth; it wants to find out the laws, the causes—*canones, universales regulae*."

In the bold appeal which Roger Bacon made to experiment and the observation of Nature, he stood out as the champion of unfettered inquiry in a period of scientific stagnation, and he suffered persecution, banishment and imprisonment for his temerity. In popular esteem the memory of this champion of experimental science and advocate of positive knowledge has always been cherished; and after seven hundred years Oxford commemorated a few months ago the birth of this, one of her greatest sons, described by Humboldt as "the greatest apparition of the Middle Ages," by erecting a statue to him.

Two hundred years after Roger Bacon, appeared that prodigy of Nature, Leonardo da Vinci (1452-1519), whose curiosity was insatiable, and whose methods were to search out all things, to experiment and verify, to let his eyes test and his reason judge.

In treating any particular subject I would first of all make some experiments, because my design is first to refer to experiments and then to demonstrate why bodies are constrained to act in such a manner. This is the method we ought to follow in investigating the phenomena of Nature. Theory is the general, experiments are the soldiers. Experiment is the interpreter of the artifices of Nature. It is never wrong; but our judgment is sometimes deceived because we are expecting results which experiment refuses to give. We must consult experiment and vary the circumstances, until we have deduced general laws, for it alone can furnish us with them.

Leonardo was by profession an engineer, but he was also sculptor, musician and poet, and his fresco representing the Last Supper places him among the most illustrious artists

of the world. He investigated thoroughly the laws relating to the movement of water and hydraulics generally, and anticipated many of the theories for which credit is often given to men of science who lived many years after him. Hallam, in his "Introduction to the Literature of Europe," says that the discoveries which made the names of Galileo, Kepler and others famous, the system of Copernicus, and the theories of modern geologists, were anticipated by Leonardo within the compass of a few pages; not perhaps in the most precise language, or in the most conclusive reasoning, but so as to strike us with something like the awe of preternatural knowledge. In his work as an engineer he followed truly scientific methods. "Those," he said, "who are infatuated by practice without science, are like the navigator who sails a ship without helm and compass; he never knows with certainty whither he goes. Practice must always be built upon theory. Study science first, then follow the practice which is born of science."

Bernard Palissy, the potter who sacrificed everything, even the furniture of his cottage, in the production of a glaze for earthenware, was also one of the earliest followers of the experimental method of studying other aspects of Nature. His life extended over nearly the whole of the sixteenth century, and his contributions to agriculture, chemistry, mineralogy and geology disturbed the schoolmen and provided a new foundation for science. He was the first to give a true explanation of the origin of springs, and like Leonardo da Vinci, he understood that fossils represented past forms of life and were not freaks of Nature or relics of the world before Noah's flood. Buffon said of him, about a century and a half later, "a simple potter of the end of the sixteenth century was the first to dare to tell Paris and the doctors that marine fossils were true animal remains, were deposited in a sea in the place where they are now found, and were born of their respective animal parents. This he defied the Aristotelians to deny."

Palissy offended the alchemists and astrologers of his time, as well as the priests and philosophers, by his ridicule of cherished opinion regarding natural objects and phenomena; and he died in prison in consequence of his appeal to observation and experiment for the basis of every speculation. He was an apostle of the inductive method, and demonstrated its application to large audiences in Paris, during the three years which Francis Bacon spent there in his youth; it has indeed been suggested by Sir Clifford Allbutt that Bacon first derived his ideas of inductive philosophy from the collections and contentions of Palissy, whose observations and

influence are, however, rarely mentioned in the history of scientific thought.

Dr. William Gilbert (1540-1603), of Colchester, known to most students of magnetism and electricity as the founder of these branches of science, also practised the experimental method of investigation before Francis Bacon wrote about it. He is, indeed, repeatedly mentioned by Bacon in the "Novum Organum," and elsewhere he is praised both for his industry and his method, but censured for endeavouring to build a universal philosophy upon a narrow basis; and not without reason. Though Gilbert was in many ways imbued with the modern spirit of experimental inquiry, he was so dominated by the notion that magnets possessed some sort of soul or spirit that he cannot rightly be placed among the moderns, but may perhaps better be considered as a sort of connecting link between them and medieval superstitions. He did, however, make better use of the experimental method than any natural philosopher who preceded him, and his work did much to break down the barrier raised by traditional belief against independent investigation.

The ancients used only two methods of investigation—the philosophical and the mathematical; the third method, by experiment, was put into deliberate practice by Palissy, Gilbert and Galileo. By offering experimental evidence against what was believed to be the teachings of Aristotle, Galileo established the modern experimental method of inquiry in Nature. The authority of Aristotle as the arch-priest of natural science had been questioned before the time of Galileo, but no attempt had been made to confound it with truths secured by direct appeal to Nature. The high regard in which Galileo held the facts obtained by experiment, in comparison with the conclusions of peripatetic philosophy, is reflected in a letter written by him in 1615:—

I would entreat these wise and prudent fathers to consider diligently the difference between opinionative and demonstrative doctrines, to the end that they may assure themselves that it is not in the power of professors of demonstrative sciences to change their opinions at pleasure.

Francis Bacon is sometimes called the father of experimental philosophy, but it may be doubted whether he merits the title; indeed, he disregarded in his own works the very principles of scientific investigation expounded by them. What Bacon did was to form into a system the method of investigation which consists in asking questions of Nature herself, of making observations with great care, carefully arranging them, and cautiously arriving at conclusions from them.

Aristotle had long before insisted upon the collection of facts, and urged that we must "first classify them, bring particular facts under general heads and co-ordinate them into theories." He collected so-called "facts" by hundreds, and proceeded to speculate upon them as if they were unalterable truths, whereas in many cases they were merely old women's tales or other hearsay evidence. His method was a logical machine which could produce reasonable results when provided with sound material to work upon, but not otherwise.

Aristotle and the school of thought he dominated for nearly two thousand years, knew nothing of the experimental method of inquiry; and by proclaiming that "our only hope is in the regeneration of the sciences by regularly raising them on the foundation of experience," Bacon became the apostle of a new school of philosophy, though not the founder of it.

Bacon's influence in establishing this inductive process of inquiry is often overestimated, and he owes his prominence to the fact that his works appeared at the right psychological moment, when the age was ripe to receive a new philosophy. As we have seen, three centuries before the time of Francis Bacon, the main doctrines he promulgated had been proclaimed by Roger Bacon, and not only announced as articles of scientific belief but also followed in practice.

It is clear, therefore, that modern methods of observational and experimental science were not founded by the works of Francis Bacon. Before his days, Tycho Brahe had gone to the heavens for his astronomical facts instead of to Greek philosophy, and had earnestly urged his pupil Kepler "to lay a solid foundation for his views by actual observation, and then by ascending from these to strive to reach the causes of things." Leonardo da Vinci had advanced science and engineering in many directions; and Palissy had collected and studied a large variety of natural things. Gilbert had made his memorable experimental researches on magnetism, while Galileo had confounded orthodox philosophy by his investigations in mechanics and observations of celestial objects.

Bacon drew up the rules by which he considered Nature should be studied, but he treated almost with contempt all progress accomplished without the use of his prescription, and he persistently rejected the Copernican theory, though it formed the best possible example of the application of his own system of collecting observations and arriving at conclusions from them. The natural philosophers who came after him took little

or no heed of his artificial process of discovery; and there is no evidence that it assisted in the advance of science in any way. Newton never mentioned Bacon or his system, though he was born and educated after its publication; and a study of the progress of science fails to furnish sufficient reason for believing that Bacon's "Novum Organum" has been either a powerful source of inspiration or has provided the formula by which natural knowledge has been advanced.

SCHOOLGIRLS' WORK IN WAR-TIME.

THE girls' schools in England closed for the summer holidays before July 31st. Teachers and pupils dispersed, with what proved to be unwise precipitancy, to Switzerland, France, and Germany. Thanks perhaps to the discretion of the Press, the average educationist had refused resolutely to realise the nature of the gathering political cloud. Even on July 31st, the Letchworth "Conference on Further Education" listened sympathetically and with due respect to a German professor who had travelled all the way to Garden City for the express purpose of explaining to a friendly audience how civics should be taught in schools. The Summer School of Patriotism, too, had been organised at Bexhill-on-Sea to discuss an abstract virtue.

We have been taught a practical lesson in civics and in patriotism during August and September, such as the generations to come can neither ignore nor forget.

At the time of writing, the young men of England and of her Overseas Dominions are at grips with the grim realities of war. Meanwhile their sisters are learning the gentler, but not the easier, lesson of wise solicitude for the sorrows and needs of our own and of other nations. The present article attempts to describe the various ways in which girls in public and private secondary schools are meeting distress and need.

On August 20th, the President of the Board of Education addressed to his "colleagues in the national service of education" a letter of good cheer and advice.¹ The letter breathes a spirit of quietness, confidence and self-control—qualities which he urges teachers to foster in their pupils, of both sexes. During the same month the Association of Headmistresses had been considering the formation of some body which might act as a guide to those responsible for turning the energies of school-girls into useful and varied channels—channels likely to be of sterling service to our sailors and soldiers and to civilian sufferers.

In September, a letter signed by the president of the association, Miss Robertson, of Christ's Hospital, which, by the way, is the most ancient girls' school in the kingdom, was addressed to the headmistresses of girls' secondary schools, both public and private. Miss Robertson announced that, with the gracious permission of Her Majesty the Queen, Her Royal Highness the Princess Mary had consented to become the patroness of the Girls' Patriotic Union of Secondary Schools—an organisation formed to offer advice and guidance during a period of stress and anxiety, and intended to act as a means of inter-communication between schools working for the same end; in effect, a union to prevent waste of endeavour and the overlapping of energies.

The nation as a whole was quick to recognise that a war on a scale so huge as the present must sooner or later dislocate the business organisations of the country and cause much unemployment, chiefly at first among women. The committee which guides the activities of the union was as anxious as the most exemplary trade union could desire to prevent schoolgirls from competing with paid workers. The preliminary letter contained the following warning, printed in type different in size and character from the body of the letter:—

"While wishing to encourage schoolgirls to undertake any work which they can usefully carry out, we desire to emphasise the great importance of providing paid employment as far as possible for those who need it."

Another advisory paragraph strongly urged schools "to work in connection with local organisations, and to ascertain their probable needs before undertaking any work."

It must not, however, be supposed that the formation of the Girls' Patriotic Union in September saw the beginning of schoolgirls' work for the sick and wounded, and for the wives and children of men at the front or afloat. Several schools, especially in the north, had not waited for advice or suggestion, but had set to work at once. One well-known high school, with characteristic energy, met early in August to register pupils ready to undertake voluntary work. Girls from the secretarial department rendered assistance at the Central Red Cross Office and in relief work of various kinds. First-aid classes were held once a week by the school medical officer. A course of lessons was given in invalid cookery to past and present pupils, who afterwards sent in their names to Red Cross organisations in their own districts as qualified to help with cooking for the sick and wounded. A number of girls volunteered for general

¹ THE SCHOOL WORLD, 1914, p. 362.

housework. The making of shirts, socks, nightshirts, and other garments for soldiers was carried on, as well as clothing for infants and children to be afterwards distributed to the schools for mothers. A section was organised for the making of jam, which is being consumed by poor children and by patients in hospitals.

Each school which has joined the Girls' Patriotic Union has been invited to send an account of its special work. The record of these affords valuable suggestions to schools in different parts of the United Kingdom which, before joining the Union, had been uncertain in what direction to employ their energies, and the headmistresses of which had experienced some difficulty in choosing among the various branches of work open to girls that most suited to the energies and resources of their pupils.

Letters from headmistresses received by the hon. secretary of the union, Miss F. R. Gray, High-mistress of S. Paul's Girls' School, have, almost without exception, borne witness to the keenness of the girls and to their eagerness in responding to calls for active service and personal self-denial. In some cases prizes this term will be replaced by certificates, or by awards of little money value, the amount saved going into the war coffers of the school. In a large number of schools collecting boxes have been placed in the classrooms, in which money is put voluntarily and unobtrusively. The girls are made to understand that their gifts (of which they receive no public acknowledgment) should represent real self-denial, and not the result of a successful raid on the pockets of over-taxed parents. Then, again, some schools are relinquishing their Christmas parties altogether and devoting the money so saved to the purchase of material for garments for the needy, or to the entertainment of poor children.

Girls who have money give it gladly, and the sums periodically collected are spent in providing paid employment for sewing-women and cutters-out, and in supplying material for garments.

A delightfully simple and friendly scheme has been adopted by the pupils of a large school in the neighbourhood of a military hospital. Each week they provide the wounded soldiers with stamped envelopes containing, not only the necessary sheet of paper and pencil, but a personal message of greeting from the giver.

Schoolgirls in a suburban district badly hit by the war have made it their duty to care for and assist girls of their own age, independent wage-earners and perhaps even the part-supporters of others, who have lost their em-

ployment as dressmakers, or in shops or offices.

Many schools have concentrated all their energies on clothing poor children. Others are busily knitting mittens, belts, helmets, mufflers, etc., for mine-sweepers in the North Sea and the Forces. In making children's clothes, where paid cutters-out are not engaged, the children themselves learn the whole process of turning out a garment, even to buying suitable material, of just sufficient quantity and of proper quality, and they are expected to render a careful account of the sums spent.

The needs of "Kitchener's Army" have not been forgotten. Mending, and in a few cases a certain amount of washing, for Recruits have been undertaken by pupils in secondary schools. One school made itself responsible for the material and the making of cloths, sheets, pillow-cases, for the enteric ward in a military hospital. Much of the kind of work undertaken demands such careful attention to and observation of exacting conditions as cannot fail to help in training children in the importance of detail and in accuracy.

A school which includes carpentry in the curriculum has set its pupils to make splints and bed tables for the wounded. Little children, too young to cope with a two-and-a-half-yard long muffler, or with even a pair of mittens, have settled down happily to knit wither pads for cavalry horses, for the dumb beasts have not been forgotten.

Girls with a knowledge of French have been able to do something to relieve to a slight degree the sadness of the Belgians who have sought our hospitality. In one receiving department the elder pupils from a private school attended day by day and "it was a revelation to them that French acquired at school was sufficiently ready to make them valuable helpers." Some found themselves able to describe the events of the day—even to the extent of translating whole newspapers into French—to our Belgian guests.

Since the beginning of term more than one school has taken under its wing a little home, where a Belgian family may find a comfortable and safe refuge. Members of the staff and the elder girls pay cheering daily visits and talk English to the children, or assist in the day's shopping and in other little ways, and the school aids in the provision of the necessaries of life. Amidst all this embarrassment of new activities, school authorities have been careful to impress on the pupils the duty of continuing to support the charities which have hitherto been their special care. In this way girls will learn to widen, but not to alter, their sympathies.

In many schools a newsboard has been set up in the hall, on which the war map and the events of the day are posted. Here, too, is often found the list of names of men from the locality and of relations and friends on service. These are remembered in the intercessory prayers.

In some places the staff and the elder girls have been able to form French conversation classes for recruits, who meet in groups and improve their accent and knowledge of grammar. With regard to book-learning, "Business has been as usual," but interest in the "business" is deepened. French, geography and history have suddenly assumed a new importance. History, indeed, in these days is throbbing with life; as for geography—

The war has already made dearer to a large section of our people the best poetry of the language. If the daily papers (penny and half-penny) have found room for poems not always of the highest level, it has surely been because present-day poets have failed in power of expression. All that they felt they felt too deeply for words or for tears. Our whole energies as a nation are employed in meeting and in overthrowing the Empire's enemy; small surprise that whilst we are so engaged the voice of Poetry is silenced. Meantime, while our soldiers on the march sing doggerel rhymes, such as shock the refined susceptibilities of the penny newspaper poets, our children in the secondary schools are learning by heart, not only the finest patriotic lines in Shakespeare, Milton, Wordsworth, but also portions of the noblest prose in our language.

If we may dare to look ahead, we see in the future a reorganisation of girls' education. The woman of the future will learn at school the sacredness and nobility of "menial" work, should menial work be required of her. In the days to come every girl who passes through a secondary school will be able to claim a prouder title than that of lady (loaf-giver), for every girl will be ready and able should need arise, not only to give, but to make, the loaf which is to satisfy the necessities of the flesh. And we venture to predict that with wise guidance the higher education of girls shall not suffer loss, but shall greatly gain.

NOTES ON THE TEACHING OF CONGRUENCE.

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IN dealing with congruence, it is generally considered that the superposition proofs present the greatest difficulty to the pupil, and many suggestions are made for their omission or postponement. But there are other

obstacles which the teacher of geometry meets in the course of his work in congruence which are much more difficult to surmount. In the application of the cases of congruence to the proof of other theorems and exercises, triangles are assumed to be congruent with incorrect or insufficient data; triangles having their angles respectively equal are said to be congruent, as are also those having two sides and a pair of not-included angles respectively equal. Judging by examiners' reports, such errors are of common occurrence, and are very difficult to cure.

In beginning the subject of congruence, it is important in the first place that the following points should be dealt with and made clear:—

(a) The number of pairs of equal parts (sides or angles) necessary for congruence.

(b) The four cases of congruence.

(c) The equalities which may be deduced from the congruence of triangles.

(d) The application of congruence to the proof of constructions and theorems.

There are two sets of exercises by which this work may be introduced:—

(i) The copying of a given triangle.

(ii) The construction of a triangle from certain data (sides or angles).

In the copying of a triangle, the first question which arises is: How many measurements (of sides or angles) must be made in order that a triangle may be copied? It is easily determined in the course of construction that the copy cannot be completed until three measurements of the original have been made and transferred to the copy. The possible combinations of three out of the six parts are (a) two angles and a side, (b) two sides and the included angle, (c) two sides and a not-included angle, (d) three sides, (e) three angles. It is found that (a), (b), and (d) always give a satisfactory copy—that is to say, the original and the copy are congruent and agree in all their other parts. This may be verified by careful measurement of the copy and comparison with the original. The side in (a) should be taken adjacent to the equal angles and also opposite to a pair of equal angles. The method of construction in the latter case brings in the angle-sum theorem and leads to the idea that the measurement of two angles of a triangle determines all three, and hence that any two angles and any side will give a satisfactory copy.

In case (e) we obtain triangles which are all the same shape as the original, but of variable size. The pupil easily determines that his measurements are not independent. He has already seen in (a) that to know all the angles of a triangle it is only necessary

to measure two. Also, in his construction he can only make use of two of his measurements. Thus he has only two independent data, and at least one side is required to complete the copy. It is useful here to indicate that the triangles vary only in the scale of the construction, and that, for any two triangles, corresponding linear measurements have a constant ratio to one another.

Case (c) presents the greatest difficulty. He finds that his measurements may enable him to construct a copy, but that he can often obtain a second triangle with the given measurements, this second triangle differing considerably from the original. Investigation to determine when the second triangle is not obtained leads to the conclusion that when the measured angle is a right angle or obtuse, the ambiguity does not arise. In fact, whenever, of the two measured sides, that opposite the measured angle is the greater, the ambiguity does not arise. It is a matter of opinion whether any useful purpose is served at this stage by entering upon a complete discussion of all the possibilities in this case. They may be indicated and the "not-included right angle" case emphasised as one which will be found to be of importance.

It is useful at this stage to ask for a written summary of the results obtained. We have shown that three independent equalities are necessary for the congruence of two triangles. Two triangles which agree in the following sets of corresponding parts (of sides or angles):—

- (i) Two angles and one side.
- (ii) Two sides and the included angle.
- (iii) Three sides.
- (iv) Two sides and a not-included right angle.

Triangles agreeing in three corresponding parts which satisfy one of these conditions will agree in all other corresponding parts.

Accompanying this work, another illustration of the fact that, under certain given conditions of construction, a triangle is unique, may be obtained by the use of a framework of rods of thin wood or stout cardboard joined by pins. If with four such rods of given lengths a quadrilateral be constructed, its angles are not determined. The quadrilateral framework may be altered in shape without moving the pins. If, however, one diagonal is also given, the framework is now rigid and the angles are determined. If the framework be constructed of three rods of given length, it is rigid, and its angles are fixed in magnitude. If two sides and the included angle are given, the third rod can have only one position, and a rigid framework results. The other cases may be illustrated in a similar way.

Following this work, some exercises may be taken on the construction of triangles from certain data. The following examples will serve to illustrate the data supplied.

Construct the triangle ABC in the following cases where possible:

- (i) $\hat{A} = 70^\circ$, $\hat{B} = 50^\circ$, $AB = 6.7$ cm.
- (ii) $\hat{A} = 72^\circ$, $\hat{B} = 49^\circ$, $\hat{C} = 69^\circ$
- (iii) $\hat{A} = 90^\circ$, $\hat{B} = 70^\circ$, $\hat{C} = 54^\circ$
- (iv) $AB = 12.5$ cm., $AC = 6.8$ cm., $\hat{B} = 34^\circ$.

Each case should be illustrated at least once; the pupil should state in each exercise which three parts are given. If the construction fails, the reason should be stated, and all cases in which more than one triangle can be constructed should be indicated. These exercises impress the fact that a triangle constructed with given measurements is unique only under certain conditions; in some cases no construction is possible for reasons assigned, whilst in other cases two or more triangles are obtainable.

Having determined practically the conditions of congruence of two triangles, we may now consider congruence as a method of proof by applying it to the solution of a large number of exercises. The pupil soon appreciates the usefulness of this method in investigating the validity of certain constructions and the properties of other geometrical figures. He is quick to suggest that we should look for congruent triangles when required to prove lines or angles equal. These exercises serve in the first place as practice in the picking out of equal parts in the triangles. It must be understood that no parts may be set down as equal without a reason given. The tendency to assume lines or angles equal from the appearance of the figure can be, to a certain extent, eradicated by insisting upon a written reason in each case. In the second place these exercises should serve to prevent the deduction of congruence from any set of equalities which do not satisfy the conditions already established. This is a common error, but it will gradually disappear if the pupil is required to state in each case which set of equalities he has obtained, such as "two angles and a side." In blackboard work the questions, "Which three parts have we in this case?", and "Are they sufficient?", may be asked whenever we are dealing with congruent triangles. In this way the pupil is constantly tied down to one of the four sets of conditions established.

Again these exercises serve to bring out clearly the fact that, having established the congruence of two triangles, we may deduce the equality of the remaining parts of the triangles. Here we must ensure that corresponding parts are correctly paired. This

may be assisted by requiring the statements "opposite equal sides" in the case of angles, or "opposite equal angles" in the case of sides. At first the pupil should write down all the equalities which follow from the congruence, and select those required for the proof of the exercise. Later he will see that he may select the equal parts required without reference to the others.

The first set of exercises for this purpose will deal with the common constructions with ruler and compass for constructing an angle equal to a given angle, drawing through a given point a parallel to a given straight line, bisecting an angle and a finite straight line, drawing a perpendicular, etc.

The following is a useful exercise which is the basis of many of the above constructions, and it will serve as an example of the setting out of such exercises.

On a base BC and on opposite sides of it are two isosceles triangles DBC , ABC , and AD is joined. Determine which pairs of triangles in the figure are congruent, and hence prove that AD bisects the angles BAC and BDC , bisects the base BC , and is at right angles to BC .

Each pupil should choose for himself a pair of triangles and write down his own list of equalities, the arrangement shown below being a convenient form. The probability is that the triangles first chosen will be $\triangle ABX$ and $\triangle ACX$, and doubtless a large proportion of the boys will succeed in satisfying themselves that these are congruent. This is a great difficulty and can only be remedied by a constant succession of such exercises. It is useful to remind the pupils that there are three main reasons for the equality of lines or angles, and he must be able to assign one of these reasons in each statement of equality. These reasons are:—

- (a) The lines (or angles) are given equal.
- (b) They have been constructed equal.
- (c) They have been proved equal in some previous piece of work.

The equalities under (a) should be written at the head of the work. In the exercise we are considering this will read as shown below.

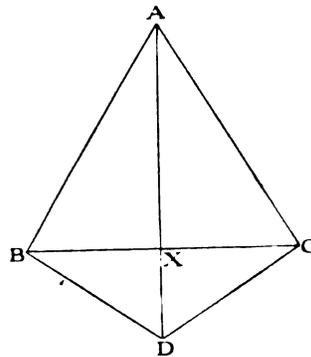
A statement of the equalities under (b) will follow the figure. The discovery of those under the heading (c) may be assisted by keeping a summary of the main theorems on intersecting lines, parallels, symmetrical triangles, etc., from which equalities may be deduced. No equalities must be stated without reason assigned.

Discussion on these lines results in the rejection of the triangles ABX and ACX , and also DBX , DCX for the same reasons. It is discovered eventually that the triangles ABD ,

ACD , if taken first, furnish the additional data for the other triangles, and the proof is then set down as shown below.

Given Triangles DBC and ABC are isosceles, *i.e.*, $DB=DC$ and $AB=AC$, and AD is joined.

Prove AD bisects the angles BAC and BDC , bisects the base BC , and is at right angles to BC



Proof

	$\triangle ABD$	$\triangle ACD$
Three sides	{	$AB = AC$, (given) $BD = CD$, (given) $AD = AD$.
$\therefore \triangle ABD, ACD$ are congruent.		
$\therefore \hat{B}AD = \hat{C}AD$, (opposite equal sides)		
$\hat{B}DA = \hat{C}DA$, (opposite equal sides)		
$\hat{A}BD = \hat{A}CD$, (opposite equal sides)		
$\hat{B}AX = \hat{C}AX$		
Two sides and the included angle	{	$AB = AC$, (given) $AX = AX$, $\hat{B}AX = \hat{C}AX$, (proved above)
$\therefore \triangle BAX, CAX$ are congruent.		
$\therefore BX = CX$, (opposite equal angles)		
$\hat{A}BX = \hat{A}CX$, (opposite equal sides)		
$\hat{A}XB = \hat{A}XC$, (opposite equal sides)		
$\hat{D}BX = \hat{D}CX$		
Two sides and the included angle	{	$DB = DC$, (given) $DX = DX$, $\hat{D}BX = \hat{D}CX$, (proved above)
$\therefore \triangle DBX, DCX$ are congruent.		
$\therefore BX = CX$, (opposite equal angles)		
$\hat{D}BX = \hat{D}CX$, (opposite equal sides)		
$\hat{D}XB = \hat{D}XC$, (opposite equal sides).		

As the sum of the angles AXB , AXC is a straight angle, they are right angles.

We note that to prove what is required, the third pair of triangles is unnecessary, and there are other details which may be omitted. In the earlier exercises it is well to include all these details to impress the point that there are three equalities to be obtained from the equal triangles. Later only necessary conclusions will be written down. The properties of the parallelogram, the special properties of the rectangle, rhombus and square, with the converses of these theorems, exercises on chords of circles, loci, etc., will furnish a large number of examples of congruence quite suitable for beginners.

INSULAR BRITAIN: THE EFFECT OF THE WAR.

By B. C. WALLIS, B.Sc.

Fellow of the Royal Geographical Society.

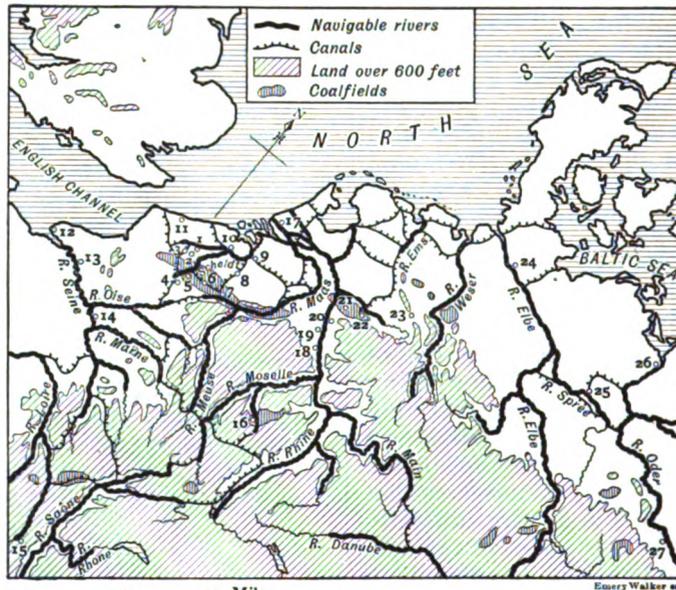
THOSE of us who stay at home, however unwillingly we yield to the rigours of the situation, have before us a task of surpassing magnitude; we must so act that the economic waste caused by the war shall be contained within the narrowest possible limits. An end has come, temporarily, to that co-operation in production and consumption which is essential to the preservation of the well-being of the peoples of Western Europe, and, when the war is concluded, it will be necessary in the interests of all the workers in the world that the old conditions of equilibrium shall be restored as completely as possible or appropriate new conditions be created.

The war must be paid for, and it will be paid for with the least distress and disturbance the more quickly conditions of industrial life are restored to the normal. The political outcome of the struggle is, without doubt, a matter of lasting importance, but the economic outcome of the conflict is another, and, from one point of view, a more vital matter. Probably fewer than half the male workers of Western Europe have ceased their functions; the remainder of the men and the majority of the women must still work, and they must be so guided as to prepare the way for a rapid and complete return to fairly normal conditions when peace has been again established. Hence the importance of the advice given to the insular Briton—"carry on"; hence, also, the necessity of an attempt to take stock of the situation.

War is being waged in the west over a lowland country, on the minor heights of which the fiercest struggles have occurred; but we

have scarcely had breathing time amidst the crash of events to realise that this very lowland is one of the three greatest industrial districts in the world. The accompanying map shows the coalfields of Western Europe and the network of waterways which are normally crowded with craft laden with the produce of the forges and the factories which have ceaselessly added to the wealth of our Allies and our enemy. Separated from this battle area by a strip of sea, and at no greater distance from it than the whole length of the battle front, lies our own industrial region, probably the greatest industrial area in the world. Our factories are intact, our machines still maintain their persistent whirr, our mines still yield their stores, thanks to the fleet and the strip of blue water; yet in thousands of ways our manufactures are dependent upon the maintenance of the industries of France and Belgium, and even of Germany.

We may, therefore, survey briefly some of the outstanding features which mark this industrial interdependence. Consider, first, the case of coal and iron.



Industrial Regions in the War Areas.

- | | | | |
|------------------|--------------|------------------|----------------|
| 1. Turcoing. | 8. Brussels. | 15. St. Etienne. | 22. Dortmund. |
| 2. Roubaix. | 9. Antwerp. | 16. Saarbrücken. | 23. Bielefeld. |
| 3. Lille. | 10. Ghent. | 17. Rotterdam. | 24. Hamburg. |
| 4. Cambrai. | 11. Dunkirk. | 18. Bonn. | 25. Berlin. |
| 5. Valenciennes. | 12. Havre. | 19. Cologne. | 26. Stettin. |
| 6. Mons. | 13. Rouen. | 20. Düsseldorf. | 27. Breslau. |
| 7. Charleroi. | 14. Paris. | 21. Essen. | |

COAL AND IRON IN WESTERN EUROPE.

Country	Coal mined per cent.	Iron ore mined per cent.	Pig iron made per cent.	Steel made per cent.
United Kingdom ...	50	31	38	29
Germany ...	30	32	46	52
France ...	6½	17	12	9½
Belgium ...	4½	—	4	9½
Total ...	100	100	100	100
Fraction of world production ...	½	⅔	½	½

So long as the war lasts, only Britain can attempt to mine coal and manufacture iron goods for other than warlike purposes. The probable course of the struggle will leave Britain and the Allies in a gradually improving position; but practically a quarter of the coal and iron ore mined and the pig-iron and steel made in the world will be no longer available. Allowing for the extensive use of

iron for naval and military purposes, and assuming that this demand will gradually cease, it is scarcely possible that the supplies will be sufficient for the ordinary purposes of world trade; in fact, so great has been the destruction of iron goods—bridges, railway lines, machinery and so forth—that the ordinary demand will grow rather than diminish. Insular Britain has, therefore, to meet an exceptional demand for iron and steel goods; and it will be in the interests of all concerned that the ratio of supply to demand may be such as will keep prices as near as possible to the normal level.

As a sample of the textile trades, consider the situation in reference to wool.

Country	RAW WOOL.			
	Home Production per cent.	Exports per cent.	Imports per cent.	Net Consumption per cent.
United Kingdom ...	8	—	25	31
Germany ...	2	—	27	29
France ...	5	5	32	32
Belgium ...	—	—	8	8
Total ...	15	7	92	100
Fraction of world production ...	$\frac{1}{2}$	—	—	$\frac{3}{4}$

Western Europe uses just about half the world's raw wool, the consumption being divided between Britain, France and Germany in almost equal proportions, each of which is roughly one-sixth of the world's production. The demand for woollen articles is not likely to show a serious decline. Germany, lacking supplies from the Argentine, can scarcely hope to maintain her production, and, so long as war lasts, production on the continent will be seriously curtailed. In this case, again, British workmen in an island home will have to provide additional stocks both for our own trade and for our Allies; in no circumstances should there be a lasting spell of unemployment in the woollen factories, even when the present feverish demand for military stores comes to an end; and the destruction of woollen mills, both in France and Belgium, during the past few weeks does not tend to ease the situation.

Finally, examine the facts regarding wheat and rye, and let us include in the survey Holland and Denmark, neutral states with a German frontier.

CONSUMPTION OF WHEAT AND RYE IN WESTERN EUROPE.

Country	Wheat		Rye	
	Home grown per cent.	Imported per cent.	Home grown per cent.	Imported per cent.
United Kingdom ...	6	23	$\frac{1}{2}$	$\frac{1}{2}$
Germany ...	15	9	73	3 $\frac{1}{2}$
France ...	36	1	10	—
Belgium ...	1 $\frac{1}{2}$	5	4	—
Holland ...	$\frac{1}{2}$	2	3	1
Denmark ...	$\frac{1}{2}$	$\frac{1}{2}$	3 $\frac{1}{2}$	1
Total ...	59 $\frac{1}{2}$	40 $\frac{1}{2}$	94	6
Fraction of world production ...	$\frac{1}{8}$	$\frac{1}{10}$	$\frac{2}{10}$	—

The facts in the table indicate the overwhelming importance of sea-power in the preservation of the food-supply of Britain, and serve to show, in some degree, the extent of the pressure regarding foodstuffs which the Navy can exert upon the enemy; even neutral Holland begins to grow alarmed at the prospect which attaches to her future supply of wheat. But these facts gain a new importance when it is realised how the chief growing areas are affected by the war. The chief wheat area of France, all of which rivals in production the best portions of our own wheat lands in the eastern counties, lies near the Seine on the fringe of the western theatre of war. The most productive rye area in Germany lies between the Oder and the Vistula, along the eastern frontier, which is so greatly threatened by the Russian armies. The bulk of the wheat and rye grown in Western Europe is obtained from lands either near or on the present battlefields. The future food supplies of the combatants are in jeopardy, and, should the struggle endure until after the next seed-time the prospect for the harvest of 1915 is gloomy indeed. Roughly, half the wheat and three-quarters of the rye normally needed in Western Europe could not be grown.

Some idea of the rigour which attaches to such a circumstance may be gleaned from the present situation in regard to sugar. Roughly, half the world's sugar is obtained from sugar beets; Germany produces a third of the beet sugar from lands which lie perilously near the line of the Russian invasion of Germany, France produces one-eighth of the beet sugar, and the crop of beets is obtained on land now under the western war-cloud.

This review of some of the chief elements in the normal condition of affairs will suffice to give greater importance to the necessity that we, in our island home, should "carry on," and will emphasise the importance of our duty as a great commercial people to prepare for the situation which will inevitably arise. Guarded by the fleet, we can do much to enable the allied nations to emerge from the conflict with less damage than would be possible but for the assistance of our captains of industry and our masters of finance. Those of us who are excluded from the fighting line can yet serve as recruits and veterans in the commercial army which, in the end, will have much to do with the termination of hostilities. Truly, the "silver bullet" will have most influence in the final decision, and the "silver bullet" depends for its might upon the men who perforce must stay at home.

SCHOOL DISCIPLINE IN AMERICA.

By W. H. WINCH, M.A.

M. R. H. G. WELLS, in one of the latest philosophical surveys of American tendencies made by an Englishman, complains that American manhood suffers from lack of discipline, and common English opinion conceives an American child as "un enfant terrible." What have the schools to do with this? Caution is needed at the very outset, lest we too readily subscribe to the alleged facts and lest we assume without evidence, as, indeed, we are all prone to do, that there is a direct correlation between the disciplinary severity or laxity of the school and subsequent rectitude or lawlessness; but, in any case, American conditions will interest those English teachers who are looking toward a "prefect" system in English elementary and preparatory schools.¹

It cannot be said that the educational authorities of America are not theoretically alive to the importance of a disciplined character. There are, in some States, opportunities afforded in school-assembly for Bible readings, hymns, and prayer and exhortations by the principals, which have a very definite moral and religious aim. It is significant that the attendance at such gatherings is frequently called "attending chapel."

Nor can the authorities be charged with the neglect of direct moral and civic instruction. The teachers of Massachusetts are very fully, if somewhat vaguely, exhorted "to train up the child in the way he should go."

All instructors of youth shall exert their best endeavours to impress on the minds of children and youth committed to their care and instruction the principles of piety and justice and a sacred regard for truth, love of their country, humanity and universal benevolence, sobriety, industry and frugality, chastity, moderation and temperance, and those other virtues which are the ornaments of human society and the basis upon which a republican constitution is founded; and they shall endeavour to lead their pupils, as their ages and capacities will admit, into a clear understanding of the tendency of the above-mentioned virtues to preserve and perfect a republican constitution and secure the blessings of liberty as well as to promote their future happiness, and also to point out to them the evil tendency of the opposite vices.—Revised laws of Massachusetts, chap. xlii., sect. 18.

In the New York suggestions for teachers it is rightly enough asserted that the tone of the school is more important than moral didactics, and also, rightly enough, that "the child's impulse toward self-interest normally develops earlier than his impulse to put him-

self in another's place." But when the teacher is further told that "upon the full development of the former stage depends the full development of the latter," he is given a dictum which is certainly not in accord with evolutionary ethics, and frequently is interpreted by the teacher to mean that the young child is, for a time, to have his purely selfish fling. Even the writer of the instructions feels more or less obscurely that this will not quite do, and inserts a counter-command. "At every stage," the instruction runs on, "children should be taught that they live under inexorable laws which they cannot violate with impunity—both physical and moral laws." Perhaps wisely at this stage, when no very definite moral code is ready, if it ever will be, to replace Christian ethics theologically based, the instructions do not enter into detail. Unlike American procedure in every other school subject, in which, as is well known, definite courses and lessons are prescribed, this subject remains more or less *in nubibus*. The laboratory method is recognised as admirable in many, if not in most, departments of school instruction—to discover for oneself that certain methods will not do and that others lead to success imparts a reality to belief which no mere exhortation can produce. But one finds that, in morals, the laboratory method of coming to conclusions based on direct personal experience, painful or pleasurable, is not so much in vogue.

Let it not be thought, however, that problems of school discipline are neglected in America; on the contrary, an Englishman tends to be a little disconcerted by the multiplicity of the schemes, which, now one and now another, are to solve for ever the problem of the naughty child.

Many educationists in America are enthusiastic about what is known as self-government in schools. Somehow to admit the pupils into the corporate life of the school, somehow to make them feel that government exists for them and not for the benefit of their masters are ends which many, if not most, English schoolmasters are striving to attain. Whether they would think an American system worth a trial will depend, I think, not on vague references to self-government, but on an exact knowledge of how the various schemes actually work.

Philadelphia experimented a few years ago with a fully developed system of self-government; but the superintendent has reported that, in most of the schools where it was tried, it has been abandoned. It was called the School City System; each school was to be organised as a *πόλις*, civics was taught by practice, and the pupils policed their own

¹ See the Report of the January Conference, 1914, held under the auspices of the London County Council.

schools. A less ambitious system is sometimes in vogue, in which classes elect tribunes, and a certain number of citizens. These are balanced by tribunes and citizens nominated by the teachers. The officials thus chosen wear pins and badges (marks of social distinction not negated by the constitution are not unfavourably viewed in America); they act as monitors and advisers to pupils and to teachers.

In one Manhattan (New York) school which I visited there was a good deal of self-government, with election of officers by the pupils. But persistent inquiry showed that these privileges were not accorded to all the classes, and that the elections were very carefully guided.

How does the American boy look at it? I am afraid I cannot quite say, but I am able to show how he wishes his teachers and fellow-pupils to think he looks at it. No description of mine could be so informing as the following account, which I found in a school newspaper:—

THE SCHOOL COURT.

I have heard of a system by which the public-school boys of this city are allowed to manage the department of their schools. It has been adopted by some principals, and has proved successful. I should very much desire to see it adopted in our own schools, as we have a great majority of the kind of boys required to manage it, that is, honest, frank, and intelligent boys.

An able boy is appointed by the principal as commissioner of police, and he chooses minor officers, who, in their turn, select the policemen. The commissioner also appoints a jury, he himself being the judge.

Now a set of rules is formed, either by the principals and teachers, or by the School Court. If a pupil is caught by a policeman disobeying these rules, the latter asks the offender his name and grade or class, which he writes down on a slip of paper and hands in to the commissioner. That official notifies the offender of the time fixed for the trial, so that he can secure a boy to act as his lawyer. The policeman who arrested him must also secure a lawyer and be present at the trial.

When the time for the trial arrives, and the magistrate, jury, lawyers, witnesses (if there are any), the policeman, the offender, and the spectators are present, the trial begins as in a real court—the lawyers pleading their cause or cross-examining the witnesses, the jury deciding whether the offender is “guilty” or “not guilty,” and the spectators appreciating a good speech by the lawyers. If the offender is found guilty, he is punished according to his offence; but, if he is found innocent, the policeman is “put off his beat” (you all know what that is), and his position is given to another.

This system is good and useful for many reasons,

the principal of which are, first, that it gives the magistrate a clear head and a fair sense of judgment, which will help him in the future; second, it teaches the boys who are policemen that, even if they are officers, they cannot do as they please; and, third, it saves the teachers the trouble of punishing unruly pupils.—(Written at the request of the principal).
SAMPSON RAFELSON 7B^o.

The general features of American educational organisation are here unconsciously reproduced—an appointed commissioner (“appointed” in the United States is opposed to “elective”) with very large powers, who appoints his subordinates, and so on downwards; the set of rules corresponding to the educational bye-laws, courses of study and syllabuses; the great size of the schools, which makes it necessary to ask the offender his name, grade, and class—all these features have reflections and reproductions. A side-glance into civics shows us that New York policemen (sometimes “put off their beat”) cannot do just as they please, even if they *are* officers (the *even* is delicious); and in the advantages which the scheme is claimed to possess nothing is said as to its effect on the great mass of the governed.

I do not wish to suggest that such a scheme may have no value; but I am afraid I should not care to apply to it the usual American description. “Discipline, Sir, discipline, we have no trouble with discipline,” said an enthusiastic educator (he was not a teacher), “our pupils govern themselves.” Self-government in any true sense of the term it certainly is not. But there is no doubt at all that the young American does take some initiative in matters which, at home, at least in elementary schools, are managed much more exclusively by teachers.

In an elementary school in Chicago, I found the entertainment club in possession of the school hall during the latter half of one afternoon session. A boy was president, a girl was secretary (the microcosmos again reflecting the macrocosmos), and under their management short recitations and solos on the piano were being given. A high school in a small town contained some club-rooms, furnished wholly and regulated entirely by the pupils themselves.

It must not be thought, however, that all this is a mere shelving of responsibility on the part of the teachers, or that they do not in any way guide the election of the officers of these clubs. “Our system,” as one of them aptly put it, “is self-government with unobtrusive watchfulness by the teachers.” But suppose this so-called self-government fails—suppose the pupil can neither be morally per-

sued nor rebuked into submission, what is to happen then? What is there but physical force, the *ultima ratio magistrorum* as well as kings!

Well, speaking generally, corporal punishment is not now in favour with the American people; though there are, I am told, some private schools where the discipline is strict and military. The rod in the States, like the birch in England, seems likely to become a prerogative of the wealthy. But for the public schools the feeling against it is strong—how strong may be shown by the following extract from the annual address of a President of a Board of Education in Wisconsin.

"Corporal punishment has made the school a place of terror to the child, when it should be a place of pleasure. The child has rights in the school-room, though most teachers can never understand it." Then, warming up to his work, and feeling the usual ethical inflation about persons whom one thinks have been treated unjustly, he goes further and says: "Any reference before the class to the shortcoming of a pupil is reprehensible in the highest degree and should not be tolerated."

Schools conducted on these principles would provide a magnificent training in self-control for the teachers, but the pupil, who, doubtless, on the American view, does not need it so much, would scarcely get as much as he ought. Of course, if he does not need it, all is well, though the teachers seem to be badly chosen, for they apparently do; they cannot be trusted to do right without severe regulations, with penalties they can acutely feel.

The New York Board of Education is just now strongly opposed to corporal punishment, and none whatever is allowed in any of its schools. True, a pupil can be suspended by a principal, subject to subsequent official authorisation, but the process seems to be lengthy and the confirmation of his action dubious, so that in practice, I fear, suspension will be found of little service.

The Principals' Association, twice within recent years, has petitioned the New York Board of Education to revert to the previous regulations, which resembled, in some ways, those now in force in London. The following remarks in a recent annual report seem to me very significant of the official view:—

School discipline, like evil in the world, is ever a problem. The principals, in the past year, have grappled it resolutely, and there are encouraging signs of ultimate success. It was inevitable that the substitution of a discipline practically without penalty, for one wherein "judgment against an evil deed was speedily executed" should lead to perplexity, confusion, and sometimes pedagogical despair; for the

plastic pupils one meets in books, and encounters on the lecture platform, seldom confront one in the classroom. To the last, what is suspension but a welcome holiday, and transfer but an experience of hero-worship.

In Boston the regulations are very similar to our own, so far as boys' schools are concerned. The exact wording of the section is worth notice:—

RECORD OF CORPORAL PUNISHMENT.

TO BE KEPT ON FILE TWO YEARS AND THEN DESTROYED.

Extract from the Regulations.

Sect. 218. All instructors shall endeavour to maintain such discipline in their schools as is exercised by a kind and judicious parent in his family, avoiding corporal punishment in all cases where good order can be preserved by milder measures; and in no case resorting to confinement in a closet or wardrobe, or to any cruel or unusual punishment. Corporal punishment shall be inflicted only after the nature of the offence has been fully explained to the pupil, shall not be inflicted in sight of other pupils, and shall be restricted to blows on the hand with a rattan. At the close of the day each instructor shall report in writing to the principal all cases of corporal punishment during such day, stating the name of the pupil, the amount of the punishment, and the reason for its infliction. The principal shall each month report to the superintendent the number of all cases of corporal punishment, within his district, by whomsoever inflicted. The reports of cases of corporal punishment required by Sections 195 and 218 shall be made on blanks (Anglicé-forms) prepared for the purpose, and shall be preserved on file by the principal of each district for two years, at the end of which time they shall be destroyed. These reports shall be open to the inspection of members of the board, the superintendent, and the supervisors. Corporal punishment shall not be inflicted upon girls in any school, or upon boys in high schools.

.....School. Boston,190....
 Corporal punishment was this day inflicted by the undersigned upon
 (Name)..... Age.....years,
 to the amount of
 for the following reasons.....
 Has the pupil ever before received corporal punishment from the undersigned?.....
 How many times?.....
 Date of last previous punishment.....
Teacher.
Substitute.

A lady principal of an elementary girls' school thought that the regulations threw a great additional strain on the teachers of girls; and high school teachers said that, in practice, their liberty to expel unruly pupils instead of punishing them corporeally was so hedged round with restrictions that it was of little real service.

In Cambridge, Massachusetts, no teacher may inflict corporal punishment in any case without the written permission of the superintendent. In practice this permission must, one would suppose, be obtained afterwards. Such a rule is an interesting instance of what is more common in the United States than in England, though we are moving their way; namely, a regulation which quiets the amateur and the elector because it looks so reasonable on the face of it, but which the expert knows to be necessarily inoperative. In another township of Massachusetts, that of Brookline, corporal punishment is allowed for boys, but not for girls.

In Chicago corporal punishment has been entirely forbidden. A principal, who said that he was one of a small minority, agreed with the present regulations, and did so on the ground that the duty of inflicting it was a responsibility which a teacher should not be expected to undertake. Another thought that the certainty of a punishment and not its severity was the best preventive of offence; it was the uncertainty of legal punishment, he said, which, in America, had produced lynching; if the punishment was *certain*, he thought that the *character* was comparatively irrelevant.

I did not think that the abolition of corporal punishment had improved either the manner or the manners of the pupils. Both in high and elementary schools I saw boys presenting themselves to their principals in a sauntering, lounging attitude with hands in pockets; and their answers to the courteous questions of their masters were frequently off-hand, if not positively impertinent. This was not a typical feature, but it should not appear at all. It is important in these things that one writes down at the time what one's impressions are, and I shall give as further evidence my actual notes as written in the schools. In one school I wrote: "All the teachers I have seen are good disciplinarians; but there is too much amused detachment on the part of some of these boys for a woman teacher to cope with." They were in the class, but not of it. However boastfully uttered, they would not have subscribed to *quorum sumus magna pars*; they were rather gods, whom the struggles of the teacher with their troublesome *confrères* amused, but left cold. But let me say at once that, from what I saw elsewhere in the States, I am not now sure that it was the sex of the teacher that was at fault. In another school in Chicago I wrote: "I should like to see some determined men here; there is a slackness in the discipline which needs much bracing up." The moment after I had written this, cries and objurgations heralded the approach of the janitor (Anglicè—school-

keeper), pitching a big, defiant negro lad along the corridor, the boy, meantime, threatening him with the law for putting his hands on him. Nor is it indicative of a freshly toned nervo-muscular system to see boys, after recess, reassemble with a lounging saunter, which can only by courtesy be called marching.

Meanwhile, "incurrigibles" increase, and parental schools are evolved to set them right. Admirable work as many of these are doing—the discipline of the Chicago Parental School for this type of child ranks with the finest I have ever seen—I am of opinion that, given due authority to the ordinary teacher, there would be few cases needing parental-school treatment, for these boys are neither delinquents nor juvenile criminals; the latter are found in schools of a prison-type. There is a fine irony about the name—parental school; laxity of parental discipline produces a parental school, in which a military and not a domestic spirit is inculcated. And for the prison schools, I spent a day in one only—it was not a pleasant experience. One teacher said, pathetically and very humbly as it seemed to me, "If a boy starts fighting me, I have a right to protect myself."

But it would be quite wrong to leave the impression that no American school in which corporal punishment was disallowed could present fine discipline. In a New York higher standard school "down east," I saw some of the finest I have ever seen; it could be rigid and military when necessary, and easy and familiar when necessary, and the pupils were thoroughly attentive and under control in all circumstances.

And what of the high schools? I find it hard to characterise the tone of the high school. The boys had not that unmistakable English public school appearance, which may perhaps be best described as a look of refined athleticism; but then they were day-school boys, not boarders; and the difference, after all, may be one of a national kind. Harvard men, for example, seemed to me bulkier than the men of Oxford and Cambridge. And the tone varied greatly from school to school. In one girls' high school in New York I wrote on the second day of my visit: "The tone of this school is delightful; the aggressive curiosity, usually said to be characteristic of American girls, is markedly absent. If curiosity exists, it is concealed with perfect taste." Only in one class, out of more than half a hundred which I saw, was there any of that sex-conscious tittering (the teacher was a man) which good teachers know to be abominable, though not wicked.

I was not, on the whole, so favourably impressed by the boys' schools; though I still

remember with great pleasure a day spent in a mixed school in the Bronx, whose chief was an old Oxford graduate. Two boys in a Manhattan high school, notwithstanding much precaution and vigilation, were found by the head teacher, lounging. "You will make no further recitations to-day," he said, "and will lose all marks."

"We live and move and have our being in marks," a Chicago high-school teacher said to me; and the description is not inapt if applied to the whole American educational system. Fortunately for the teacher, the American pupil is usually keen to get good marks. I think myself that this results rather from an overflow of the competitive spirit than from any ulterior reasons, though, of course, the marks may be so low that the student loses his annual promotion and, perhaps, fails to receive his certificate of graduation when leaving school. There is a further relevant factor. I think there are no American schools in which intellectual prowess is not valued, though there are signs that the American university has become a place in which the mere athlete receives undue social recognition. But the educational authorities are alive to the danger. A few years ago President Eliot risked the loss of the Yale and Harvard boat-race by suspending two men, both in the boat, who had broken the Harvard library regulations; and it is not unusual to find rules to prevent the dissociation between athletics and intellectual work. In Boston high schools no pupil can take part in any athletic contest with another school unless he has scored so many points in school-work and has been satisfactory in conduct; and in New York, even the elementary schools are subject to a similar regulation.

From time to time the whole school foregathers, and, with ceremonial discipline, joins in the worship of American ideals. What high-school student will ever forget her (I must say "her," so many of the boys have gone to work and do not endure to the end) graduation day! How many schoolboys in North or South will fail to be impressed, ultimately if not at once, by the annually recurring Decoration Day, on which they honour those who died in the Civil War! And how many pulses of affection for Nature may be set beating by the quaint American celebration of Arbor Day! Can we not imitate it in the schools of our great cities? One day in the year each school plants a tree; let me describe it as I saw it—quite unexpectedly—in Brooklyn. All the children were drawn up in lines in the street just outside the school; a few adults were present, mostly old pupils, I was told. The Stars and Stripes waved above;

the florist's man, with a partly planted tree, stood below. A few selected children, with mould in little paper bags, stood near the tree to empty them when the time came.

The proceedings opened with a poem, which the children had learnt for the occasion, and now repeated simultaneously:—

He who plants a tree,
He plants love;
Tents of coolness spreading out above
Wayfarers, he may not live to see—
Gifts that grow are best;
Hands that bless are blest;
Plant; life does the rest.
Heaven and earth help him who plants a tree,
And his work its own reward shall be.
—*Lucy Larcom.*

Then a lady teacher, standing on a sort of rostrum, addressed the assembly:—

Someone has said that he who plants a tree does what he can to make our planet a more wholesome and happier dwelling-place for those who come after us, if not for ourselves.

In behalf of teachers and pupils of the Brooklyn Training School for Teachers, I now plant this maple tree. (Sprinkled earth.)

May the sun that shines over it, the rain that falls upon it, and all the winds that blow about it, conspire to make it grow strong and tall, sturdy and broad. And a score of years hence, may the children of this neighbourhood find beneath its wide-spreading branches a pleasant play-ground, and the weary a welcome shelter from storm and heat.

The principal, also a lady, directed attention to the flag, and emphatically and in concert children and teachers with uplifted arms repeated their formula of salutation:—

"I pledge allegiance to my flag, and to the Republic for which it stands; one nation, indivisible, with liberty and justice for all."

Then the music-teacher, giving the note from a pitch-pipe, conducted the unison singing of the national hymn, "America." These are the "materialistic" Americans, planting trees in the public streets, with poetry, oratory, and patriotic service. An American reporter who was present thought that, if the children were not word perfect in the poetry they had learnt, they might think the last line but one read, "Heaven help him who plants a tree." We all scouted the possibility, but feared it.

All these things, let us remember it in England, are bulwarks of good conduct, and sanctions—to use a word now seldom heard in ethical controversies—of civic action. We still have our religious services; might we not, without omission, broaden them on American lines by celebrations of national and civic issues?

PERSONAL PARAGRAPHS.

THE death is announced of Alderman Welch, of Eastbourne, at the age of seventy-nine. Mr. Welch served five years as a pupil teacher in London. When about eighteen years of age he proceeded to Cheltenham College, where he remained for about two and a half years. In 1856 he was appointed headmaster of St. Mary's School, Eastbourne, a position which he filled with distinction for upwards of forty-five years, during which period some three thousand boys passed through the school. Upon his arrival at Eastbourne he began teaching in the old school building, there being about sixty-four pupils, and the staff consisting of two pupil teachers. Since then the schools have developed tremendously in every way. During the twenty-three years Alderman Welch was connected with the Council he served the town faithfully and skilfully; he took a distinguished part in securing the erection of the public library and technical institute, and served as chairman on the technical instruction committee.

* * *

ARCHDEACON OWEN EVANS died at Golden Grove, Carmarthen, on September 21st, at the age of sixty-two. For eleven years he was headmaster at Llandoverly College, succeeding the present Bishop of St. David's. He became vicar and archdeacon of Carmarthen. He was a great schoolmaster, and during his time at Llandoverly the school took high rank by its successes at the universities.

* * *

AMONG the first of the schoolmasters to be killed in the war is Mr. A. J. N. Williamson, a master of Highgate School, and Second-Lieutenant, Seaforth Highlanders, Special Reserve of Officers. Mr. Williamson was educated at Highgate School and Pembroke College, Cambridge, and was master at Blundell's School, Tiverton, before going to Highgate in 1912.

* * *

M. LETORÉ, modern language master at Blundell's School, Tiverton, was present in the now famous charge of the 9th Lancers. Captain Letoré's own description contained in a letter to his wife, published in the *Times*, is as follows: "Now that it has been in the papers I am able to tell you I was in this famous charge of the 9th Lancers. My God! How they fell. A new friend of mine, the Vicomte de Vauvineux, a lieutenant in the French cavalry, was killed by my side. As for myself, a horse was shot under me. At the roll only three hundred out of five hundred

answered their names. But be sure of this: your husband will return all right."

* * *

MR. LLEWELLYN BOOLE, classical master at Merchant Taylors' School, Crosby, is detained in Germany as Schutzgefangener, that is, as a prisoner under protection, and not as a prisoner of war. Mr. Boole was educated at Merchant Taylors' School, Crosby, University College, Cardiff, and Keeble College, Oxford. He is a Diplômé Université de Montpellier. He has been a master at St. Bees' School, Cumberland, King Edward's School, Bury St. Edmunds, and Falmouth Grammar School.

* * *

MR. LE BAS, teacher of modern languages under the Middlesex County Council, went to Normandy for his holidays; upon arriving at Coutances he was requisitioned as interpreter at the local railway station.

* * *

SEVERAL pamphlets have been published by educationists in addition to that based on the official documents and issued by the President of the Board of Education. One of the best of these is a small book based upon a lecture first given in the country by Mr. Cloudeley Brereton, whose intimate relations with the continent enable him to appreciate the point of view of the continental nations. Mr. Ridley, of the London Teachers' Association, has published a lesson given by himself, based upon Sir Edward Cook's summary of the official White Papers. Sir James Yoxall has written a twenty-four page pamphlet, and a number of teachers who were on the Continent when the war broke out have issued pamphlets, interviews, or letters descriptive of their experiences.

* * *

MRS. BANNISTER, principal of the Moorfields Training College, was in Switzerland, and describes the methodical mobilisation of the Swiss forces and admirable arrangements made for the return of British subjects when mobilisation there and in France was complete.

* * *

MR. JOHN JENKINS, one of the leading army coaches in the west of England, who must now have a very large number of old pupils at the front, was also in Switzerland at the beginning of August, when he made the best of his way home as quickly as possible; in an interview with a newspaper representative he speaks of the courtesy with which he was received both in France and Germany.

MR. CLEMENT DU PONTET, who went to Harrow in 1898, has resigned his house and has been appointed librarian, in which office he succeeds Mr. B. P. Lascelles, who retains the curatorship of the museum.

* * *

HARROW SCHOOL founder's day was celebrated without many of the usual interesting features. There was a service in the school chapel at which the Master of Trinity, who was headmaster of Harrow from 1859 to 1885, preached. A memorial service was held afterwards for eleven old Harrovians who have fallen in the war.

* * *

At the opening of the session of University College, the Provost, Dr. Gregory Foster, said that eight members of the staff, one hundred and ninety-eight old students, thirty-four freshmen, and nine of the servants are on active service. Dr. Foster spoke also of students of German and Austrian nationality who are remaining or being admitted to the college in continuation of that policy of freedom and toleration that is a characteristic of the place.

* * *

At the opening of the new term of the University of Leeds the Vice-Chancellor, Dr. Michael Sadler, reviewed the work which the University has done in the national crisis, a remarkable record of public usefulness which has won high praise in responsible quarters. The Vice-Chancellor read the names of those on active service, one hundred and fifty-four in all, of whom twenty-two are members of the staff; in addition, of one hundred and twelve who have since applied for commissions, ten, being unwilling to wait, have enlisted as privates.

* * *

At Oxford the military committee has recommended for commissions more than eleven hundred members of the university. Others have obtained commissions in other ways independently of Oxford. At Cambridge the special war committee of the board of military studies has approved and forwarded to the War Office nearly two thousand applications for commissions, seven hundred and eighty-five being for commissions in Lord Kitchener's new regular army.

* * *

THE current number of the *Clayesmorian* contains an account of the removal of the school from Pangbourne to Winchester and the circumstances that led up to it. An article sums up the results of an essay set during last term, which inquired how the present term differed from the last term. The sentiments

expressed in the various papers deal with such matters as the cook, the cubicles, the introduction of manual work, the lack of liberty which always makes a schoolboy's life dreary and uneventful. The concluding paragraph expresses the opinion that on the whole the new school compared with Pangbourne is a distinct success from every point of view; that it is full of important advantages over the old building is generally agreed.

ONLOOKER.

WHY DID WE GO TO WAR?

By THE RIGHT HON. JOSEPH A. PEASE, M.P.

THE following statement sets out the facts which led up to the present war, as they are recorded in official documents. It is intended to give a plain answer to the question:—"Why did we go to War?"

I. AUSTRIA AND SERVIA.

The great empire of Austria and the little kingdom of Servia have for some time been on bad terms with each other. In the south of Austria there are millions of Austrian subjects who speak the Servian language, and the Servians look forward to the day when they will all be united under one king. Austria has therefore been very suspicious of anything Servia may do to provoke discontent or rebellion among these people especially in Bosnia and Herzegovina, and ready to take the first opportunity of "giving Servia a lesson." The opportunity came in June this year, when the Crown Prince of Austria and his wife were assassinated at Sarajevo, in Bosnia. It was asserted by Austria that the murderers were provided with arms and explosives for that purpose by Servian officers, and that the passage of the criminals into Bosnia was organised and effected by the chiefs of the Servian frontier service. The Austrian Government on July 23rd sent a Note to the Servian Government making ten demands, with the view of bringing the criminals to justice and to prevent further efforts being directed in Servia against Austria-Hungary. Two of these demands were such as no independent nation could accept. The first was that certain officers, to be named by the Austrian Government, should be removed from the military service of their country, even though they were not proved guilty. The second was that the Austrian Government should appoint its own representatives in Servia to suppress the movement directed against the Austrian monarchy. Austria asked for a reply within forty-eight hours.

Austria, in making these requests, appears to have been acting in collusion with Germany, for on the very next day, the German Ambassador in London told our own Government that "the course of procedure and demands of the Austro-Hungarian Government can only be regarded as equitable and moderate," and also that "Austria might be expected to move when the time limit expired unless Servia could give an unconditional acceptance of Austrian demands." And the German Foreign Secretary told our representative in Berlin that the "Austro-Hungarian Government wished to

give the Servians a lesson, and that they meant to take military action." He also admitted that the "Servian Government could not swallow certain of the Austro-Hungarian demands." There is, therefore, every reason to believe that Austria neither wished nor intended her demands to be accepted, but was seeking for an occasion to attack Serbia and destroy her independence.

A quarrel between Austria and Serbia was no concern of ours, but as Russia had told us that she would not allow Austria to crush Serbia, we knew that if war broke out, first Russia, then Germany, and finally France would be drawn in. Germany was fully aware of this danger, as on July 24th we warned the German Ambassador that if Austria invaded Serbia Russian opinion might demand that Russia should march to help Serbia.

The moment Sir Edward Grey knew the contents of the Austrian Note, he pressed Germany and Austria to extend the time limit, as such short notice gave no opportunity for considered action to prevent the outbreak of hostilities, but he met with no response from either Power.

Russia and Britain then exerted pressure on Serbia to meet, so far as they could, Austria's demands, and the Servian Government, before the time limit had expired, sent an acceptance of the ten points, with certain reservations. They consented to dismiss and prosecute officers who could be clearly found guilty of the crime: they were prepared to hand over for trial any Servian subject of whose complicity proofs were forthcoming, they promised to condemn anything which might be said or written directly against Austria, and they undertook to take rigorous steps against all persons who interfered with the good relations between the two countries.

We represented to Germany that this reply involved a great humiliation to Serbia, and that it would be very disappointing if it was treated by the Austrian Government as wholly unsatisfactory. But the Austrians did not accept it as satisfactory, and on July 27th we were told by our Ambassador at Vienna that Austria had "gone wild with joy" at the prospect of war with Serbia.

Sir Edward Grey, having failed in his effort to secure an extension of the time limit, still endeavoured to secure peace by asking Germany, France, and Italy to join with us in mediating between Russia and Austria, and so preventing a war between those two countries. Italy and France welcomed the proposal, but Germany told us that they could not fall in with the suggestion, and that it "was not practicable." Russia not only assented to this course, but promised not to move a single soldier towards the Austrian frontier whilst any conference was proceeding, and they told us that they were "ready to accept the British proposal, or any other proposal of a kind that would bring about a favourable solution of the conflict."

On July 28th the Austrian Minister told our Ambassador that war would be declared that day. The German Chancellor also on that day told our Ambassador at Berlin that "he had not been able to accept

the English proposal for a conference of representatives of the Great Powers because he did not think it would be effectual." And although he assured our Ambassador that "he was doing his very best to get the Russians and the Austrians to discuss the situation with each other in a friendly way," yet on the very same day we learned from St. Petersburg that the Austrian Government, no doubt with the approval of Germany, had declined direct conversations with Russia.

In spite of Germany having rejected his proposal for a conference of the Powers, Sir Edward Grey did not abandon his efforts for peace. He told the German Government that if they would suggest any method by which the influence of the four Powers could be used together to prevent war between Austria and Russia, then France, Italy, and ourselves would be ready to accept it, and "in fact, mediation was ready to come into operation by any method that Germany thought possible if only Germany would 'press the button' in the interests of peace." To these suggestions no response whatever was made by Germany.

From the above record of facts it will be seen that every possible step was taken by the British Government to maintain peace and to prevent war breaking out between Russia and Austria, but the Germans persistently declined to help us. Moreover, the German Chancellor told our representative that the German Government had declared war against Russia because "they could not leave their country defenceless while time was being utilised by other Powers." It was the secret war preparations of Germany that really forced the Russians to mobilise their troops on her frontier and thus safeguard their territory against sudden invasion, but the moment Russia replied by taking steps in self-defence Germany declared war against her, knowing well that war with Russia meant war also with France. We now know that Germany for some time past had been carefully and deliberately making vast preparations for this war.

II. GERMANY AND BELGIUM.

By a treaty made in 1839, England, France, and Germany agreed that they would never march their armies into Belgium, unless Belgium called upon them to protect her. When we saw that war between Germany and France was inevitable we asked both nations whether they would observe this Treaty in the same way as they did during the Franco-German War of 1870. We were assured by France that she would not violate Belgian territory, but Germany declined to give us any such assurance, and proceeded to send her troops first into Luxemburg, and then into Belgium in defiance of her Treaty obligations.

Germany by thus disregarding her Treaty obligations and over-running a small State with the view of invading France more easily, not only broke her word but made it obvious that if she could overpower Belgium she would be able to destroy the independence of the other small States (Holland and Denmark) and would be able to obtain control of the northern coasts of France. From that position she would be able to threaten our control over the English Channel, upon

which we rely for the food materials necessary for our population which come over the seas into the great Port of London. Germany by a triumph over Belgium would thus secure for herself a position from which she hoped to become the predominant Power in Europe.

On August 4th our Ambassador once again urged the German Government not to violate Belgian neutrality, but he received the reply that the German Government "had to advance into France by the quickest and easiest way so as to strike some decisive blow as early as possible," and when the German Secretary of State was asked by our Ambassador whether there was not still time to draw back, he replied:—"It is impossible." We pointed out that by Treaty, the Germans were a party to the neutrality of Belgium, as much as ourselves, and we were then told that we were going to war "just for a scrap of paper." Our Ambassador replied:—"It is a matter of life and death for the honour of Great Britain that she should keep her solemn engagement to do her utmost to defend Belgium's neutrality if attacked." When our Ambassador said that he must leave Berlin that night if the German Government could not give a satisfactory answer to our request that they would avoid invading Belgium, the Under-Secretary of State replied that his Government "could not possibly give that assurance either that night or any other night."

We have, therefore, gone to war with Germany not merely to protect our own interests or to support France when the Germans are striving to crush her, but because when we undertake to safeguard the integrity of a small State we are bound in honour to keep our word. We are fighting for the independence of Belgium against the domination of a great military power. We stand for the freedom of nations and the sanctity of Treaties against militarism and military aggression. We did our utmost to preserve peace, but war was forced upon us, and it is the German Emperor and his Government who are alone responsible for all the waste of resources, the devastation of property, the untold suffering and misery, and the frightful sacrifice of human life.

NEW ZEALAND UNIVERSITY AND AFFILIATED COLLEGES.¹

THE New Zealand University, the body which has general control of higher education in New Zealand, was founded by the New Zealand University Acts of 1870, 1874, and 1875. In 1876 the University was recognised by Royal charter as entitled to grant the degrees of Bachelor and Master in Arts, and Bachelor and Doctor in Law, Medicine, and Music. The Amendment Act, of 1883, and the supplementary charter issued in December of the same year, added the degrees of Bachelor and Doctor of Science. Moreover, in 1904, the University Degrees Act gave the University authority to confer degrees of Doctor of Literature, Master of Laws, Surgery, and Science, and Bachelor, Master, and Doctor of Veterinary Science, Dental Surgery, Mechanical, Electrical, Civil,

Mining, and Metallurgical Engineering, Naval Architecture, Agriculture, Public Health, and Commerce. For these latter no further charter has been given, so that nominally they must be considered as having currency only in New Zealand.

The affairs of the University of New Zealand are controlled by a Senate, which, under the New Zealand University Amendment Act, 1902, consists of twenty-four members or fellows—four elected by the Governor in Council; eight by the governing bodies of the four affiliated institutions, two by each; four, one each, by the Professorial Boards; and eight, two each, by the four District Courts of Convocation, consisting of the graduates belonging to the several university districts. The revenue of the University is derived chiefly from a statutory Government grant of £3,000 per annum, from examination and diploma fees, and from interest on money invested.

The University is an examining, not a teaching, body, and four teaching institutions are affiliated to it—the Auckland University College, Victoria College, Canterbury College, and Otago University. Of these four institutions the two first mentioned—Auckland University College and Victoria College—each receive an annual statutory grant of £4,000, supplemented during each of the last three years by grants of £1,200 and £1,500 respectively, while the two others—Canterbury College and Otago University—are endowed with reserves of land. The affairs of these university colleges, including the appointments of professors and lecturers, are entirely in the hands of their various councils.

Each of the four affiliated university colleges specialises in certain directions, and to further this purpose Government makes to each an annual grant of £2,000. Otago University has attached to it medical and dental schools and a school of mining and metallurgical engineering; Canterbury College has a school of engineering (mechanical, electrical, and civil); the grant to Auckland University College is allocated for mining and commerce; while the grant to Victoria College is intended to enable it to specialise in law and science.

While the university colleges thus perform the actual teaching work, the University exercises most important functions in regulating the scope of the degree examinations, in appointing examiners, in awarding scholarships, in conferring degrees, and in many other directions. At the outset it was the policy of the University Senate to appoint outside examiners for most of its degree examinations; generally speaking, this is still its policy, with the result that the University colleges, having their programme of work strictly defined by the statutes of the University, and having the work of their students examined in England and elsewhere, possess very little freedom in extending or modifying their curriculum.

OTHER PROFESSIONAL INSTITUTIONS.—In addition to the four university colleges there are several institutions which, though not actually affiliated to the New Zealand University, are equally entitled to be considered professional in their scope and character.

¹ Extract from the Thirty-sixth Annual Report of the New Zealand Minister of Education.

The Canterbury Agricultural College is recognised as a school of agriculture, and matriculated students of the college may, after a two years' course, followed by a further course of one year at a university college, qualify for the degree of Bachelor of Agriculture upon passing the prescribed examination.

In several respects the four training colleges at Auckland, Wellington, Christchurch, and Dunedin—may be considered professional schools. Although not affiliated with the New Zealand University, they are in several ways directly associated with the university colleges: matriculation is the entrance examination for both; the principal of the training college is usually lecturer on education at the university college; attendance at some at least of the university college courses is compulsory for trainees; and a member of the professorial board of the university college is a member of the board of advice of the training college.

The following figures are extracted from the annual report of the University to his Excellency the Governor:—

	1912
Total number of candidates at all examinations, etc.	3,496
Number of degrees conferred	189
Of whom the number gaining honours was	35
Number passing Matriculation Examination	515
Total number of graduates so far admitted	1,661

The following table shows the principal items of income and expenditure of the University of New Zealand for the year 1912:—

<i>Income.</i>		
Balances—		1912
General Account		£ 4,288
Scholarship Account		25,440
		29,728
Statutory grant		3,000
Fees		8,903
Interest		1,208
Miscellaneous		258
		£43,097
<i>Expenditure.</i>		
Scholarships		2,099
Examinations		6,593
Office salaries		1,058
Expenses of Senate meetings		805
Miscellaneous		817
Balances		31,725
		£43,097

In the above statement no account has been taken of special scholarships and prize funds. The balance at the end of the year, £31,725, consists of a balance on the scholarships account of £26,049, and a balance on the general account of £5,676.

SCHOLARSHIPS, BURSARIES, ETC.—University scholarships may be divided into three broad classes:—(1) Entrance scholarships; (2) scholarships awarded during the degree course; (3) post-graduate scholarships.

(1) University entrance scholarships are awarded annually on the results of the University Junior Scholarship Examination, and are as follows: Junior University, Senior National, and Taranaki Scholarships, in addition to some thirty or forty local and privately endowed scholarships awarded on the results of the same examination. Queen's Scholarships (Victoria College) are not now awarded, and the terms of the last holders have expired. In addition to the above, all those who gained "credit" at the same examinations are entitled to hold bursaries which meet the cost of college fees up to £20 per annum.

(2) Scholarships awarded during the degree course are the Senior University, Tinline, and Sir George Grey. The two first are tenable by candidates sitting for their final examination for B.A. or B.Sc., and may therefore be regarded in a sense as post-graduate.

(3) The chief scholarships awarded at the end of the University course are the Rhodes Scholarship, the 1851 Exhibition Scholarship, the Medical Travelling Scholarship, and the Research Scholarships. The three first are all travelling scholarships—that is, they are tenable abroad. The Research Scholarships are each of the value of £100 per annum, with laboratory fees and expenses. They are offered annually by the Government, one to each of the affiliated institutions, to promote research work likely to be of benefit to New Zealand industries.

So far ten Rhodes Scholarships have been granted, four to students of Auckland University College, four to students of Otago University, and two to students of Victoria College.

So far (1913) nine Research Scholarships have been awarded, and of these two were in active operation in 1912. The subjects of research undertaken have been in each case closely connected with some New Zealand industry, or with some industry which, though not yet undertaken in this Dominion, may at an early date be an industry of importance in New Zealand. Even if the discoveries made in the course of the research have no immediate commercial value, yet the training of a body of students in the application of scientific methods to the national industries cannot fail to be of great ultimate benefit to the Dominion.

An important step was made in May, 1912, in the direction of extending the system of granting University bursaries. Bursaries may be awarded on the recommendation of the University of New Zealand to matriculated students who have been resident in the Dominion for a full year, provided they fall within one of the five following classes:—

(1) They must have obtained "credit" at the University Junior Scholarship or the Senior National Scholarship;

(2) Or they must have within one year and six months immediately preceding gained a higher leaving certificate;

(3) Or they must, within the same period, have completed their terms of service as probationers or pupil-teachers to the satisfaction of the Education Board of their district, and must declare their intention of entering a recognised training college on completion of the tenure of their bursary;

(4) Or they must have completed a course of training at one of the four training colleges;

(5) Or they must have gained a teachers' higher certificate.

Such bursaries are not tenable with any entrance scholarship the value of which exceeds £20 per annum. They are tenable for three years at any university college or school of agriculture recognised by the University, and entitle the holders to exemption from payment of University and college fees up to £20 per annum.

In other respects, bursaries are held subject to the same conditions as Senior National Scholarships, with the exception that in the case of bursars it is not insisted that the scholar should devote his whole time to academic study.

With the view of extending the sphere of usefulness of the special courses in home science and domestic arts recently inaugurated by the council of the Otago University, regulations providing for the award of bursaries were issued in November, 1912, under the regulations for manual and technical instruction. These bursaries may be awarded on the recommendation of the council to students who have been resident in the Dominion for not less than twelve months.

TEACHING OF HISTORY IN SECONDARY SCHOOLS.¹

MODERN EUROPEAN HISTORY.

THE events now proceeding in Europe and the crisis which the nation has to face call for knowledge as well as courage and devotion. Those responsible for the teaching of history in secondary schools will be considering how this, like other subjects of instruction, may best be made to serve national purposes.

In the Memorandum (Circular 599) on the "Teaching of History in Secondary Schools," it is suggested that a useful conclusion to the course in history would be a year's work on the history of Europe in the nineteenth century. In view of present circumstances it may be useful to add some fuller notes as to the form that such a course may profitably take.

A course of modern European history in schools might begin with the European status as settled by the Congress of Vienna in 1815, but must be prefaced by a brief explanation and summary of the results of the preceding Revolutionary and Napoleonic era, for without this the problems and events of the nineteenth century cannot be understood. During that period there grew up the two ideals of liberty and nationality which have so profoundly influenced later developments of Europe, and it was in the years before 1815 that the modern history of nearly every European nation began. The modern institutions of France were established by the Revolution and by Napoleon. The history of Germany begins with the fall of the old empire in 1806, and without some knowledge of the wars of liberation there can be no understanding of the ideal of German nationality. To the same period also belong the characteristic institutions of

modern Prussia, compulsory education and compulsory service in the army, institutions which have been subsequently adopted throughout the Continent. The history of Belgium must be traced back to the French conquest of 1793. To the same date belongs the effacement of Poland from the map of Europe. The part taken by Russia in the overthrow of Napoleon marks the definite entry of Russia into the European system.

The history of the continent of Europe from 1871 onwards presents little that is suitable for school work, and it is doubtful how far it would be desirable to carry on the narrative in a systematic way beyond that year. In particular, there is not available so good a supply of suitable books—either books suitable as text-books for the pupils or books of reference for use of the masters and to be included in the school library—for the later as there is for the earlier period. This date in many ways forms a suitable conclusion to a course. Within the period thus limited falls the establishment of the kingdom of Italy, the German Empire, and the kingdoms of Holland and Belgium. On the other hand, it will clearly be necessary, either as an integral part of the course or in the form of supplementary work, to carry on the narrative so as to explain how the present situation has arisen. In doing this the diplomatic history between 1871 and 1900 would naturally be passed over very briefly, and while there would be some reference to the remarkable growth of German population and prosperity it will not be desirable to attempt any full treatment of the problems suggested by the change from free trade to protection. It will be more useful to direct attention to the growing influence of Colonial affairs on the relations of Continental States to one another, and the keen competition between the different races of Europe, especially in Africa and the Far East, should be dealt with. In addition, the history of the changes in the map of eastern Europe and the shores of the Mediterranean should be carried on to the present day, even though time will probably not allow any full narrative of events such as the British occupation of Egypt and the Russo-Turkish War of 1877-78. It is, however, quite necessary that the development of the Balkan States should be explained as well as the growth of French and Italian territory in the north of Africa. If this is done it will be possible to make clear how the situation which existed just before the outbreak of war had arisen.

In accordance with the general principles of historical teaching, the object should be to give a general outline of the political history and also a vivid presentation of the outstanding events, episodes, and personalities in which this period is so rich, as, for instance, the revolutionary movement of 1848, the liberation of Italy, including the achievements of Garibaldi, and the unification of Germany. Much attention should, of course, be paid to political geography. The gradual disintegration of the Ottoman Empire and the establishment of independent Christian States in eastern Europe, should be fully dealt with.

It is unnecessary to add that in the treatment of this subject everything should be avoided which would

¹ Board of Education. Supplementary Circular 839.

encourage national animosities. For those pupils who have attained some proficiency in French or German, use should be made of some of the excellent texts, available in either language, which deal with the Napoleonic wars and the war of 1870-71.

A course of this kind would, for the higher forms in a school, make a coherent and profitable subject for a year's study, and might well be offered for examination. The subject, however, is not equally suitable for the lower and middle forms. Many schools will, indeed, probably desire to arrange for special lectures or courses of reading suitable even for the younger pupils, dealing with the causes and progress of the present war. These, however, though they will afford a most valuable supplement to the ordinary history teaching, will be more effective if they are not immediately associated with it, and it is desirable that the younger pupils should continue the normal course of work on the history of England. On the other hand, in all history teaching it is useful to keep in mind matters of immediate interest and to use the history of the past to place the events of the present in their proper perspective. In accordance with this general principle it is very desirable and quite possible to bring out, more clearly than is generally done, the importance of certain aspects of English history. For instance, the growth of the Navy and its importance in the defence of England at times such as those of the Spanish Armada and the great wars with France will gain fresh significance from present events. The great work done by the Navy in the half-century between Hawke and Nelson, in this sphere the outstanding feature of British history, does not generally receive adequate treatment. The part taken by a British army in past Continental wars, and the reasons why it was there, will now be studied with special interest.

Again, certain aspects of foreign history may also be more fully treated than is usual. It will be possible to point out how the remote past still lives in the present: as, for instance, in the existence of a debatable territory between France and Germany which is ultimately due to the division of the Empire of Charles the Great; the reasons why the Low Countries have so often been the seat of war between the Greater Powers, and the continuity of English policy with regard to the independence of this district of Europe from the time of Edward the First; the reasons for the late organisation of Italy and Germany as national States; the fall of Poland; the rise of Russia; and the historical position of the Austrian monarchy, especially in connection with the Mohammedan conquests and the gradual recovery of territory from the Turks. Matters such as these naturally arise in the course of any well-directed study of English history. Ignorance of them prevents any real comprehension of British foreign relations, of the part that Great Britain has taken in Continental wars, and of the ideals and principles by which our country has been guided in the past.

There is no surer source of courage than the study of past achievements and no better school of wisdom than the recognition of past mistakes.

HISTORY AND CURRENT EVENTS.

AUGUST, 1914, will probably rank with June, 1808, as containing one of those cardinal moments when the fate of Britain and the Empire hung trembling in the balance. In June, 1808, Napoleon was preparing to overrun and overwhelm Spain. Two envoys from the Asturias came to England imploring British aid. Canning was Minister for Foreign Affairs. He saw and seized the opportunity for striking a mortal blow at the military despotism of Napoleon. Prevailing in the Cabinet over short-sighted and timorous colleagues, he declared that Britain would "proceed upon the principle that any nation of Europe that starts up to oppose a power which is the common enemy of all nations becomes instantly our essential ally." Hence the Peninsular War, which Napoleon admitted was the "ulcer" that destroyed him. In that decision of Canning and the Cabinet of 1808 lay the germ of Vittoria and Waterloo. Similarly, in the British response to the appeal of the Belgians at the beginning of last August, lay the germ of the Allies' victory at the Marne, and the final deliverance of Europe from the Prussian military despotism at — (name to be added later). It is interesting to note, further, that Napoleon was so filled with wrath at Canning's intervention in the Peninsula that he gave instructions to his generals to concentrate their attention on the English forces. "Nothing matters except the English," he wrote more than once in despatches. His temper and his words recall a very recent reference to the "contemptible little Army" which Britain has at the present moment in the field.

THE siege and capture of Antwerp by the Germans recall the fact that few European cities have been more frequently invested and taken by foreign enemies. In the Middle Ages, as a city of the debatable region of Lotharingia, it passed repeatedly backward and forward from French to German hands. In the sixteenth century it played a prominent part in the great struggle that followed the revolt of the Netherlands from Spain. In the so-called "Spanish Fury" of November 4th, 1576, it was sacked, with horrible destruction and massacre by the troops of Philip II. The soldiers of the Duke of Anjou, who were supposed to be friends and deliverers, inflicted upon the devoted city a devastation scarcely less horrid in the "French Fury" of January 16th, 1583, shortly before they departed and left the Netherlands to their fate. Then the Spaniards tried to recover the city. For six months it held out behind its strong encircling wall; but in August, 1585, it was compelled to surrender. It remained Spanish until 1714, when at the Utrecht Settlement it became Austrian. The French Revolutionary wars placed it under French control, and Napoleon tried to use it as a pistol with which to destroy London. At Vienna it passed under Dutch authority, and not until 1839 did it emerge as the main port of an independent Belgian State. The question of the ownership of the piece of land which divides it from the sea, and the problem of the navigation of the Scheldt have been two of the thorniest subjects of European diplomacy.

THE present is a particularly inopportune time for anyone to die who desires to receive an extended obituary notice. At any other period the death of King Charles of Rumania, which occurred on Saturday, October 10th, would have filled the papers and magazines for many days, and the man in the street would have been forced to become familiar with the history of the Danubian principalities which the dead man had converted into a kingdom. In existing circumstances, however, his death is mentioned mainly because it gives rise to speculation as to whether it will involve a change in Rumanian policy. Charles, first King of Rumania, was a remarkable man, and an eminently successful ruler. When, in 1866, at the age of twenty-seven, he was persuaded to accept the position from which Prince Alexander had just been expelled, he undertook a task as difficult and thankless as that which his young relative, William of Wied, has recently abandoned in Albania. The two principalities of Moldavia and Wallachia were still nominally Turkish; they were decadent, anarchic, and bankrupt. With marvellous skill, courage, and perseverance he regenerated and reorganised them, secured their independence in 1878, and converted them into a kingdom in 1881. In two respects, however, King Charles remained alien from his subjects. He continued a Catholic, while they were Orthodox, and he clung, as a Hohenzollern by birth, to a policy of friendship with Prussia and Austria, while the Rumanian people saw in France and Russia the Powers most likely to recover for them Transylvania, a country filled with their kindred, which in the golden days of Michael the Brave (1593-1601) had been one with Moldavia and Wallachia. It remains to be seen whether the new King, Ferdinand, nephew of Charles, will pursue the Hohenzollern policy. He will not be without excuse if he departs from it, for he is cousin to the King of the Belgians, while his wife is cousin to both the Tsar of Russia and the King of England.

THE frequency and regularity with which we receive at the present day, especially through the medium of the posters of the evening newspapers, news of events even before they happen, contrasts in a remarkable manner with the slowness with which information percolated through during the leisurely wars of the old days. The news of Tewkesbury was four days in reaching London; it was ten days before the victory of Trafalgar and the death of Nelson was reported in England; most extraordinary of all, no fewer than eighteen months elapsed before the tragic story of the massacre in lonely Glencoe travelled from the Highland glen to the metropolis. The electric telegraph has wrought a revolutionary change, both in the conduct of war and in the attitude of the populace at home toward war. The first case in which the telegraph profoundly modified the course of a campaign occurred when the Indian Mutiny broke out. Had it not been that British troops were by a mere coincidence and happy chance on an expedition to China, and that it was possible to divert them to India by a telegraphic message, the British Dominion might well have been destroyed. Another instance in which a telegram was of decisive importance occurred in the

Franco-Prussian war. The movements of MacMahon's army which culminated in Sedan were revealed by newspaper correspondents, published in the *Times*, and communicated by wire to the Prussian headquarters by Count Berchthold, the faithful Prussian agent in London. We shall no doubt hear in due course of the part played in the present military and naval operations by the telegraph, the wireless telegraph, the telephone, and other means of long-distance communication.

ITEMS OF INTEREST.

GENERAL.

THE Board of Education is informed by the Army Council that, owing to the continued success of the appeal for recruits, the military authorities have still to find a large number of competent non-commissioned officers in order to train the recruits quickly and efficiently. The Army Council has accordingly asked the Board of Education whether it can help in obtaining men qualified to act as instructors in military drill and physical exercises. The Board is aware that a large number of teachers are already engaged in military service in various capacities. But there are no doubt others to whom this opportunity of giving skilled assistance will specially appeal. The Board is informed by the Army Council that any man not more than thirty-five years of age who is physically fit and able to produce a certificate that he is a competent drill instructor, and has the personal qualities necessary for maintaining discipline, will, on enlistment, be given the rank of corporal. The Board understands that the physical exercises used in the Army are, speaking generally, based upon the same principles as the Board's syllabus, and that familiarity with the latter would be of assistance in mastering the Army "Hand Book." In the opinion of the Board, certificates of efficiency can properly be issued by the local education authority to teachers in their service whose work as instructors in physical exercises and drill they are well acquainted with, and can commend as reaching a high standard.

THERE may also be teachers who, on account of age or of some slight physical disability, are not eligible for enlistment or for other reasons are unable to enlist for the period of the war, but who would be glad to render temporary service as instructors in drill and physical exercises where help is required. In such cases, offers of service may be made either to the local military authorities or to the Territorial County Associations, but similar certificates of efficiency from the authority would be required. The local education authorities are well aware of the importance which the Board attaches to the maintenance of the work of the schools at the highest level which is possible during the war. But the Board is sure that they will agree that in the particular emergency to which the Army Council has now directed attention, there is good reason why any special qualifications or experience possessed by teachers should be placed at the service of the military authorities. The Board gladly recognises the value of the action already taken by

many local education authorities in keeping open to teachers the posts which they vacated on taking up military duties, and in making up the difference between their Army pay and their salary as teachers. No doubt authorities generally will be ready to give similar facilities to any teachers in their employment who desire to offer their services for the purpose now in view, and the Board has ventured to advise the Secretary of State for War accordingly.

In order that instruction and occupation may be provided for young persons who are unemployed or only partially employed in consequence of the war several local education authorities have already made arrangements to establish special classes. The Board of Education is in full sympathy with the action which is being taken by these authorities, and desires to encourage it so far as possible. Of the young persons out of employment there will be many who have only just left school or are still attending elementary schools for half-time. It is possible that, being still within the limits of age for attendance at public elementary schools, such young persons may return, during their period of unemployment, to full-time attendance. In these cases the Board will be prepared on the application of the authority to use a wide discretion in the exercise of its powers to facilitate the retention at school of pupils who can be provided for in this way. For young persons who cannot reasonably be expected to return to elementary schools it is desirable that special classes should be provided under the Board's Regulations for Technical Schools. In some places it may not be possible or necessary to provide anything beyond evening classes, but it will usually be advantageous to establish special day classes also. If these day classes are fully to serve the purpose for which they are intended it will be desirable that they should be at least half-time classes.

THE character of the instruction provided in special day or evening classes will naturally depend upon local circumstances and the needs of particular categories of students. The students will have much time at their disposal, and it is therefore desirable that so far as possible grouped courses should be offered, providing a continuance of general education as well as instruction bearing upon the actual or prospective occupations of the students in attendance and instruction designed to enable workers to return in due course with increased efficiency to their former employment. The Board will give special consideration to any classes which may be designed to fit students for new industries or industries which have not hitherto been fully developed in this country. In the case of girls and young women, attention should, of course, be given to the provision of classes in domestic subjects, hygiene, and the care of children.

In considering applications from local education authorities for the recognition and aid of classes the Board will be prepared to construe liberally those articles of the Regulations (in respect of staff, accommodation, equipment, etc.) which are applicable. As regards the provision of accommodation and other facilities it may often be found possible to make use

of voluntary and other agencies. In many areas the authorities of boys' and girls' clubs, boys' brigades, boy scouts, and girl guides' associations, Sunday school, and other organisations will no doubt be able and willing to co-operate by offering their premises and the assistance of their workers. Employment committees, labour exchanges, and distress committees will also be able to give valuable assistance in various ways. It is, however, most important that full educational responsibility for these classes should be taken by the local education authority, and the Board desires that all applications for the establishment of such classes should be forwarded to the Board and endorsed by the local education authority. Any local education authority establishing special classes for the purposes now in question will no doubt consider whether, in the present emergency, fees could be remitted or reduced. The Board will gladly instruct the permanent or occasional inspectors, including those who have expert knowledge of different trades and industries, to give any assistance in their power to local education authorities proposing to take action on the lines suggested.

A LARGE number of London teachers have volunteered for service with his Majesty's forces. In consequence of the deficiency which has been caused in the teaching service, there is a demand for teachers to fill temporarily the positions of those who have volunteered. The demand is greatest for men teachers; in some cases women teachers are being employed in boys' departments. Any person, man or woman, who possesses the necessary qualifications for teaching in an elementary school could be of assistance at the present moment.

THE war has naturally affected the schools of France. A correspondent has sent some notes on the more obvious changes in the situation as revealed at the commencement of the term. Of course, many schoolmasters are with the Army; those who are in the service of the State are fortunate in that their salaries will be paid to their families. Retired teachers, above sixty years of age, are being pressed into service, and women teachers are at work with young pupils. In the primary schools, books are normally lent to the scholars for home use, but these books are now retained at school. In the Paris lycées, the majority of the staffs remain at work, being ineligible for war service, but their pupils are still away from Paris, in the country, so that forms normally forty-five in number are now reduced to fifteen or sixteen. In the provincial lycées the staffs are short-handed.

NORMALLY the examination for the baccalauréat takes place in July and October. This year, any volunteer for war service may present himself for individual examination for the baccalauréat. The candidates who passed the entrance examination for the Army and Navy training schools (St. Cyr, etc.), were accepted on condition that they joined at once. The artillery, infantry, and cavalry candidates are consequently almost ready for service at the front; the naval preparation takes longer. Candidates who are unsuccessful

ful at the Navy Entrance Examination may enlist in the "fusiliers marins," and some of these soldiers have recently shown conspicuous bravery in the field. Many of the buildings of the lycées are being used by the military authorities so that the school has been transferred to another available building. This is especially the case with reference to the schools specially instituted by Napoleon, les maisons de la Légion d'honneur. These schools are for the daughters of the members of the Legion, and they are not yet open.

THE Association of Headmistresses desires cordially to welcome the general policy as to examinations set forth in the Board of Education's Circular 849. Headmistresses are gratified to find that the Circular embodies certain principles for which they have long contended, namely, the simplification in character and in the number of examinations in schools; the stress laid on the course of study rather than on the examination test; and the co-operation of teachers. While reserving its right to independent judgment on details, the association will heartily support the main proposals, and trusts that it may be possible to carry them into effect. The association desires, however, to state clearly that it would not wish to see all girls who remain in school beyond the age of sixteen subjected to compulsory examination; nor would it wish to see the higher examination made compulsory on older students.

THE University Extension Lectures arranged by the University of London for the session 1914-15 will be continued so far as possible in accordance with the arrangements made before the outbreak of the war, and it is hoped that students will maintain their attendance as under normal conditions. Courses of lectures bearing either directly on the war, or on the history of the Continental Powers who are engaged in the present struggle are under consideration.

THE book lists of the National Home Reading Union are well known to many teachers. Those which have been recently issued for the ensuing reading session are as varied and interesting as any of their predecessors. They are divided, as our readers know, into three classes, the Special Course, the General Course, and the Young People's Course; and as a sort of accompaniment to them the union publishes in its magazine a series of articles written by authorities of acknowledged repute. Needless to say, in view of the union's educational character, a supplementary subject has been introduced into the special course section, viz., "Modern European History from 1870 till To-day, and the Causes of the Present War." With Mr. J. W. Headlam as the writer of the introductory article in the magazine, and with a short but excellent book list, the union is performing in this, as in its other activities, a truly national service.

BUT let us consider what was provided for its members before the war broke out. In the special course history, literature, art, and science all find a place, and they are treated in the practical way which appeals to busy students. The English history of the fifteenth

century is linked with the historical plays of Shakespeare; literature blends concretely with art and sociology in the study of William Morris; Dutch and Flemish art is given an extremely interesting historical background by Mr. Stewart Dick; and if anyone wants to know how to make science a cultural study for those who have not received a special scientific training, he has only to turn to the book list on bees. Of the general course we merely indicate the subjects—the open air and travel, the Bible as literature, the Panama Canal, some short biographies, Dante's Paradise, and general literature: a few modern novels—in order to say a word about the young people's course. Here we do not give even the list of subjects—it is as varied as the others we have mentioned—but we direct special attention to the book list for the general literature course. We should like to produce it in full, it is so splendidly chosen. It begins with Baldur, on which Miss C. L. Thomson has a charming article in the magazine, and includes several of Shakespeare's plays, "The Last of the Mohicans," "Hereward the Wake," "Tanglewood Tales," "Treasure Island," and "The White Company." A teacher who could take his children through such a course would be solving the problem of teaching English with delight to them and satisfaction to himself. Not for the first time we commend these most excellent lists to the serious attention of our readers.

PROF. C. SPEARMAN contributes to the *Eugenics Review* for October an article entitled "The Heredity of Abilities." His summary of the diverse views of various competent authorities should prove of interest to teachers, to whom the essay may be commended as worthy of study. He contends that general mental ability reaches its full development about the period of puberty. The human brain has been shown to attain its maximum weight between the ages of ten and fifteen years. And since the general ability is so little affected by all the years of education after puberty, it can have little dependence on education at all. Though unquestionably the development of specific abilities is in large measure dependent upon environmental influences, that of general ability is almost wholly governed by heredity.

SCOTTISH.

THE sixty-eighth annual general meeting of the Educational Institute of Scotland was this year shorn of much of its traditional pomp. The meeting was held in the Royal High School, Edinburgh, the gathering place of the institute for more than fifty years until increase of numbers drove it to the Synod Hall. The usual accessories, publishers' exhibition, ladies' meeting, and college club reunions were all a-wanting, and at the meeting nothing but formal business was transacted. The keynote was struck by the singing of the National Anthem, and everything said and done thereafter had a direct bearing on the national crisis. The president, Miss Fish, in a speech of great power and felicity of expression, voiced the opinion of all teachers when she said that a new ideal, or rather a reversion to an old ideal, in education is required. Influenced by the mania for everything

German, our standard of educational value has been too much concerned with commercial success and industrial competition. A return is needed to the old standard of value. "It is righteousness that exalteth a nation." Our education has become too much materialised, and the religious and spiritual elements have almost disappeared from it. It is time that the nation should go back to first principles and make up its mind that the Sermon on the Mount is a better foundation for our school education than the latest theories of German philosophy.

At a meeting of the Glasgow Branch of the Secondary School Association an address was delivered by Prof. Burnet, St. Andrews, on the crisis of the Prussian leaving certificate. Prof. Burnet, after mentioning that the subject of his address had been determined upon long before the outbreak of the war, said that his object was to strip the glamour from the Prussian educational arrangements and to suggest that they are very far indeed from being the ideal we should set before ourselves. No one who knows anything of modern Germany could have any doubt that the state of mind which made the war possible was the direct outcome of the Prussian system of education, alike in the universities, the higher schools, and the national schools. The leaving certificate system was admirably adapted to the old Prussian State with its single type of high school, its spartan simplicity, and its primitive social organisation. Under those conditions it sifted out almost infallibly those who are best able to serve the State. But under the greatly altered and infinitely more complex conditions of to-day it is no longer able to do this, and so fails in its main function. When Prof. Burnet wrote this paper originally he had expressed the fear that we were in danger of being unduly impressed by the Prussian system, but since then the Prussian mirage was being dispelled by stronger hands than his.

THE executive committee of the Scottish Teachers' War Relief Fund reports that for the first month a sum of £1,500 has been collected. This does not include the £1,000 contribution with which the Educational Institute inaugurated the fund. The money has been allocated as follows:—£700 to the Prince of Wales Fund; £500 to the Belgian Fund; £200 to the Queen Mary Women's Fund; and £100 to the Red Cross Society. The sum cannot be taken as representing the total contributions of teachers, as many had begun subscribing to local funds before the Teachers' Fund was established. One of the most notable and gratifying facts is the generous and general response from men and women—and particularly from women—in the smaller rural schools, both on the mainland and in the islands from Shetland southwards.

At a meeting of representatives of the four provincial committees for the training of teachers it was agreed to recommend the following resolutions for the approval of the Scotch Education Department:—(i) That in the case of students taking a two, three, or four years' course, a period of service in the Army or Navy up to a year be reckoned as time given to train-

ing under the committees; (ii) that in the case of students who were about to enter upon a one year course a period of service in the Army or Navy up to six months be reckoned as time given to training under the committees; (iii) that students of modern languages be exempted during the period of the war from the requirement of the usual year's foreign residence.

THE opening of the Garrioch Special School, Glasgow, marks a new era in elementary education as being the first open-air school established in Scotland. A few years ago the exposure of any pupils, but more especially defectives, to the raw and moist atmosphere of the west, would have been regarded as a wicked tempting of Providence. But a little actual experience is worth any amount of theorising, and experience has shown that open-air conditions are highly beneficial to defectives. And if for defectives, why not also for the normal child? This opens up a wide question and one which bodes further inroads upon the ratepayers' pockets. The cost of the open-air school seems to work out at about double the cost of the ordinary school, and this alone will ensure that no general adoption of the new system will be made until the success of the open-air school for all classes of pupils has been absolutely determined.

THE Aberdeen Technical College since its institution has shown itself very active in formulating educational schemes calculated to benefit the various industries in the north of Scotland. Its latest proposal is to establish a School of Navigation and Fisheries. Aberdeen is second only to Grimsby as a fishing port, and the whole coast line round to the Moray Firth is deeply concerned in the harvest of the sea. The importance, therefore, of having those engaged in the work scientifically trained in navigation, and in the habits and migrations of fish is very great. The Technical College has prepared a scheme whereby such a training can be obtained, and notwithstanding the conservatism of the fishing class generally, it is believed that sufficient support for the scheme will be forthcoming.

IRISH.

THE report of the Intermediate Education Board for Ireland for 1913 was published last month. In addition to the usual figures and summaries relating to the examinations and grants it contains important pronouncements by the Board on finance, the new Act of 1913, and inspection and examinations.

WITH regard to finance, attention is directed to the diminution of income in late years. The amount now received as the Board's share in the Local Taxation (Ireland) Account is £46,566, as compared with £71,400 in 1900, a diminution of £24,834. While the funds diminish, the number of students examined increases. In 1900 it was 8,287, and in 1912 13,858. In other words, the income from this source has decreased by 35 per cent., and the students have increased by 50 per cent. The year 1912 is taken rather than 1913, because in 1913 the preparatory grade was abolished, but the same increase is shown if the

figures are compared for 1900 and 1913, with the omission of the preparatory grade. In 1900 the number of students examined was 5,854; in 1913 it was 9,706. In 1914 the number was 10,176. More money is urgently needed by the schools, and the Board suggests an additional grant to be paid on inspection of the upper classes. Additional money is also required for holiday classes, especially in connection with the teaching of modern languages.

THE new Act of 1913 empowered the Board to pay fees on the results of inspection for pupils between twelve and fourteen. It was not possible to apply the Act to the school year 1912-13, but regulations were drawn up for 1913-14. In the meantime the reports of the inspectors show that the abolition of the written examinations of the preparatory grade and the substitution of inspection have borne good fruit. It is possible to lay a good foundation without rushing the students into an examination for which many were ill-suited.

THE reports of the inspectors generally show that steady and regular development continues in the methods of teaching. The Board again repeats its opinion that a system should be adopted whereby examination and inspection should be complementary, and would each share in determining the school grant in the higher classes. Since at present the school grant depends entirely on examination, there is a strong temptation to enter students for examination regardless of their fitness from an educational point of view, and work which cannot be tested by examination receives no encouragement. Many students enter school late with insufficient preparation, and for these the present examination system is altogether unsuitable. Owing to the extension of inspection to the preparatory grade, the number of inspectors has been increased from six to eight.

No statement has yet been officially issued about the distribution of the new £40,000 grant. It might be supposed that it would partly relieve the financial needs complained of by the Intermediate Board, and it may conceivably be used in this direction. It should, however be borne in mind that this sum was intended by Mr. Birrell and Parliament to be earmarked for a special purpose, viz., the improvement of the position and salaries of lay assistant-teachers. The Act, however, from this point of view is so loosely drafted that the proverbial coach and four would have an easy task in driving through it, and it remains to be seen whether the regulations for its administration to be issued by the Castle will make its allotment any clearer. It is generally understood that the money is immediately available, and as there is no time to lay down conditions this year, it will be apportioned among the schools in the ratio of their Intermediate grant for the current year. Next year it is hoped that the rules for registration which forms the backbone of the scheme will be in operation.

THE following is a summary of the exhibitions and prizes awarded in September by the Intermediate Board on the result of the examinations held in June.

Group A is Classical, B Modern Languages, C Mathematics, and D Experimental Science.

BOYS.

Senior Grade.

Group	A	B	C	D	First Cl. Ex. (£30.)	Second Cl. Ex. (£20.)	Prizes			Total.
							£3.	£2.	£1.	
Group A	...	3	6	2	2	3				16
" B	...	6	6	3	4	5				24
" C	...	1	6	4	—	1				12
" D	...	6	6	5	7	5				29
		16	24	14	13	14				81

Middle Grade.

Group	A	B	C	D	First Cl. Ex. (£20.)	Second Cl. Ex. (£15.)	Prizes			Total.
							£3.	£2.	£1.	
Group A	...	7	8	6	2	1				24
" B	...	8	8	17	7	18				58
" C	...	6	8	15	7	5				41
" D	...	6	8	15	8	15				52
		27	32	53	24	39				175

Junior Grade.

Group	A	B	C	D	First Cl. Ex. (£15.)	Second Cl. Ex. (£10.)	Prizes			Total.
							£3.	£2.	£1.	
Group A	...	10	16	9	3	3				41
" B	...	10	15	44	24	13				106
" C	...	10	16	26	17	11				80
" D	...	10	15	21	13	16				75
		40	62	100	57	43				302

GIRLS.

Senior Grade.

Group	A	B	C	D	First Cl. Ex. (£30.)	Second Cl. Ex. (£20.)	Prizes			Total.
							£3.	£2.	£1.	
Group A	...	—	1	—	—	—				1
" B	...	5	9	5	2	13				34
" C	...	1	3	—	—	1				5
" D	...	2	5	—	—	—				7
		8	18	5	2	14				47

Middle Grade.

Group	A	B	C	D	First Cl. Ex. (£20.)	Second Cl. Ex. (£15.)	Prizes			Total.
							£3.	£2.	£1.	
Group A	...	—	—	—	—	—				—
" B	...	8	14	19	10	10				61
" C	...	5	5	1	—	—				11
" D	...	3	5	1	2	1				12
		16	24	21	12	11				84

Junior Grade.

Group	A	B	C	D	First Cl. Ex. (£15.)	Second Cl. Ex. (£10.)	Prizes			Total.
							£3.	£2.	£1.	
Group A	...	1	—	—	—	—				1
" B	...	9	12	30	11	16				78
" C	...	7	11	5	3	2				28
" D	...	7	10	1	2	2				22
		24	33	36	16	20				129

THE total number of awards in each group is as follows:—Group A, Boys, 81; Girls, 2; Group B, Boys, 188; Girls, 173; Group C, Boys, 133; Girls, 44; Group D, Boys, 156; Girls, 41. Total: Boys, 558; Girls, 260.

THE Department has issued Revised Regulations in reference to the classes in first aid for the injured, hygiene and emergency nursing, and ambulance work, of which particulars were given in these notes last month. The revised regulations remain in force until December of this year only, and classes to be opened after that date will be required to conform to such other regulations as may be afterwards issued.

WELSH.

THE war, of course, dominates everything; no one speaks or writes of anything else, and all the controversies are for the moment forgotten. For the most part school life and work go on on the lines laid down before the war, and schemes for improvements, building developments, and new grants are all "hung up." There are certain direct effects: many school staffs have contributed one or more members to the forces, especially to the University contingents, and either the rest of the staff lose all their free periods or else a temporary substitute appears. Schools are beginning to count up with pride the number of old boys who have joined the Army. Mr. Dyche, headmaster of the Howard Gardens Municipal Secondary School, Cardiff, reported to the Education Committee the other day that he was constantly hearing of old boys all over the country who had joined the colours; the number at the date of his report was at least 180.

GENERALLY speaking, those teachers who have joined have been well treated. Many authorities have adopted the suggestion put forth by Sir Philip Magnus in the name of the Secondary Schools' Association, and are paying the difference between the military pay and the whole salary in the case of married men, and between the military pay and half the salary of unmarried men. This will be somewhat of a strain on the finances of the smaller and poorer schools, especially where a substitute has to be paid as well. In the case of an assistant-master in Carmarthen County School, the Education Committee has undertaken to pay the half salary instead of the governors.

A REMARKABLE figure in the history of Welsh education passed away on October 3 in the person of the Rev. Aaron Davies, of Cadoxton, Barry, a veteran leader of Welsh Calvinistic Methodism, and Moderator of the General Assembly of the denomination. He was born at Tredegar in 1830. He was ordained in 1803, and was a famous preacher. He was instrumental in the foundation of Gelligaer School Board, of which he was chairman for twenty years. He was also a governor of Lewis's School, Pengan. He was a county councillor and alderman of Glamorgan, and represented the County Council on the council of the University College of South Wales and Monmouthshire. He was a member of the executive of the Central Welsh Board and a governor of the University of Wales.

PROF. DAVID EVANS, of the South Wales University College, has received the degree of Mus.Doc. from the University of Oxford, the work submitted being a mass for double choir and orchestra. He was born

at Resolven in 1874, and took the Oxford Mus.Bac. at twenty-one, being the youngest holder of that degree. He was for four years organist of the Welsh Chapel in Jewin Crescent, and left to take up his post in Cardiff. He is well known as an adjudicator and an organiser of musical festivals, and has done much to improve orchestral work in Wales.

THE following story comes from an industrial town in South Wales. A teacher had been giving a lesson in domestic economy and had been showing how a family could live on thirty shillings a week; she had the expenditure triumphantly distributed down to the last halfpenny, when a little girl spoke up, "Please, miss, where's the money for going to the pictures?" Another wanted to know what was to happen if the baby wanted a halfpenny to play with, and yet another pointed out that no provision had been made for father's bacca. To this story, as Artemus Ward might say, there are several morals; the reader may supply them for himself.

A VINDICATION OF THUCYDIDES.

Clio Enthroned: a Study of Prose-Form in Thucydides. By Walter R. M. Lamb. xv+319 pp. (Cambridge University Press.) 10s. net.

THIS is a book which will not only have to be taken into account by all future Thucydidean scholars, but also deserves their gratitude for the useful work which it has accomplished. We know of nothing which treats of so many knotty questions—such as the use of speeches and the characterisation of the chief figures of the war—in so sane and convincing a fashion as does the preliminary chapter on the general aim of the history. Thucydides may have started to write a "log-book," but his "faith in the uses of literary art," coupled, perhaps, with the accident of his exile, soon changed his design to something of far greater value. As Mr. Lamb says, "The virtues and vices of the statesman's mind have a high importance for the study of national conflicts; and Thucydides, in tracing the origins and sequences of the Peloponnesian War, has resolved to include the psychology of prominent persons as well as the more material causes."

One of the most interesting parts of the book is Mr. Lamb's refutation, which to us seems thoroughly convincing, of the "mythistorical" theory of Mr. F. M. Cornford. The causes of the war, the "Piræus party," the significance of the Megarian decrees, along with many other arguments, are all marshalled in a quiet and confident manner against the assumptions of "Thucydides Mythistoricus." This position is again attacked in a later chapter on personification, but meanwhile we are led (in chapter iii.) to a study of the "mind of the writer," wherein Mr. Lamb can compare Thucydides with Socrates alone as an intellectual equal. We then come to the core of the book, as a study in prose-form, in the chapters on narrative prose and the rhetorical invasion.

Nothing could be more admirable than the carefully illustrated description of the part played by Hippocrates and similar writers, along with the early philosophers, in the development of Greek prose from the *λέξις εἰρημένη* to the fully-fledged *periodi* style. When he comes to a more detailed examination of style we find that Mr. Lamb has succeeded in doing for Thucydides something of the same sort of thing

as Mr. A. C. Clark has done for Cicero. He notices in particular a greater fondness for the "heroic" clausula—such as the familiar *ἀνεχώρησαν ἐπ' οἴκου—ὁ χειμῶν ἐτελεύτα—Θουκυδίδης ξυγγράφειν*—in the earlier portion of the work. The value of all this minute study becomes apparent when we come to the chapter on interpolation (which contains, incidentally, some adverse remarks upon the excisions of the Oxford text), where we are warned to have ever before us a full recognition of the very varying style of Thucydides—a point which seems to have been neglected by Cobet in his "Variae Lectiones." But the book will be welcomed not only for its particular study of prose-form, but also for the very penetrating and sympathetic exposition in the earlier chapters of the mind and spirit of Thucydides.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Reformlesebuch. By W. R. Price. x+249 pp. (Ginn.) 3s. 6d.—This book, compiled for use in "American high schools and academies," affords welcome evidence of the progress in the method of teaching modern languages in the United States. It tells the story of two boys, from their admission to school until the time when Hermann makes his fortune in America, and Edmund visits him as "Austauschprofessor." The narrative is built up from many sources; to one who knows these the effect is sometimes very quaint. Thus we meet with chapters from Wildenbruch's "Der Letzte" and Eckstein's "Besuch im Karzer," a tale from Leander, and extracts from Hebbel's "Schatzkästlein"; and between chapters we have a "Lyrisches Intermezzo," containing poems, the only justification of which is their value for extending the vocabulary. This, indeed, is put forward as an important feature of the book, and explains a good deal. Thus the boys write two essays which they bring home, "freudestrahlend," as having been the best in the class. One is, however, merely a description of the human body, with a dissertation on the evils of tight lacing; the other enumerates birds, animals, and insects (including even "die Flöhe und die Wanzen"). The general effect is that of a medley of tunes, with five-finger exercises in between. There are brief notes and questions on the text, in which the vocabulary is still further extended; also a full vocabulary. To go through this book conscientiously would probably lead to the desired object; but we think that for once too much has been sacrificed to the vocabulary. It would have been better to be content with fewer words, and to see that they were repeated more frequently; and care should have been taken to reduce the number of "Fremdwörter," such as "Arrangement, Plattform, Dessert, servieren, egal, diabolisch."

A "Middle Method" German Course. By F. W. M. Draper. 178 pp. (Murray.) 2s. 6d.—What is the "Middle Method"? Be reassured, this is nothing new. It is simply direct method plus sentences for retranslation and a German-English vocabulary. It is not "middle," but a great deal more than halfway. The few remarks about pronunciation are not happy; long *o* is not "almost=English *aw*," and German *lese* is not "=lavzer." The text, on left-hand pages, deals first with the writer's pleasant experiences in a German country village, and then consists of short passages from various authors. On the opposite pages are questions and word groups, which should be useful in extending the vocabulary. Then come exercises, mainly on reform lines, but including disconnected English sentences. One wonders whether it is really

a gain to translate such sentences as "The handsome doctor and the tall chemist were looking for the bottle. The green landscape on the English Thames is beautiful. The skittle-boys greeted the chemist's daughters in the street. The Bavarians hand down the lobsters to the Pomeranians." Nor does it seem very valuable to do such mosaic work as is suggested by "Good (lieb) heavens (sing., der Himmel)!" or "A few (ein paar, *indecl.*) days ago (vor+Dat.) I had (lassen) a pair (ein Paar) [of] shoes [der Schuh] made (use Act. Infin. of *machen*)." The grammar section which follows is generally well expressed, but there is no obvious reason for the curious arrangement by which we have relative pronouns followed by certain tenses of *werden* and *loben*, then a section about Grimm's law ("the laws governing consonants in their passage—so to say—from the High German to the Low German tongues"), interrogatives, modal verbs, possessives, indirect speech, impersonal verbs, and so on. The vocabulary is not complete, and some of the renderings are faulty: *Ahnung* is not "realisation," *nordisch* is not "Norwegian," and *Zaun* is not "hedge." The book has been carefully printed, and there are not many slips. The date of Heine's birth is 1797 (as on p. 44), not 1799 (as on p. 66); and Heyse has passed away (p. 54).

Classics.

The Phormio of Terence. Edited by John Sargeant. xxi+129 pp. (Cambridge University Press.) 3s.—If boys are to read Terence while at school, they will find this a useful edition. Mr. Sargeant's work has been well done; there is an adequate introduction, which, very sensibly, does not outline the plot, but concerns itself with the nature of Terentian comedy. Sometimes the thought, which, owing to the subject, is necessarily not very deep, sinks into bathos, as when the meaning of Cæsar's *O dimidiatæ Menander* leads to anatomical considerations such as "From hip to hip he can scarcely be cleft, for none can say that a man's two halves are his head and his legs" (p. xiv); and again, on the change of title from *Epidicazomenos* to that of the adventurer *Phormio*, "The patrons of Terence seem to have thought that a Roman audience would find the adventurer's name a more manageable title for the play, and a later age may well be grateful to the patrons of Terence." The remarks on metre are good, those on elision excellent. It cannot be too clearly insisted that elision did not involve the total disappearance in pronunciation of the elided syllable. The text is well printed with stress marks. There is a full vocabulary and notes, which, though often splendidly lucid, do err on the side of giving too much. Does anyone really think that boys who can read Terence require notes such as *haberet cui male diceret*: "had someone to abuse," or *quid sit*: "What's the matter?" and others of like nature?

Caesar: Gallic War. Books i.—vii. Edited by T. Rice Holmes. lix+82, lxiv+51, lix+40, lix+55, lx+82, lxiv+62, and lxvii+124 pp. respectively. (Clarendon Press.) 2s. each volume.—These are the first volumes of a new series of classical authors especially produced for the use of schools under the general editorship of Dr. Hillard. One condition of the series is that no volume is to be included which has not been edited by a schoolmaster with practical and lengthy experience in teaching the author in question and with a real enthusiasm for his subject. These first volumes certainly promise well for the success of the series, for in them Dr. Holmes has simply served up his larger edition in seven separate little dishes. He has done all that could be done to

enable schoolboys to take an intelligent interest in their Cæsar. In a preface he expresses a hope that boys will not confine their reading to one book only, and we heartily agree with him that the practice of reading the classics in schools "in snippets" is highly regrettable. But nowadays, with reformed methods of teaching, we imagine that the intensive study of some particular book is being much more generally combined with the quick "extensive" reading of several books by the same author. Time in school, however, is limited; and it is a debatable point whether a boy in school will be spending his time profitably in reading much Cæsar. But here, at any rate, is his first opportunity of reading one or two books only in an intelligent way. Each volume has prefaced to it the interesting discussions on Cæsar's narrative and the discovery of his earthworks, etc., reproduced from Dr. Holmes's complete edition, together with the full introduction almost unchanged. A good idea is the precise epitome, in each volume subsequent to the first, of the previous books of the "Commentaries." Thus a boy who reads only, say, the fifth book may read exactly what Cæsar has been describing in the previous four. Each has also a map of Gaul in the time of Cæsar, which ought to have been on at least twice the scale to contain as many names as it does. We could have wished for more illustrations (there are only from two to five in each volume), for it is surely a mistake, when so much has been done to make the subject-matter live, to have neglected the appeal which concrete objects make to the young mind. The notes, whether on points of grammar or on historical facts, are concise, and written with the view of appealing to a boy's reason rather than the mere storing of his mind with knowledge. That Dr. Holmes should have occasionally overestimated the depth of a boy's probable interest in details is only what would have been expected in an enthusiast.

Synthetic Latin Vocabularies. By Hedley V. Taylor. vi+96 pp. (Blackie.) 1s.—We read that the purpose of this book is "to supply the learner who has had at least a couple of years at Latin (italics ours) with a useful working vocabulary." Why, then, such common word as *corpus, oculus, sella, edo*, etc.? But perhaps these and a score or two of others of like nature are for the sake of "synthesis"; for "the words selected are arranged in groups so related as to make the task of memorising easy and psychologically natural." We suppose that there is something wrong with our psychological structure when we find it no help towards memorising such words as *suspicio, nitor, cumulus, fortunatus*, etc., to know their respective synthetic brethren *invado, carus, fames, caveo*, etc.! Long quantities are marked, but in a haphazard way, e.g. *prōduco, -duxi; vis pl. vires, vis frigoris*. Hidden quantities are not marked. If vocabularies are to be learnt by heart in this way, they should at any rate be arranged upon a more intelligent system than is exemplified by this book.

English.

Précis Writing for Schools. By C. L. Thomson. 93 pp. (Horace Marshall.) 1s. 6d.—We are very glad to see this book. As Miss Thomson points out in her excellent introduction, the use of précis-writing has hitherto been confined to the preparation of candidates for public examinations, and the material has been chosen from official documents. She, believing in the valuable intellectual exercise involved in the matter, has taken literary extracts and has shown in her introduction how the best training can be got from their study in this direction. We recommend

all teachers of English to read this introduction and to carry out in their teaching the principles there laid down.

English Grammar and Composition. Part iii., *Middle School English Composition.* By E. A. Twentyman. 280 pp. (Rivington.) 2s. 6d.—We have already commented favourably upon the two earlier parts of this work. The present book has the same features of sound arrangement. After some very acceptable recapitulatory exercises, come exercises in grammar, composition, and prosody. It will be seen that the book's justification rests upon the form of the illustrations and exercises it contains. We are glad to say that they are chosen with great judgment and have endless variety. A middle-school boy who had worked through the book would have received an excellent linguistic training.

English Composition. By R. S. Bate. 423 pp. (Bell.) 3s. 6d.—Mr. Bate's earlier book on "The Teaching of English Literature in the Secondary School," gave us one of the most reasoned and suggestive pieces of work in this line that we have seen for some time. The second part of it outlined a course of study, and now we have, as a proper sequence, not merely the outline, but the details as well, for the teaching of English composition. In a book which is intended to cover all the stages of teaching the subject, the author naturally includes the whole of English grammar; but we confine ourselves to his treatment of composition proper. Here he proceeds from the paragraph, treating it not only as a component part of the essay, but as a self-contained unit. He then gives outlines for fifty essays, ten of them being expanded into full essays, and provides copious lists of essay and paragraph subjects. We are also given chapters on prosody, poetical form and diction, and English structure. We have studied the second half of the book—that is, the part treating of composition—with considerable care, and we have no hesitation in saying that it is the outcome of a practical teacher's experience, and altogether suitable for placing in our pupils' hands.

Composition through Reading. By F. Pickles. 367 pp. (Dent.) 1s. 9d.—Mr. Pickles's method is to base composition upon the careful study of selected pieces of literature. An example will best show how he proceeds. On p. 167 he prints a passage from "Felix Holt" of six and a half pages, dealing with England in the early nineteenth century, and on it he bases certain composition exercises. These include word-study, the use and explanation of vocabulary, geographical and historical questions on the subject-matter, descriptions cognate to the subject-matter, and, lastly, what is described as an *original* exercise; this in the case before us is an essay on English progress in the first thirty years of the nineteenth century in four specified directions. Mr. Pickles tells us in his introduction how he himself would use the book. After careful reading and explanation he goes on to reproduction—oral and written; on oral reproduction he lays great stress as providing room for criticism, and as creating a "class" sense for good English. From reproduction he passes to original composition. That the method has many good points is obvious; in the hands of a keen and discriminating teacher it would be excellent; in other hands it might be wooden. But then, so would any method.

History.

The English Nation: Constitutional History. By P. Meadows. *The English Nation: Political and General History.* By Dr. B. L. K. Henderson. x+

254 pp. each. (Bell.) 2s. each.—These little books complete the series of four volumes which constitute Messrs. Bell's "Historical Course for Middle Forms." The two preceding works dealt with (i) "Western Europe," and (ii) "The English Nation: Industrial and Social History." Each volume is intended to provide one year's school work in history. The general principles of the series appear to be first, the co-ordination of the four branches of history into a single scheme; secondly, the subordination of personal and military detail to the idea of organic development; thirdly, the employment of original sources as a means of illustration and as a material for exercises. The series is well worth the attention of teachers who are interested in modern methods of instruction.

Heroes of All Nations. a Series of Biographies. Published in separate volumes. (Harrap.) 1s. each.—We have received seven volumes of this excellent series. Their subjects are respectively "Alexander the Great," "Augustus," "Mohammed," "Alfred the Great," "William the Silent," "Sir Walter Raleigh," and "Marie Antoinette." They are written by various authors, all of them well qualified for their task. A good deal of latitude has been left to the individual author as to his mode of treatment. Hence the biographies vary considerably in length; some are indexed, others not; some give authorities and notes for further reading, others omit them. All, however, provide maps and a number of illustrations.

Bourbon and Vasa: a Text-book of European History, 1610-1715. By J. H. Sacret. vi+324 pp. (Clarendon Press.) 4s. 6d.—This volume is the fifth of the series of "Oxford Text-Books of European History." It takes up the story where it was dropped by Miss E. M. Tanner in her "Renaissance and Reformation," and carries it to the date rendered notable by the death of Louis XIV. It gives a lucid and adequate sketch of the Thirty Years' War, of France under Richelieu, Mazarin, and Louis XIV., and of the European complications that led to the War of the Spanish Succession. Maps and genealogical tables, together with a chronological summary of events, complete its equipment as a serviceable text-book.

A History of Modern Europe from the Middle of the Sixteenth Century. By Dr. John E. Morris. vi+281 pp. (Cambridge University Press.) 3s. 6d. net.—This short history of modern Europe, the preface to which is dated May, 1914, is eminently opportune. Though written before the outbreak of the present war was even contemplated, its pages are weighty with the presage of coming calamity. It is Dr. Morris's main purpose to trace the evolution of the existing State system, and the growth of the present balance of power. His calm narrative of events, and his description of great movements throw much light on the crisis through which Europe is passing. The last chapter, which deals with "The New Europe" of the period following 1870, is especially illuminating. It is a record of excursions and alarms. "Amongst all the saddening events," concludes Dr. Morris, "the one ground for satisfaction is that the Great Powers have not been involved in war." When Dr. Morris is called upon to prepare a second edition of this book, an additional chapter will be necessary.

A Short History of Europe from the German Invasions to the Great Renaissance. By W. O. Lester Smith. vi+272 pp. (Dent.) 2s.—A brief but competent sketch of medieval European history, useful to those who wish to have in small compass an outline of the main events of the period A.D. 450-1450. "The virtue of the book, if any," says the author with engaging frankness, "is that it is not original."

Geography.

Central and South America. By W. R. Shepherd. (Home University Library.) (Williams and Norgate.) 1s.—This volume treats of the states of "Later America" in general. The author has chosen this method of treatment in place of the separate description of each of the States. Such a choice has the inevitable drawback that the reader is not always sure whether the facts stated in general terms apply equally to all the States; exceptions are not always noted. From the general point of view, Mr. Shepherd leads the reader through the historical development of the Spanish and Portuguese Colonies, and indicates the ways in which these colonies have become the Republics which we know. The book will serve an extremely useful purpose in popularising the knowledge of South America which will become increasingly important to British traders.

The British Empire. Edited by Lewis Marsh. (The Rambler Travel Books.) 80 pp. Black and white and coloured illustrations. (Blackie.) 9d.—Happy is the modern child for whom the dry bones of geography, the necessary and inevitable groundwork, are clothed with images caught from such extracts from travellers' tales as are contained and illustrated in such books as this collection by Mr. Lewis Marsh.

A Little Book on Map Projection. By Mary Adams. 108 pp. (Philip.) 2s.—Teachers of geography will find this book extremely useful. It should be placed on the library shelf beside Mr. Hinks's more comprehensive work on map projections, and should be used by all teachers who have no copy of the larger work. The beginner in the study of map-making will probably find the descriptive method adopted by Miss Adams very suitable, and we can but endorse the verdict given by Prof. Adams in his prefatory note, when he says, "Her work is accordingly of a special value to professional teachers."

The Pupils' Class Book of Geography. The British Isles. By E. J. S. Lay. 118 pp. Maps. (Macmillan.) 6d.—Mr. Lay's book is a combined reader and practical exercise book, and contains thirty-two excellent maps on which the work is based. Each of the fifteen chapters deals with fundamental geographical facts in connection with maps, and has a set of exercises on the maps and also an exercise or so based on additional quantitative information. There are also suggestions for making models, which connect this book with the little books on constructive work by the same author.

Mathematics.

The Theory of Relativity. By Dr. L. Silberstein. viii+295 pp. (Macmillan.) 10s. net.—At the recent meeting of the British Association it was stated by an eminent physicist that the principle of relativity was a method of removing lions out of the path, by proving that such things as lions cannot exist. To speak more definitely, it may be said that the theory of relativity has been invented to account for the negative results of all terrestrial experiments intended to show the motion of our planet through the æther, and in a certain sense it does this by abolishing the æther. The whole subject is an abstruse one, involving a drastic revision of our concepts of time and space, or perhaps it would be more accurate to say, of the interpretation of the symbols which represent these quantities in the fundamental equations of the theory. In the book before us Dr. Silberstein presents in an extended form the substance of lectures which he delivered in 1912-13. A perusal of the first four chapters will give the reader an understanding of the

problems which relativity is called upon to solve; while the remaining chapters deal with developments of the theory. Those unfamiliar with vector and quaternion theory will find the argument difficult to follow, but it may be said that the use of the cartesian system would have necessitated the printing of many long and cumbersome equations, while the difficulty of obtaining a sufficient knowledge of vector notation is not great. As there are only one or two books in English dealing with the subject, Dr. Silberstein's book fills a gap.

Non-Euclidean Geometry. By D. M. Y. Sommerville. xvi+274 pp. (Bell.) 5s.—The appearance of this interesting little book marks a step in the direction of making non-Euclidean geometry a school subject. Indeed, the author hopes that the work will prove useful to the "scholarship candidate" in our secondary schools, who wishes to widen his geometrical horizon. Perhaps this hope is too sanguine, but the book will serve an immediate useful purpose in the enlightenment of the teacher. He will learn that Euclidean geometry is a special, or, as some prefer to say, a degenerate form of the general geometry of space, and thereby find explanations of some of the difficulties which Euclidean geometry presents. The author, by keeping the historical development well in the foreground, has succeeded in making the presentation of the subject much more attractive than would have been the case had he confined himself to a purely logical exposition. The first four chapters contain a historical sketch and the rudiments of hyperbolic and elliptic geometry. The next two deal with the methods which have been devised for representing non-Euclidean geometry in Euclidean space, the idea of space curvature and the philosophical bearing of non-Euclidean geometry. The last three chapters contain applications to interesting branches of geometrical theory. In order to increase the utility of his book the author has been at the trouble to construct a set of examples for exercise. As a pioneer text-book it can be unreservedly commended.

Geometry: Theoretical and Practical. By A. H. Bell. viii+127 pp. (Rivingtons.) 2s. 6d.—This book impresses us very favourably; its dimensions will encourage the pupil to believe that he may be able to learn something within a reasonable time. Thirteen fundamental and thirty-six subsidiary propositions give the essence of the geometry of the straight line and circle. A number of the simpler propositions, such as those of Euclid, Book III., instead of being set out in full detail, are given as exercises. The main difficulty in writing a school geometry is to decide where to begin. What are to be taken as the undefined elements of the subject? In dealing with this matter the writer has closely followed the suggestions of the Board of Education circular. For example, in the definition of the straight line and angles, *direction* is taken as an undefined term. An excellent feature of the book is the introduction of really practical exercises. In the chapter on outdoor exercises, the pupil is instructed how to determine the meridian, the position of a distant object, the altitude of the sun, the height of an object, etc. This is just what is required to make the subject one of living interest.

Elementary Graphic Statics. By J. T. Wright. xii+227 pp. (Whittaker.) 4s. net.—Engineers have a predilection for solving statical problems by graphical methods, and the student beginning the study of

engineering will find in Mr. Wright's book an excellent introduction to the use of those methods. No previous knowledge of mechanics is assumed, and apart from notation, no use is made of algebra or trigonometry. Beginning with the composition and resolution of forces, Bow's notation is explained, and simple problems relating to cranes are solved. The means of determining the resultant of a system of non-concurrent forces by means of a funicular polygon is next explained, and the succeeding chapters deal with bending moment and shearing force, beams with rolling loads, roofs loaded symmetrically and otherwise, the calculation of wind pressure, and braced beams and girders. There are also chapters on the graphical determination of centres of gravity, resistance figures, moments of inertia, and the pressure on retaining walls. The diagrams are well executed, and the author has succeeded in packing much valuable matter into a moderate compass. The number of exercises for the student might be increased with advantage.

Science and Technology.

Laundry Work in Theory and Practice. By E. L. Marsh. xiii+205 pp. (Longmans.) 2s. 6d.—This very comprehensive account of the equipment of a modern laundry, the materials employed in the various cleansing processes, and the methods adopted in washing, ironing, and folding different garments and fabrics, should prove of great value to teachers of domestic subjects in schools. It is too full and detailed for the ordinary use of young pupils in secondary schools, but they may with advantage have access to it as a work of reference. We fear the early sections dealing with the chemical composition of laundry materials and some of the reactions in laundry processes will be beyond the understanding of most students and teachers of the subject, who as a rule have little knowledge of chemistry. But a copy of the book should certainly be added to the library of every school in which this branch of domestic economy is included in the curriculum.

The Elementary Principles of General Biology. By J. F. Abbott. xviii+329 pp. (New York: The Macmillan Co.) 6s. 6d. net.—A carefully arranged "background"—to quote the author's happy metaphor—is particularly needed by elementary students of biology, for laboratory courses in this subject do not, in the early stages of the work, illustrate fundamental principles so obviously as they do in certain other sciences. Hence the value of a book which presents, in an elementary way, the more important generalisations that are the product of modern research in biology. There have been many excellent attempts to supply such an aid, each reflecting its author's special predilections, but we do not remember any of similar size which provides quite the same helpful perspective as the present. The book will be found stimulating and suggestive from cover to cover, especially in the sections dealing with variation and heredity, and with organic response, which are discussed with more fullness than the rest. Prof. Abbott admits that he has stated certain generalisations in a much less cautious way than would have been desirable in a larger book, but claims justification—rightly, as we think—in the elementary student's need for clean-cut conceptions. It is, of course, by an oversight that the notochord of the developing vertebrate is described as cartilaginous (p. 112). And there is surely something wrong with the composition of the nutrient solution quoted on p. 70. The book is excellently illustrated.

The Earth shown to the Children. By Ellison Hawks. viii+125 pp. (Jack.) 2s. 6d. net.—This pleasant account of the part which rain, frost, glaciers, volcanoes, and other agents have played in the formation of mountain, valley, and plain will interest any intelligent boy or girl, and is quite likely to give many young readers a taste for serious geology. The author's style is clear and easy, and he has selected for description some of the more picturesque and striking evidences of geological action, as well as a few of the more awe-inspiring animals of past ages. The book contains forty-five plates from excellent photographs, besides a coloured geological map of the British Isles and a number of other illustrations; while the paper, printing, and general "get-up" are all that could be desired. The little volume is so attractive, and in a general sense so "sound" that it seems almost hypercritical to mention that it contains a few minor inaccuracies.

Plant and Animal Children. By Ellen Torelle. vi+230 pp. (Heath.) 2s. 6d. net.—This book is designed to supply, *inter alia*, material for a preparatory course in botany and zoology for young students of agriculture. It is chiefly interesting, however, as a courageous attempt to lead pupils of the elementary schools to a knowledge of the essential facts of reproduction, through a study of the reproductive process in plants and animals. There can be no doubt that some such method is most likely to present the subject of sex in its true perspective to the child mind, and thereby to remove from it the taint of morbid curiosity which is at present so mischievous. Concerning the details of its manner of presentation there is room for some healthy difference of opinion and for experiment. Miss Torelle's reader ought to receive the careful attention of all teachers who realise their responsibilities in the matter.

Pearls. By Prof. W. J. Dakin. 137 pp. (Cambridge University Press.) 1s.—This little book shows a new approach to a subject which has been of interest to man since the remote past. The great antiquity of pearl fisheries is referred to in the opening chapter. Other chapters supply a detailed account of the structure and life-history of the pearl oyster. A list is given of the various theories as to the cause of pearl formation, dating back so far as the early part of the sixteenth century, and some of the most important theories are critically examined. In conclusion the author discusses the advisability of the application of scientific knowledge to the cultivation of the pearl oyster; here the author loses himself in controversial matters, which scarcely come within the scope of so small a book.

Miscellaneous.

Business Life: Hints on Office Management. By W. J. Parkins. 62 pp. (H. R. Allenson, Ltd.) 1s. net.—Several years ago, in a little volume entitled "Hints on the Conduct of Business," Sir Courtenay Boyle offered some useful suggestions to secretaries and others concerned with the transaction of public or private business. That book was addressed particularly to officials in Government departments, whereas Mr. Parkins's chapters are intended for young people just entering upon a commercial career. Mr. Parkins has had fifty years' experience from office boy to director and secretary of the great engineering firm of Tangyes, Ltd.; and his advice is, therefore, helpful and sound. We are glad to direct the attention of teachers to the book because of its high tone. The office boy and the clerk are not urged to do their work

well in order that they may better themselves but because it is their duty, whether promotion comes or not. This is the note throughout; and there is nothing of that "Get on, or get out" advice which hustlers declare is essential to the conduct of modern business. It is good to know that in the best business houses character is considered to be of as much importance as culture or push. To a boy entering commercial life, as well as to the clerks and chiefs above him, Mr. Parkins's little book should be both a guide and a stimulus.

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The School World.

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

EDUCATION AND SEX APTITUDES.

By JAMES OLIPHANT, M.A.

AN interesting and important question is raised in recent reports of the London County Council on the work of candidates for junior county scholarships. Comparisons are drawn between the attainments of the boys and girls respectively in the two subjects in which they were tested, namely, English and arithmetic, and the results are presented in graphic form. The charts deal only with the two last annual examinations, but as more than twenty thousand children are examined each year, and the figures of previous years afford a general confirmation of the conclusions which seem to be indicated, the data can scarcely be considered inadequate. Some weight may therefore be claimed for the charts reproduced on p. 442 when an effort is made to settle the vexed question as to how far difference of sex should be recognised in framing courses of study. The broad facts which the charts at first sight seem to bring out are that (1) the boys excel the girls in arithmetic, (2) the girls excel the boys in English, and (3) the boys have a greater advantage in arithmetic than the girls have in English, so that the combined results are in favour of the boys. We must not be misled, however, by the apparent inevitableness which these conclusions seem to acquire from the mode in which the results are presented. Graphic statistics need to be no less carefully scrutinised and interpreted than any other kind of statistics. There are many points to be noted before any wide generalisations can be formed.

Before looking more closely into the nature of the tests that were imposed it will be well to observe certain features of the curves which may turn out to be significant. It will be seen that in the arithmetic charts that portion of the curve which may be called the region of medium attainment—that is, where the path is more horizontal than vertical—has a smaller

range than in the English charts. In 1912 this medium area embraced little more than half of the candidates in arithmetic, and four-fifths of the candidates in English. In 1913 it embraced only about half of the candidates in arithmetic, and about five-sixths of the candidates in English. It will further be seen that in both years the superiority of the boys in arithmetic was secured almost entirely within this medium area. An explanation of these features must be sought in the difference between arithmetic and English as subjects for examination. Where a number of problems, requiring definite answers, have to be solved, it is quite possible on one hand for a very good candidate to make 100 per cent., and, on the other hand, for a candidate who may not be wholly without capacity to make no marks at all. It is quite otherwise with a subject like English where there may be many degrees of success in summoning ideas and expressing them with some approach to grace and propriety. Here it is rarely possible for any candidate to reach full marks, or even to come very close to it; while, on the other hand, even the stupidest can scarcely fail to make a certain percentage. In other words, the arithmetic marks must from the nature of the subject be more widely distributed over the whole gamut than the English marks. This means that as the range of attainment is narrower in English there is less scope for wide differences among the totals obtained, so that the charts showing the combined results in the two subjects exaggerate the advantage held by the boys.

This advantage must be further qualified by considerations which are only partially suggested by the curves. It will be seen that in what may be called the distinction area the inferiority of the girls in arithmetic is less pronounced than in the area of medium attainment, and it appears from the reports of the examiners that if the results of the best centres

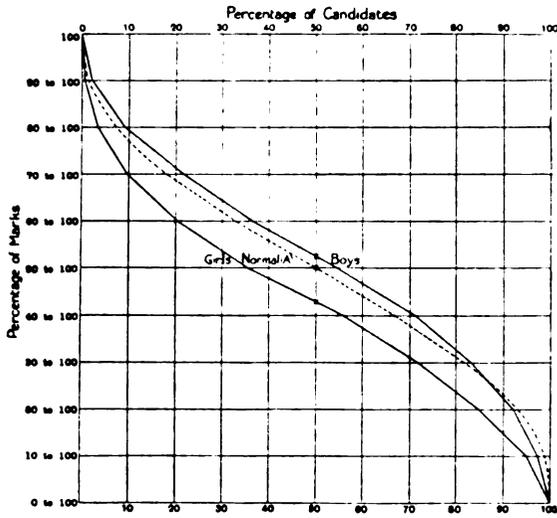


CHART 1.—Showing mark distribution in *Arithmetic*, November, 1912. Average mark \times (median).

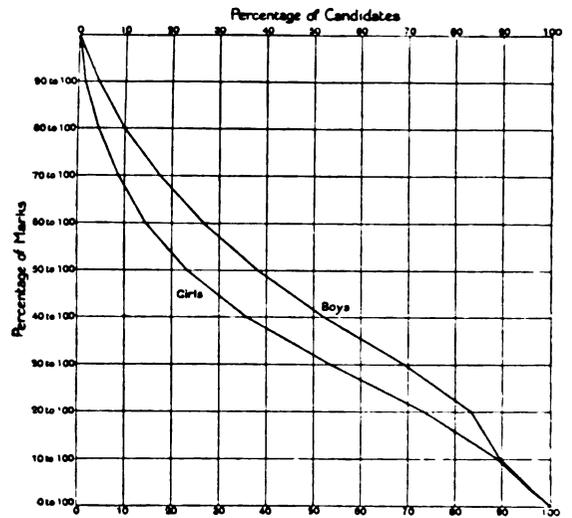


CHART 2.—Showing mark distribution in *Arithmetic*, November, 1913.

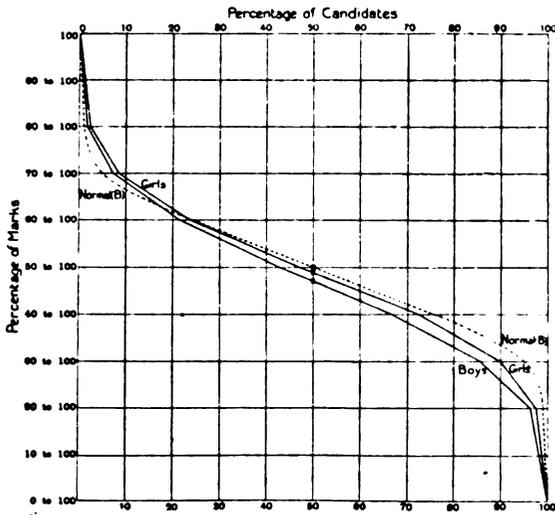


CHART 3.—Showing mark distribution in *English*, November, 1912. Average mark \times (median).

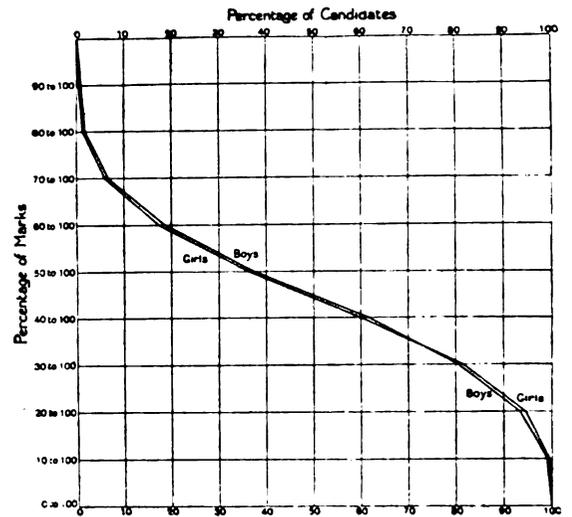


CHART 4.—Showing mark distribution in *English*, November, 1913.

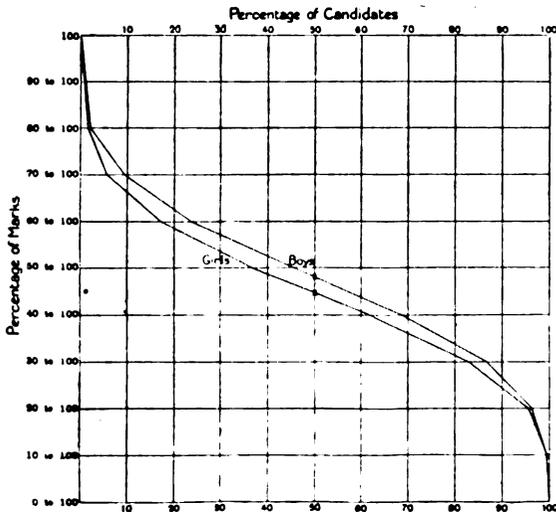


CHART 5.—Showing mark distribution in *Arithmetic and English* combined, November, 1912. Average mark \times (median).

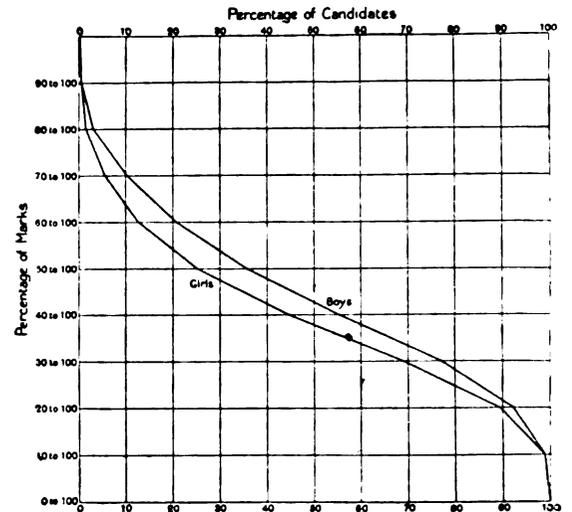


CHART 6.—Showing mark distribution in *Arithmetic and English* combined, November, 1913.

had alone been taken into account even this degree of inferiority would have almost disappeared. All these facts tend to prove that while it must be admitted that girls of about eleven years of age show less aptitude for arithmetic than boys of the same age, the inferiority is not so great as might appear, and is to a considerable extent to be accounted for by the conditions of their home and school life.

Another noticeable feature of the charts can only be explained by reference to the character of the tests imposed. It appears that while in 1912 the girls held their lead throughout in English, they lost it in 1913, except in the failure area. As the results of the former year are confirmed by past experience it seems probable that the change of positions on the last occasion must be due to the nature of the questions set. Some of the examiners' comments throw light on this point. It is mentioned that the girls did best in the first question, while the boys outstripped them in dealing with the second and third. Now in the first question, which asks for an imaginative description of the adventures of a library book, the material is equally accessible to boys and to girls; while the second and third questions imply some information as to the supply of coal and water and the nature of ships, where, even apart from the question of natural tastes, a boy's freedom to wander about and observe is bound to give him a certain advantage. Further explanations of the inferiority of the girls in arithmetic may be found, as has been suggested, in the conditions of their school life. We have no exact data as to how far the time available for the subject is encroached upon by the demands of the domestic arts, but there can be little doubt that in some cases at least this is a contributory factor. The indication in the charts, as explained in some of the comments, that the inferiority is most pronounced in the poorest centres, suggests another undoubted cause. Enlightened teaching of arithmetic, such as is assumed in the character of the questions set, is not as yet uniformly prevalent in the elementary schools, and there is good reason to believe that the lowest standard in this respect would be found among the teachers of girls in the poorest centres.

On the whole it would seem that the conclusions warranted by the charts, as interpreted by means of other evidence, are that at the age of eleven the average aptitude of boys for arithmetic is slightly greater than that of girls, while girls show more skill in English composition except on ground where they are placed at a disadvantage by their narrower opportunities of observation. If we seek to

use these results as the basis of any wide generalisations covering the whole field of education, we must keep constantly in view the physiological laws and social institutions that determine the differentiation of the sexes. Biologists define sex in terms of the balance that is preserved between nutrition and the expenditure of energy. The female is more adapted to store up, to consolidate; while the male is relatively readier to experiment, to act. In other words, the integration which is one aspect of the process of evolution is mainly the task of the female, while the differentiation which accompanies it is effected chiefly by the male. The normal place assigned to men and women respectively in the home, the workshop, and the State, is fixed by these underlying facts of life, and education must accept the same guidance.

Let us see how the difference in aptitude which we have recognised in arithmetic and English composition exemplifies the sex differentiation as expressed in its most general terms. When we consider that the contrast between consolidation and experimentation may fitly be paralleled by the contrast between synthesis and analysis, between art and science, between the constructive, conservative attitude, with its greater interest in human relations, and the adventurous, restless spirit which seeks new worlds to conquer, we seem to get some light on the disinclination of girls to occupy themselves with figures and the impatience of boys with the niceties of expression. It would be fair on *a priori* grounds alone to widen out this conclusion so as to cover the whole field of the primary and secondary curriculum, and corroborative proof is by no means wanting. It is the experience of those teachers who have had the best opportunities of comparing the achievements of boys and girls that on the whole the former excel in mathematics, in physics, in chemistry, in grammatical analysis; while the latter do better in the living use of language, in recitation, in music and painting, in appreciation of literature, and the more human aspects of history.

When we confront the practical problem of adjusting our courses of study and methods of teaching to the conflicting requirements of boys and of girls, we have to take into account certain considerations of principle and expediency which dictate a compromise. We must be careful not to exaggerate sex differences by giving too much heed to them. It is well to remember that young people are human beings first, that what boys and girls have in common covers by far the greater part of their activities. It must also be borne in mind that, in our time and country

especially, many girls will have to forgo the normal domestic life and enter the outside world of industry. Further, it is not to be assumed either on one hand that the children should be encouraged at all stages to pay special attention to the studies for which they show taste and aptitude; or, on the other hand, that they should be persistently disciplined by preoccupation with the subjects in which they are backward or take little interest.

In the curricula of our secondary and elementary schools some concession has to be made to all these considerations, and there is room for wide differences of opinion as to the weight to which each is entitled. It is impossible here even to touch upon the many important questions that have to be faced in any attempt to pay due regard to sex aptitudes in education, but one or two criticisms may be ventured on our current modes of solving the problem. There is surely much to be said in favour of a scheme of studies which up to the age of fourteen at least would be as regardless of sex as it might be of social class and of destined career. To some this ideal will seem neither desirable nor practicable, while to others it will be at best a counsel of perfection, but it is being approached in some of our county secondary schools of the latest type.

The objection to an assimilation of the curriculum for boys and girls up to this age would probably concern the domestic subjects for girls, the course in mathematics, and the study of foreign languages, but in all these cases a good deal may be urged in favour of a practical uniformity. Needlework might, of course, be offered as an alternative to woodwork, though this concession to the utilitarians could scarcely be claimed as due to a regard for sex aptitudes, since apart from the gift of patience it is probably no more congenial to girls than it would be to boys. Whatever instruction in cookery is really appropriate to this period might well be given to both sexes. In regard to mathematics it would certainly be impossible to bring more than a small minority of girls up to the level reached by the majority of the boys at the age of thirteen or fourteen in the schools where the subject is most successfully taught; but there is reason to hold that this standard is out of all proportion to the progress shown in other studies, and that a less ambitious course, which absorbed less time, would serve the wider interests of the boys, while it would also be suitable for the girls.

Objections in regard to the study of foreign languages may arise on two sides. Many people will protest against a proposal to teach any foreign language to children between the ages of twelve and fourteen who do not intend

to follow out a secondary school course, but the point need not be contested here as it does not concern sex aptitudes. It is otherwise with the demand made by most classical enthusiasts that boys who are to have a liberal education should spend a large amount of time during the years in question in the study of Latin and Greek grammar. Such a study of dead languages may not be more in harmony with the aptitude of boys than of girls, but at least it is commonly conceived, and not without reason, that the living use of a modern tongue, which would be the natural alternative, can be more easily acquired by girls than by boys. It may be suggested that this difference should be allowed no weight until after the age of fourteen is passed, and that the only foreign language to be studied before that time by boys and girls alike should be French.

It is suggested, in short, that the best attitude to adopt in relation to sex aptitudes up to the age of fourteen is to ignore them altogether. Limits of space make it impossible to consider here what policy should be followed during the later years of school life, when an increasing amount of specialisation becomes permissible.

EDUCATION AT THE AUSTRALIAN MEETING OF THE BRITISH ASSOCIATION.

(From a Correspondent.)

IT was urged upon us before we went to Australia that the discussions in the Education Section were of special interest to our hosts. To judge by the attendance at the section this was probably true. Both at Melbourne and Sydney, between which cities the programme was divided, the Education meeting room always compared favourably in the matter of attendance with those of other sections. Unfortunately the war overshadowed all else in the general public interest, and, like other sections, we suffered severely in the Press reports.

Special prominence always attaches to the presidential address, which was read at Sydney, and in order to give some counterbalancing weight to the Melbourne meetings, the vice-president (Prof. Armstrong) read an opening paper there which, like that of the president, was printed *in extenso*. The main parts of both these addresses were published in the September number of THE SCHOOL WORLD.

Those who heard these two addresses might well have thought they were the result of a conspiracy. The mistake would have been pardonable. Those who know both men

would naturally expect a similar diatribe when each of them was allowed to roam at large upon such a theme as education. Prof. Armstrong spoke of the place of wisdom (science) in education and the State. The bracketed word is his. Its *naïveté* struck many of his hearers, not all of whom were prepared to accept the conclusions to which Prof. Armstrong's experiences (and prejudices!) had led him. The address was in part an attack upon those who think differently from its author, and in part a lament for their folly. These at least are the two things which impressed themselves most clearly upon many, probably most, of his hearers. The neglect of science both in the State and in the school is due largely to the influence of those whose training has been exclusively literary—"the incubus of the Oxford spirit"—"the conceit and narrowness of outlook of the classical scholar." But the science which is to replace the timeworn classical training is not that which at present reigns at South Kensington, where they have returned to "conventional easy ways" after the successful pursuit, the "phenomenal success," of a system inaugurated thirty years ago by Henrici, Unwin, Ayrton and Armstrong. Even the Royal Society itself is not alive to the evils which are invading the teaching of science. Indeed that society is little more than a rabble or a collection of independent units who hold dull meetings and are content with belated publications.

To do Prof. Armstrong justice, there are many of us who feel there is some substance in his case, but who also recognise that harm rather than good is done by gross overstatement. In this respect his address suffered in a precisely similar way to that of Prof. Perry, whose text was much the same. An angry attack upon classics in general and upon Oxford in particular may be in place in a debating society, but the complete absence of any judicial spirit in pronouncements of the kind not only destroys their own effect, but actually discredits the Education Section of a body which exists, presumably, for the advancement of the scientific habit of mind.

The president's paper was read at the opening meeting in Sydney. Its violent polemic offended many who actually believe that science, in the narrow sense of that word, has not yet secured its proper place in education. It is full of assertions which provoke dissent, and no evidence which can be called scientific is offered for them. We are told, for example, that the average public school boy "feels himself a failure." It may be true (though this is not demonstrated)

that he is a failure, but a very little knowledge of public school boys is enough to convince one that they do not ordinarily *feel* themselves such. How little Prof. Perry appreciates classical research we may judge from his contempt of the greatest classical scholars "who only devote themselves to editing some Greek text that has been edited over and over again," and even one's fondness of the classics is glibbed at as suspiciously like one's fondness for the rubbishy rhymes that associate themselves with our infancy. At best classical training can only produce clever dull men, "fit to be barnacles in the public service." It may, too, be good for lawyers—"but it destroys the higher qualities of men and makes them narrow." After all, "Lord Somers was the only great lawyer who was also a great man." Judged by such a standard, one is tempted to ask what great man of science could be also called a great man?

Prof. Perry reserved his wildest rhetoric for our worship of Latin. "If there is a particularly illiterate bar-room loafer in the town who never reads books or newspapers you will find that he has a stock-in-trade of perhaps three Latin phrases which keep him provided in beer." After much of this sort of thing and an occasional excursion into doubtful educational history, the president entered upon the constructive side of his theme. His plea for a more practical foundation in education, for greater elasticity in the curriculum, and consequently a closer adaptation of the teaching to the capacities and interests of the individual pupil, and for a better equipped and better paid teaching staff will find approval in many quarters in England as it did in Australia, though it is to be regretted that he did not approach the whole discussion in the spirit of a man of science. "Generalisation is always dangerous," he told us. How dangerous, a careful critical examination of the two tirades offered to the section by its president and vice-president would afford an abundant collection of examples. Nobody will question the great services to education which Prof. Perry and Prof. Armstrong have rendered, but their addresses in Australia can scarcely fail, unfortunately, to weaken rather than increase their influence amongst thoughtful readers.

Prof. Armstrong's paper at Melbourne was intended to introduce a general discussion on the place of science in education. Two further papers were read by Mr. C. A. Buckmaster and Mr. W. D. Eggar. Mr. Buckmaster traced the history of state aid to science in a paper of considerable historical importance, and Mr. Eggar dealt charmingly

with the position of mathematics and science in a liberal education. His protest against the subordination of the æsthetic value of science to mere utility was as clever as it was sound, and his view that no subject could be said to contribute to a liberal education until it was pursued far enough to reveal new vistas to the minds of the pupils would serve as an admirable principle in the determination of secondary school curricula and methods of teaching. The problem of secondary-school organisation is that of determining the number and position of the "windows" which should be opened to the mind by a liberal education. A general discussion followed, in which Mr. Tate, Mr. Saxton, Mr. Jameson, Mr. Hanson, and other Australian members took part.

The view generally taken was that methods of teaching science rather than the provision of facilities were in need of improvement, and that universities were largely responsible because they emphasised mere acquisition instead of fostering the spirit of inquiry and investigation. Mr. Saxton pointed out the dangers of over-emphasising measurement in the early stages of school science, "boys soon get sick of it." Sir Oliver Lodge said that enthusiasm was necessary for teaching any subject, and that the first chapter in a geography text-book was the only science he himself had at school. Dr. Gray said that one chief reason for the backward condition of science in the public schools was its costliness. In his view the State would have to be called in to help them if science were to be well provided for. Mr. Ewen described the position of science in Scottish schools. Mr. Sharman followed with a paper on the teaching of algebra.

The second Melbourne day was given up to vocational education. Dr. Kimmins told us what the London County Council is doing, Dr. Moody discussed some of the difficulties of commercial education, Mr. A. D. Hall outlined a scheme of agricultural education, and Prof. Findlay dealt with the general principles which should govern any scheme for the compulsory education of youth. The discussion which followed was introduced by Mr. Frank Tate, the official head of the educational activities of Victoria, and continued by other Australian members. Mr. Hall's contribution came in for most criticism as not suited to the special conditions of Australia, though his view that all sound education must be vocational, for it is only then that it becomes purposeful to the pupil, appeared to find common acceptance. Those visiting members who were privileged to see something of the schools of Victoria were greatly impressed by

the concentrated effort which the community is making to solve a problem which on its rural side at least has no counterpart at home.

The section was occupied both morning and afternoon on the third Melbourne day. At the request of the local committee the morning session was given up to a discussion of the method of training teachers. It was opened by Dr. Smyth, who described the procedure in the State Training College, of which he is the head. The college is situated within the university precincts, and many of its students are undergraduates. In the actual work of training they recognised three elements—lectures, observation and tentative practical efforts, experimental work. The art of teaching was analysed into:—confidence, planning a lesson, connectedness of thought, eye and ear power, questioning, and discipline. Each of these elements needs conscious cultivation. Experimental work is at once the basis and the crown of future training. Prof. Findlay expressed admiration for what Victoria was doing in this field of educational work, and Prof. Green offered another analysis of the teaching process as a method of approach to the problem of training. In the afternoon an admirably illustrated paper was read by Miss L. J. Clarke on the teaching of botany, Mrs. Meredith opened an interesting discussion on the teaching of domestic science, in the course of which very conflicting views on the subject were put forward, and Prof. Anderson read a paper on moral education, in the discussion upon which Dr. Gray, Prof. Leeper and others took part. The gradual narrowing down of the problem to a definitely religious issue was a noteworthy feature of this discussion.

At Sydney the training of teachers was again discussed at the request of the Sydney people. Prof. Mackie described the development and organisation of the great New South Wales institution, bringing out the special difficulties they were faced with in the pressing need for rural teachers, for whom short courses of six months' training had to be arranged. Prof. Findlay, Prof. Green, and Dr. Kimmins took part in the following discussion. Sir Harry Reichel read an important paper on the place of the university in the State, in which he pointed out the absolute necessity of freedom from bureaucratic control if the universities were to prove socially profitable institutions. This view was warmly supported by Mr. P. Board, the Secretary of the Education Department of New South Wales, who dwelt at length upon the educational and moral responsibilities of these senior educational institutions. Prof. J. A. Green read a

paper on the school and the university, in the course of which he urged the necessity for greater freedom for the schools, and the abandonment of the idea that the elements of certain traditional subjects are essential to a liberal education. The effort to meet this demand frequently led to the sacrifice of intellectual keenness. Dr. Gray followed, and expressed his general agreement with Prof. Green's position.

Not the least interesting meeting was that in which Prof. A. Netschajeff read his paper on modern educational movements in Russia. The special circumstances no doubt partly accounted for the large audience which assembled to hear him. After describing the chequered history of educational institutions in Russia and their complex organisation, he entered into a more detailed account of his own experimental school and of the pedagogic investigations being conducted there. Thanks to his initiative and to Russian enthusiasm for education—usually, it must be said, outside the circles of official educational administration—important problems like those of the effects of co-education upon individual development, the nature and value of teachers' judgments upon their pupils, methods of modern language teaching are being scientifically attacked.

Dr. H. B. Gray's paper on school training for public life followed. It provoked an interesting discussion in which Prof. Armstrong took part. This resolved itself into the question of whether the present scheme of education in use at Osborne was a success, and if so why? Dr. Kimmins described the London scheme for the Imperial interchange of teachers.

In conclusion it would be a gross omission not to say a word about the excellent arrangements made for our comfort by the Australian organisers. British visitors were everywhere overwhelmed with hospitality, and all of us will long remember the pleasant social gatherings arranged for us by Dr. and Mrs. Smyth in Melbourne, and by Mr. Board and others at the University Club in Sydney.

Scriptor Latinus. Annus x., Nos. 1-5. (V. Lommatzsch, Bremerhaven.) 4 marks yearly (10 copies; single numbers 0.40 mark.)—These excellent little "Commentarii ad Linguae Latinae Humanitatisque Studium editi" (which can be obtained in England from Mr. D. Nutt, 212, Shaftesbury Avenue, W.C.) deserve to be much better known and used by classical schoolmasters than they are. There are articles on topical subjects (even on Zeppelin airships!), reviews of classical books, original contributions on themes of classical interest, and plenty of original verse of a very high standard of merit. All those interested in reformed methods of teaching Latin will find the little Narratiunculae and the aenigmata extremely useful.

IN QUEST OF REALITY.¹

By E. CREAGH KITSON, B.A., B-ès-L.

THE essential aim of the direct method is to make the foreign language the medium of intercourse between the teacher and his class, and the extent to which this is successfully accomplished will be the measure of the excellence of the teaching. That it is possible of accomplishment cannot, in the light of experience, be doubted; that it is difficult of accomplishment nobody who has tried to do it will deny.

It is not particularly difficult to establish intercourse of a kind:—the teacher asks, *Qu'est-ce que Marcel fait?* and the pupil replies, *Marcel se lave les mains*; Marcel being represented on a picture, where he continues to *se laver les mains* to-day and to-morrow and throughout all eternity; but it must be admitted that the "intercourse" which is confined to the present tense of a regular verb is restricted in its nature.

The writer would be sorry to appear to speak disparagingly of the use of pictures in oral teaching; they are most helpful. Also, no matter how ambitious we are, we shall always find it necessary to *commencer par le commencement*. Moreover, the amount of vocabulary at their disposal will by no means be the sole determining factor in the relations between a teacher and his class: the master's look, the tones of his voice and the gestures of which he makes use—we all have to use *some* gestures, whether we like it or not—are also important factors, and will probably count more than most other things towards establishing the right kind of relations with a class of very young boys. Still, the fact remains that boys, whether young or old, will not find talking a foreign language very exciting work, if they can never say anything involving the use of, say, the conditional; and if boys find their work monotonous they will not be interested, and if they are not interested, they won't work. Besides, a considerable number of pupils begin a foreign language at so late an age as fourteen or fifteen, or even later. It is such pupils that the writer of this article has chiefly in mind.

There are many reasons why we should try to arrive at natural and unrestricted conversation at as early a stage as possible. In the first place, as has already been indicated, if we do not succeed in getting *reality* into our work, there is considerable danger that

¹ This article, the publication of which has been unavoidably delayed, is a further development of the theme "Accuracy and the Direct Method" on which Mr. Kitson wrote in the May and June, 1914, issues of THE SCHOOL WORLD.

there will be a falling-off of interest, especially in the case of boys of fifteen or thereabouts, who have already done other languages, and will show some natural impatience at having to spend any protracted period within the very restricted boundaries of the present tense. In the second place, no good teacher looks upon himself as merely a teacher of French, or of mathematics, or of history, but as a teacher of *boys*; and having renounced English as a means of communication between himself and his class, he must replace it fully by some other satisfactory medium of intercourse, unless he is willing to sacrifice that influence over his pupils' thought and conduct which is far from being the least important part of a schoolmaster's work. Lastly, from the purely linguistic point of view, it is not hard to see that the loss will be considerable wherever we fail to get real natural talk. For there is a kind of oral work which is not natural talk: it is possible for a pupil to make a statement, which, so far as the actual words used are concerned, is correct, but because it is not made with intelligence, interest, and conviction cannot be admitted to be living speech; and it is only in so far as the pupil uses living speech that he can ever acquire the foreign language by oral methods. That oral work of this kind, devoid of sympathetic intonation and all the emotional accompaniment of living speech, is too often allowed to pass in modern language classes, is due to the fact that many teachers still look upon what a pupil says merely as an outward and audible sign of *what he might have written*; in reality, instead of looking on speech as a useful substitute for written or printed language, written or printed language should be looked upon as a representation of speech—and, so far as we have progressed, a rather clumsy and insufficient representation of it.²

So much is this the case, that intonation will often be for the practised teacher the surest indication of intelligent comprehension. Moreover, when a pupil makes a mistake, is corrected, and repeats correctly what he had previously said incorrectly—it would be a great mistake to suppose that he has then *learnt* the phrase or construction in question; he will only prove that he has learnt it when he uses it naturally, of his own accord, in the course of his work. For instance, the master asks a boy, Karl: *Karl, warum hast du gestern nachmittag kein*

Cricket gespielt? The answer to this question should be: *Ich habe gestern nachmittag nachsitzen müssen*; but Karl does not know how to say this, and is momentarily silent. Another boy, Franz, intervenes and says: *Herr Lehrer, er hat nachsitzen müssen*. Karl at once repeats correctly: *Ich habe nachsitzen müssen*; but a difference will generally be observable between the intonation with which he speaks and the intonation with which he would have spoken had he been able himself, immediately he was asked, to convey to the master the information demanded. In such case, it will not usually be advisable to labour the point just then; the teacher, however, will keep the matter in his mind (along with the numerous other things that have to stay there), and before the class is over he will casually address another question to Karl, requiring the use of the same construction. Karl may again go wrong and again require to be corrected. In any case, it will be no harm for the teacher to ask him, as soon as he comes into class next morning: *Karl, hast du gestern abend viele Aufgaben schreiben müssen?* The rest of the class, ready to pounce on Karl should he make a mistake, will take a sporting interest in the proceedings; and Karl, if he is any good, will rise to the occasion by asking the master on the third morning: *Herr Lehrer, haben Sie gestern abend viele Fehler verbessern müssen?* If he does this, he will really be talking German, whereas on the previous occasions he was merely putting words together in a certain required order, according to the directions of another boy. True, the master may have insisted on the phrase being repeated with right intonation, and Karl may have adopted the right intonation; but if he did, he was not talking, he was *acting*. Once the information demanded by the master had been conveyed to him by some other person, the psychological moment was past at which Karl could have made his statement with all its natural accompaniment of wistful regret, shame, or bravado, and that moment could never return. A new occasion must be created.³

When the master has occasion to ask the class questions with regard to work and discipline, they should invariably be answered with as much seriousness and strict attention to truth as if they had been asked in English. Our aim, in fact, must be to replace English by the foreign language in the most complete manner; and it is only in so far as we succeed

² How clumsy and insufficient is to some extent indicated by the fact that spelling does not represent pronunciation; that no method of writing yet invented by man represents the modulations of the human voice, a most vital and essential element of language, modifying the meaning of the words we use to an extent that we do not often realise; and that punctuation is a wholly inadequate means of indicating pauses or breath-groups.—E. C. K.

³ It is not suggested that a pupil never learns a new phrase or construction at the first go, but rather that we must be on our guard against assuming that this always happens.—E. C. K.

in doing this that we succeed in applying the direct method.

Assuming that the phonetic stage is over and that the pupils have learnt the names of the common objects around them, the greatest obstacle now to making the foreign language a real medium of intercourse between the master and the class will be found to be the verb. The writer has long been convinced that it is desirable—especially in dealing with pupils of anything like fourteen or fifteen years of age—to introduce almost all the chief parts of the verb at a much earlier stage than is usually done. In order to achieve this, he has made use, after many experiments, of a system of *tense-drill*, which will be very briefly described. In introducing pupils at an early stage to several tenses, two things must be carefully borne in mind: in the first place, the greatest possible precautions must be taken to avoid all possibility of confusing them; and in the second place, we shall not find it advisable to teach them in the order in which they are given in most grammar-books, an order that does not appear to correspond either to any theoretical conception or to any practical application of them.

Our first three tenses will obviously be the present, the future, and the perfect, corresponding to the three great divisions of time.⁴ In a very short time the pupils will become thoroughly familiar with these, and will be able, in the usual way, to go through simple actions, accompanying each action with its right tense: *ich werde die Türe zumachen, ich mache die Türe zu, jetzt habe ich die Türe zugemacht*, etc. While learning these, they will notice incidentally the difference between a strong and a weak verb; that one says *ich habe gesprochen* but *ich bin gekommen*, etc. They may, if they like, begin to make a list of the commonest strong verbs *kommen, gehen, sprechen, schreiben, singen*, etc. If they ask what *kam* is, they will be told that it is *das Imperfekt*, but they must be most carefully restrained from using *ich kam* instead of *ich bin gekommen*. The imperfect at this stage must be looked upon coldly; any attempt to make free with it must be sternly discouraged; it will attain to its proper dignity in due course. As they go along, the pupils will usually be found to pick up the German grammatical terms with amazing quickness: *das Präsens, der Infinitiv, die erste Person, das Hilfsverb, das Partizip der Vergangenheit*,

etc. Presently we shall introduce the conditional, with the imperfect in the background; and thus we already have material for a considerable amount of tense-drill, *through which the whole class may be put each morning during the first few minutes of the lesson, as follows:—*

LEHRER: *Was würdet ihr machen, wenn ich euch sagte, die Bücher aufzumachen?*

SCHÜLER: *Wir würden unsere Bücher aufmachen, wenn Sie uns sagten es zu tun.*

LEHRER: *Wann werdet ihr die Bücher aufmachen?*

SCHÜLER: *Wir werden die Bücher aufmachen, wenn Sie uns sagen es zu tun.*

LEHRER: *Macht die Bücher auf!*

SCHÜLER: *Wir machen unsere Bücher auf. Jetzt haben wir sie aufgemacht, etc.*

To this all other parts of the verb can in due course be added; thus, the master can single out a boy whose book was opened before the order was given, and say: *Heinrich hatte schon sein Buch aufgemacht*; the tense is given its name, and *das Plusquamperfekt* takes its place in their note-books. In the same way the whole of the passive voice may be worked in, the pupils making the statement first in the active and then in the passive. If *werden* as an independent verb meanwhile crops up, it can easily be explained and its duties as a *Hilfsverb* dwelt upon.

The greatest care must be taken to prevent this daily drill from becoming an empty form, otherwise we shall fall into the very danger we are seeking to escape from, that of unreality. In order to preserve reality the master must in the first place invariably insist on *absolute purity of intonation*; in the second place, he may from time to time drop suddenly on individual boys with the abrupt question: *Max, was würdest du machen, wenn ich dir sagte*, etc.; thirdly, the moments at the beginning of each lesson, while the class is settling down, afford further opportunities for *Einübung* in the way of informal conversation with individual boys, to whom may be directed such questions as, *Friedrich, was hast du gestern angefangen? Georg, was hast du heute nachmittag vor? Max, was würdest du tun, wenn du heute frei hättest? Wer haben gestern gewonnen? Spielst du gern Fussball? Schwärmst du dafür?* etc., etc.

Incidentally, it may be pointed out that this tense-drill provides at the same time good practice both in the order of the words and in the use of the pronouns. Thus, the master addresses a boy and asks: *Karl, würdest du die Türe zumachen, wenn ich dir sagte, es zu tun?*

⁴ In the remarks that follow the illustrations are taken from German, partly because pupils usually begin this language later than French, partly because the tense-system is simpler.

He answers: *Ja, Herr Lehrer, ich würde die Türe zumachen, wenn Sie mir sagten, es zu tun.* The others, looking at him and speaking in chorus say: *Du würdest die Türe zumachen, wenn der Lehrer dir sagte, es zu tun;* turning to the master they say: *Max würde die Türe zumachen, wenn Sie ihm sagten es zu tun;* and so on through all tenses and persons. The procedure may, of course, be varied indefinitely; here the bare outline only is given.

The use of the modal auxiliaries will be amply provided for by the ordinary routine of the class-room. A boy should not be left long in ignorance of the difference between *Soll ich das Fenster aufmachen?* and *Darf ich das Fenster aufmachen?* Forms like *ich möchte* and *ich wollte* should be commonly used. If the master has occasion to ask: *Welchen Fehler hat Otto gemacht?* a pupil should be able to answer readily: *Er hätte 'doch' statt 'ja' gebrauchen sollen.*

All this may equally well be applied to French, with certain obvious alterations; thus, great attention should be paid to the difference between the imperfect and the past definite, and between the pluperfect and the past anterior; the pupils should be accustomed to the use of the future after *quand*, e.g., *nous ouvrirons nos livres, quand vous nous direz de le faire, etc.*

It is scarcely necessary to point out that this tense-drill is merely a parergon; the main work of the class goes on meanwhile, the forms that are learnt begin to occur in the reading-matter and are gradually introduced into the compositions. With regard to the reading-matter, the more interesting it is, the more real will be the oral work founded on it. As time goes on, however, and as the "conversation" of the class comes more and more to be founded almost exclusively on the reader, there will always be at least the danger that the oral work may lose something of the directness and vividness of living speech. As a safeguard against this, and for other reasons, the writer has had recourse occasionally to a kind of more or less informal discussions, to which may be given the name of "disputations." He was led to this in the first instance through the accident of engaging from time to time in logic-chopping with his pupils—chopping logic being one of his few pleasures in life. Logic-chopping in a foreign language may be productive of a good deal of intellectual exhilaration—if the choppers are sharp. A discussion of the question *whether the master acted justly in punishing Snooks for forgetting his book*, treated in

Socratic wise, may lead a class to some surprising conclusions; it may even be found to be not altogether without advantages from the point of view of discipline. But the disputation proper consists in the master's leading off with some highly contentious statement, such as that the world is flat, or that the invention of printing was a calamity; the onus of disproof is thus thrown on the pupil, or on certain pupils, or on the whole class, as the case may be, and they should be allowed the fullest freedom of speech, restricted only by the ordinary amenities of discussion and the rules of the foreign language. The most suitable attitude for the master to adopt is one of grave politeness, to which boys as a rule will readily respond. Or the procedure may be varied by getting two boys to argue against each other; this, however, will generally require some preparation, and does not as a rule go off so well.

These disputations lead to oral work of the very best kind; they constitute, in fact, an elementary training in rhetoric. They have also the peculiar advantage that they lead the pupil to forget in the stress of argument that he is speaking in a foreign tongue; it is good to see a boy getting red in the face in his efforts to convince the master that home-work should be abolished. Moreover, if they are managed with skill, they may form an excellent preparation for the discussion, at a later stage, of questions of graver import, e.g.: Was Frederick the Great justified in seizing Silesia? Was the partition of Poland a crime? Was the French Revolution, on the whole, productive of good? etc. But they are referred to here chiefly because, by leading the pupil to speak the foreign language with earnestness, with conviction, and even with passion, they make for *reality*, and because reality must always be a watchword with those who seek to apply the direct method.

A History of England and the British Empire. (In four volumes.) By A. D. Innes. Vol. iii., A.D. 1689-1802. xxvi+550 pp.; with plans and coloured maps. (Rivington.) 6s. net.—Mr. Innes's "History of England and the British Empire," of which the third volume is now issued, occupies a useful place, midway between the standard one-volume "Advanced History" of Prof. Tout and the many volumed series published by Messrs. Methuen and Messrs. Longmans respectively. It provides a detailed narrative of the political history of our country and its dependencies sufficient for the purposes of all except historical specialists. The period covered by the present volume is one on which Mr. Innes speaks from long and intimate acquaintance; for it was the theme of the excellent monograph on "Britain and her Rivals" which first made his name known to readers of history.

ELEMENTARY ASPECTS OF PLANT ECOLOGY.

By E. STENHOUSE, B.Sc. (Lond.),
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VERY little acquaintance with plants growing wild is sufficient to convince anyone that certain species are peculiarly at home in certain kinds of situations, and are always absent from certain others. The veriest beginner in botany expects to find marram grass on a sand dune, gorse on exposed sandy heaths, bulrushes by the sides of streams and ponds, and hyacinths in a wood. He would look in vain for hyacinths on a sand dune, for bulrushes on a dry windy heath, for gorse in a beech wood, for marram grass by the river side. The study of the correspondence between plants and the conditions of life in their natural homes is called plant ecology.¹

The most generally useful clues to an ecological problem are found by considering the special limitations imposed on the plants by their habitat. A student who realises how important to plants are an adequate supply of water and air to the roots, and of light to the leaves, is in a position to understand at least the main difficulties with which plants are respectively beset in circumstances of drought, in soils constantly soaked with water, and in dimly lighted situations—the conditions dealt with in this article. It becomes a question of the highest interest how such plants manage, each in its own way, to evade or overcome the difficulties of the situation in which they sprang up and in which—since they have not the animals' power of locomotion—they are compelled to pass their lives.

I.—PLANTS LIVING UNDER CONDITIONS OF DROUGHT.

The importance of the water supply.—The danger of becoming too dry is, on the whole, the greatest which plants have to face. So

long as an abundance of water is forthcoming from the soil to replace the loss from the leaves, free transpiration has no ill effects; indeed, is an advantage. It becomes highly dangerous if for any reason the roots are unable to supply enough water to keep pace with it. Such a condition of drought, or water starvation, may arise from very varying circumstances, but evidently it can be borne only by such plants (called xerophytes) as are able to restrict their transpiration to correspond with their powers of water absorption, and at the same time leave the margin necessary for food making.

Plant life on sand-dunes.—Sandy soils allow water to pass through them very freely, so that any rain falling on them drains quickly away from the upper layers. This condition

is most marked in the sand dunes above the sea beach (Fig. 1). The actual scarcity of water in the soil is, however, only one of the difficulties experienced by plants of the sand dunes; for the bright light and almost incessant breeze of the seaside, together with the heating of the lower air by reflection of the sunshine from the white sand (where this is exposed), form conditions which favour transpiration to



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FIG. 1.—Sandy foreshore, Somerset. D, line of debris at high-tide mark; S, line of Saltwort; C, incipient dune with sea couch-grass; M, crest of dune covered with marram grass.

the utmost. These facts are true of all parts of the dune, including its seaward side where the sea couch-grass grows, the crest or "shifting dune" covered with marram grass, and the "fixed dune" (perhaps a turf-clad golf links) into which it merges on the landward side; and the plants growing on it—all living under the special conditions mentioned above—are grouped together by botanists to form what is called the *sand dune formation*.

The plants which colonise the sand dunes include representatives of many different families, but they agree in having leaves which are modified to restrict transpiration (the leaves being, e.g., rolled up in all dune grasses except the lyme grass). Although the plants have very long roots, their aerial parts

Oikos (Greek) a home.

do not grow to any great height above the surface of the ground, and in that way they avoid as much as possible the drying effects of the constant wind, which are least marked close to the ground. Plants of the shifting dunes must be able to grow rapidly upwards to the light after being covered with sand. Sand dune plants have these characters in common, because without them they would be unable to survive the conditions.

Plants of the seashore.—On the seaward side of the sand dunes the presence of sea salt in the soil becomes important. Between the dunes and high tide mark may be found the sea rocket, the orache, the salt wort (Fig. 1), and the sea-blite—all annuals with very fleshy leaves and smooth waxy surfaces, and therefore able to restrict transpiration. They resemble dune plants in the need for economising their water supply, not because water is actually scarce on the shore, but rather because roots are unable to absorb water containing much salt. These annual shore-plants are unable to grow upwards if covered by sand; their numbers are kept up by free seeding.

The difficulty caused by the saltiness of the water becomes greater still to plants growing in soil constantly saturated with sea water, as in salt marshes and mud flats. The marsh samphire or glasswort is common in such situations. Its leaves are minute, but its jointed branches are green and fleshy, and hold water very tenaciously. Still nearer the sea, and submerged at every tide, grows a curious monocotyledon called *Zostera*, which has long, ribbon-like, floating leaves.

Heath plants.—The term *heath* is given to areas covered with relatively poor and dry—usually sandy—soil containing in its surface layers a certain amount of peat. Trees are usually absent, and the almost constant winds and the relative scarcity of water in the soil exclude most plants which are not xerophytic. The dominant plant of the *heath association* is the ling (common “heather”), but gorse, the

bell or “Scotch” heather, and the bilberry often occur with it. The leaves of the heathers are small, and rolled up so that the stomata open into an almost closed chamber, in which the air is stagnant in spite of the surrounding high winds. Transpiration is thereby restricted. The bilberry has broad and thin leaves which, in spite of their leathery character, transpire fairly freely in the summer. They are shed, however, before the approach of winter, when such leaves would be a danger to the plant; and carbon assimilation is then carried on, without danger of excessive transpiration, by the green, ridged branches. Rolled leaves are common also among the grasses growing on dry heaths.

While the common heather is dominant on the typical heath, it gives way largely to bracken and grasses on sandy and well-drained soil where the peat is thinner (Fig. 2). Such grass-heath is often invaded by pine which springs up wherever the winged seeds are able to germinate. Where the heather grows thickly the pine seeds are, of course, less likely to germinate. The bilberry tends to replace the heather on the steeper slopes of the heath.



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FIG. 2.—Upland Heath, merging into Birch and Oak Woods (North Yorks.); B, birches; C, ling; P, bracken; Q, oaks; V, bilberry.

Moorland plants.—The essential difference between heath and true moor lies in the amount of *peat* in the soil. As the soil becomes moister and the peat deeper, the heath becomes a moor. Such peat consists of the remains of the so-called cotton grass, or of the tufted club-rush, or of bog-moss. The lower parts of these plants die and accumulate, for they are prevented from complete decay by the absence of free oxygen and the presence of acid in the water in contact with them. The spongy mass thus formed retains most of the rain-water falling upon it, and forms bogs in many rainy mountain districts. Owing to the heavier rainfall, moors are almost restricted to the western part of the country, while heaths are commoner on the east.

In the soil of moors, as of heaths, there is a

poverty of nutrient salts, and although the soil is thicker on moors than on heaths, it is sour from the presence of peat acids. These—like the salt in the water of salt-marshes—interfere with the absorption of water by the roots. The curious result is that plants living in fairly moist, peaty soils require some means of checking transpiration in order to avoid water-starvation, so that moorland plants are as markedly xerophytic as heath plants.

As might be expected, most of the typical plants of the heath occur also on the drier parts of the moors. Thus the bilberry and the ling (common heather) are common to both formations. Bilberry is often dominant on the lower slopes, where the peat is still thin and sandy, and almost always dominant on the well-drained and wind-swept ridges and summits, where the peat is again shallow. It is not found on the wettest parts of the moor.

Grasses of different kinds grow to varying extents on the moors, and one or other is often dominant. They are all (like sand-dune grasses) able to restrict transpiration by means of rolled or grooved leaves.

II.—WOODLAND AND HEDGEROW PLANTS.

Types of woodland.—Trees are generally absent from heaths and moors.

An upland heath, however, often merges into birch or pine woods at a height (in this country) of about 1,500 feet. These in turn are replaced by oak woods at lower levels on sandy and clayey soils (Fig. 2). On soils containing a great deal of chalk or limestone, beech and ash are the commonest woods; while on sandy limestone and marl (clayey limestone), mixed woods of oak and ash are found. On the undrained soils of flat and marshy country, as well as of the borders of lowland moors, alder and willow are the dominant trees.

The scarcity of light in woods.—The special difficulty experienced by the herbaceous undergrowth of woods is the scarcity of light caused by the thickness of the foliage above. Obviously this difficulty will vary in degree with the kind of tree mainly composing the wood,

and also with the season. It is greatest in thick evergreen and beech woods, which cast so dense a shade that the only green plants which can exist beneath the trees are a few shade-enduring species. The light-difficulty is least marked in birch woods. Oak woods show an intermediate condition. They admit less light than birches growing equally closely, but quite sufficient to support a fairly abundant undergrowth.

The plants of an oak-wood.—In a damp oak-wood the canopy of foliage is usually thicker, and the shade therefore deeper, than in the drier type on more sandy ground; and the herbaceous undergrowth consists more definitely and exclusively either (a) of "shade plants" (such as sanicle, wood sorrel, sweet violet, wood geranium, woodruff), which, as there is no danger of excessive transpiration,

are able, by means of large and thin leaves and long internodes, to make the most of weak light, or (b) of plants which—requiring a good light for carbon assimilation and the visits of insects to the flowers—produce their leaves and flowers in early spring, before the trees above are in full leaf. Snowdrop, dog's mercury, daffodil, wood anemone, bluebell (Fig. 3), primrose, garlic (mentioned



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FIG. 3.—Oakwood in spring with carpet of bluebells (wild hyacinths).

roughly in order of flowering) are good examples of woodland plants which perform a whole season's food-making before the majority of plants have started work (Fig. 3). The underground food-stores which such plants possess enable them safely to appear above ground even in the most inclement weather of early spring. Many woodland flowers which come out later (e.g., woodruff and honeysuckle) attract insects by strong scent.

Plants of the hedgerows.—The difficulty of the light-supply, which has been seen to account for the chief peculiarities of the ground flora of woods, is also responsible for some of the most interesting features of hedgerows. It is necessary to distinguish between (1) the hedge itself, which is usually composed of specially planted bushes or shrubs, and (2) the hedge-

bank, which slopes steeply down to the level of the field or road-side.

The chief ecological interest of the hedgerow lies in the bank. *The top of the bank* is usually dry, and is deeply shaded by the thick growth of the hedge above. Naturally, the only herbaceous plants which can flourish in such a situation are (a) climbers which are able to raise themselves to the light by the aid of the twigs of the shrubs of the hedge proper; (b) plants able quickly to produce long, self-supporting stems; or (c) "shade plants," which are adapted—by large, thin leaves, or by much-divided leaves admitting light to their lower parts—to make the best of feeble illumination.

On the slope of the bank, where the light is abundant, *prostrate plants* (e.g., chickweeds and creeping cinquefoil) and *rosette plants* (e.g., plantains, dandelion, daisy, hawkweeds, and shepherd's purse), as well as taller plants and grasses, are common.

Where one side of the hedge is much better lighted than the other (e.g., when the hedge runs east and west) it may be observed that the shaded plants are taller, have larger leaves, and are of more "weedy" appearance generally, than those of the same species on the sunny side.

Hedgerow plants form a very heterogeneous collection, and consist largely of native species which have been expelled from the neighbouring cultivated land.

At the foot of a hedge bank is often a ditch. The plants growing in it are of the marsh or aquatic types to be described in the next section.

III.—PLANTS OF PONDS, STREAMS, AND MARSHES.

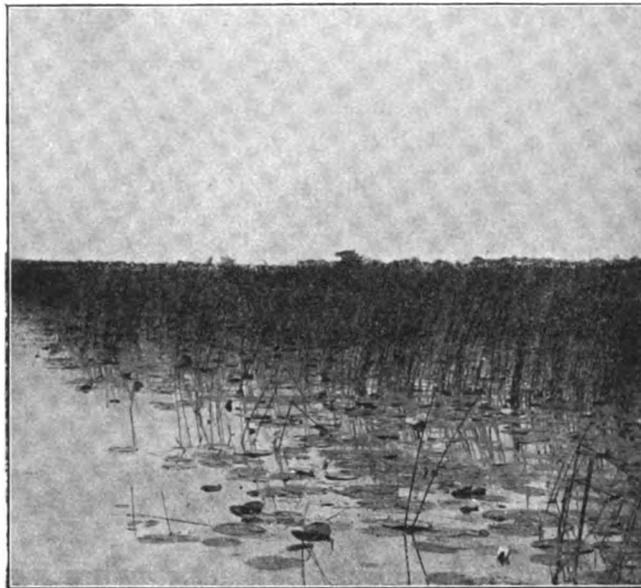
One of the most interesting ecological exercises is to trace the changes in plant form to be found on passing from the deep water of a shelving pond or stream, through the swamp and marsh of the margin, to the meadow land beyond, and to explain the

peculiarities of the vegetation in terms of the environment.

In stagnant water the plants growing furthest from the bank are often *floating forms* with no attachment to the bottom. Among flowering plants of this group are duckweed and frog-bit (which have floating leaves and hanging roots) and bladderwort (entirely submerged, with finely divided leaves). Such plants are of course absent from streams, except where they can find shelter from the current among the rooted plants near the shore.

The *marginal associations* occur in more or less well-marked *zones*, as the water becomes increasingly shallow towards the bank. Deepest of these is (a) the zone of rooted plants

which are entirely submerged (e.g., various species of pondweed). As soon as the water becomes shallow enough (Fig. 4), appear (b) rooted forms which can raise their flowers and in most cases some, if not all, of their leaves to the surface (e.g., water-lilies). Shoreward, the *reed-swamp association* succeeds these "floating-leaf" plants. The reed-swamp association consists chiefly of tall monocotyledons of social habit, with long, narrow leaves, and with



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FIG. 4.—Floating-leaf and reed-swamp associations, Norfolk. White water-lilies, bulrushes, and (in the background) reeds.

[W. B. Crump.]

only the roots, the long horizontal rhizomes, and the lower part of the erect shoots under water. In it, three zones are usually to be distinguished, viz., (c) a belt of bulrushes (often with mare's-tail) towards the open water, (d) an intermediate zone of reeds, and (e) on the landward side a fringing band of rushes, sedges, horsetail, spearwort buttercups, watercresses, water dock, etc.

Marsh plants.—At its edge the swamp often passes into marsh or wet meadow. Here the soil may be saturated, but is not actually covered, by water, so that only the roots and rhizomes of the plants are submerged. In addition to many of the swamp plants, the marsh contains such perennial plants as meadow sweet, marsh marigold, ragged Robin, marsh mallow, water mint, marsh forget-me-

not, etc., and in the drier parts a number of annuals (e.g., bur-marigolds, water purslane, celery-leaved buttercup, etc.) spring up. Alder and willow are the trees most typically associated with marshy soil.

The advantages and disadvantages of a watery habitat.—To explain satisfactorily the respective peculiarities of these zones of plants it is necessary to consider what special advantages and disadvantages growth in various depths of fresh water entails. The great danger of water plants is drowning, that is, suffocation from *lack of oxygen*. This is avoided by a system of internal air-spaces extending from the leaves through the stems into the roots. By means of these channels, air can get to all parts of the plants. The internal air spaces tend to float up the stems and leaf-stalks, so that the plants growing actually in water need scarcely any strengthening material to keep them erect. In such plants very little wood is required, for the further reason that water can be absorbed by any part of the submerged surface, and not merely by the roots. Such strengthening material as does occur forms a core near or at the middle of the stem (where it is best able to withstand the pull of any current), instead of near the outside, as is usual in herbaceous land-plants.

Submerged plants growing in the deep water suffer, in proportion to the depth of the water, from *lack of light*, and show the long internodes usual in shaded plants.

If plants growing in running water possessed submerged leaves of the ordinary type the leaves would be in *danger of being torn*, and the whole plant of being uprooted, by the force of the current. It is interesting to find that *submerged leaves* are usually narrow and ribbon-shaped (water plantain, fennel-leaved pondweed, and—in deep water—yellow water lily), or cut up into thread-like filaments (water milfoil and water crowfoots). Such leaves trail out into the current, to which they oppose a minimum of resistance, and at the same time expose a relatively enormous surface for absorption of dissolved carbon dioxide, etc. On the other hand, *floating leaves* have entire or slightly lobed margins, and are more or less circular in shape (water lilies, water crowfoots). In swiftly-flowing streams not only free-floating plants, but also rooted plants with floating leaves, are absent.

Among the plants of the reed-swamp association an accumulation of old leaves and other plant-remains gradually forms, and this in its turn tends to entangle material of whatever kind which is drifting about in the water. The new soil which is thus collected makes the edge of the pond or stream shallower; the marsh

plants invade the reed zones, and the reeds creep a little further towards the middle. By a continuation of this process the pond is filled up, and its place is presently occupied by meadow land, and later still, perhaps, by forest.

READING IN WAR TIME.¹

By Dr. M. E. SADLER, C.B.
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WE are passing through a stern and solemn experience, the like of which has not befallen our country for many generations. For the first time since science gave us commerce and manufacture on a gigantic scale and multiplied our means of swift communication, Great Britain is at war for her life, and, indeed, for what concerns us even more than life itself—for her ideals and for the principles upon which are founded her best hopes for the future of the world. A hundred years ago our forefathers fought for the same cause. But it is for a new Britain, a new empire, that we are fighting now; for an empire which has already entered upon part of the responsibilities of free government and of universal education.

In this, the fourteenth, week of the war it is already possible to record some of the effects of the experience which is testing our powers of tranquillity and self-control. Of one or two of these effects, as bearing on the subject of our meeting this afternoon, I propose to speak.

I have never in my life heard such good reading aloud as since the war began, or better speaking. The reason, I suppose, is that everyone is deeply stirred, and also that people are less self-conscious and shy than in ordinary times, and therefore express themselves more naturally and fully, and with freer modulation of voice and tone. England at this time (Britain, we ought to say) is as Emerson saw her when he wrote the words which Sir William Osler recalled a fortnight ago:—

I see her not dispirited, not weak, but well remembering that she has seen dark days before; indeed, with a kind of instinct that she sees a little better in a cloudy day, and that in storm of battle and calamity she has a secret vigour and a pulse like cannon. I see her in her old age, not decrepit, but young, and still daring to believe in her power of endurance and expansion. Seeing this, I say, All hail! Mother of nations, Mother of heroes, with strength still equal to the time; still wise to entertain and swift to execute the policy which the mind and heart of mankind require at the present hour. So be it! So let it be!

The deeper places of the heart and mind

¹ An address delivered before the National Home-Reading Union on November 5th, 1914.

are moved by the stress of strong emotion. A great many people, for example, who do not in ordinary circumstances write poetry have broken out in verse. Editors of newspapers and other confidants of the public must have had a good deal of it sent to them. I know a cook who now writes so much poetry in pencil by the kitchen fire that she gets into difficulties with her dinner. And in the military hospitals many of the convalescent soldiers versify at length. To relieve their full hearts people turn to rhythm and to metrical incantation. Musicians tell me that, after getting over the first shock of the new experience of war, they have found their love of music raised to a higher power both in feeling and expression. The painters whom I have asked tell rather a different story. They have found it rather hard to concentrate on their work since the excitement of the war began. The strain has been too severe; fatal, indeed, to at least one young painter of genius. But perhaps they will shortly find their minds becoming composed from agitation, and their creative gifts once more steady and strong. By writers many memorable things have been done in words during the last three months. So far as my own limited experience goes, I should be inclined to put highest among them some of the first-page essays in the *Literary Supplement of the Times*; some despatches in the *British White Papers*; two speeches by Mr. Asquith; Lord Kitchener's letter to the soldiers; the Archbishop of Canterbury's sermon in Westminster Abbey on the outbreak of the war; one of the prayers in the *Form of Intercession on behalf of his Majesty's Naval and Military Forces*, issued by the authorities of the Church of England; some of the leading articles in the *Manchester Guardian*; two or three essays by Mr. Spenser Wilkinson in the *Morning Post*; Mr. Hilaire Belloc's narrative of the campaign in "The World's War by Land and Water"; and some of Mr. H. G. Wells's articles in *The Nation*. Each of those to whom I speak may feel good reason for adding to this imperfect list, but there is one piece of writing which we should all wish to include, written in Washington on September 8th by the President of the United States of America:—

I, Woodrow Wilson, President of the United States of America, do designate Sunday, the 4th day of October next, a day of prayer and supplication, and do request all God-fearing persons to repair on that day to their places of worship there to unite their petitions to Almighty God that, overruling the counsel of men, setting straight the things they cannot govern or alter, taking pity on the nations now in the throes of conflict, in His mercy and goodness showing a way where men can see none, He vouchsafe His children

healing peace again, and restore once more that concord among men and nations without which there can be neither happiness nor true friendship, nor any wholesome fruit of toil or thought in the world; praying also to this end that He forgive us our sins, our ignorance of His holy will, our wilfulness, and many errors, and lead us in the paths of obedience to places of vision and to thoughts and counsels that purge and make wise.

II.

We all feel the preoccupation of the war; and yet, as we grow somewhat accustomed to the terrible strain of it, we find relief in what for a time fixes the mind on other thoughts. "I find that, while I am awake, I can sometimes not think of it for an hour," said a great scholar to me the other day, "and I have found it a great relief to lecture on Homer." We do not wish to forget the war. Our thoughts, our hopes are with those who are in danger for their country. But in order that we may help them to the best of our strength and wisdom, we must keep our minds fresh and sane. And this rest from useless worry we may find in reading something which is remote from the associations of the war. Jane Austen wrote her novels during a period of critical struggle in Europe. But, with one or two trifling exceptions, there is no trace of war in what she wrote. I think she did it on purpose. The late Lord Carlisle, who was in South Africa for a winter during the closing months of the Boer War, said that, until he read her then, he had never really enjoyed Jane Austen. In her detachment there was something which, amidst all the excitement and distractions of the political situation, he found a great relief. Good fiction, taken sparingly, is a refreshment at this time—both the classics like Sir Walter Scott and the ultra-moderns like Mr. Wells, who put into words our sinuous and conflicting thoughts.

Yet the more the mind is weighted with anxious responsibilities, the more necessary is it that, if it be a strong mind, the reading which it takes by way of refreshment and rest should in itself call for great concentration and focussing of the thoughts. General Smuts, who led the daring raid into Cape Colony during the Boer War, told my friend Mr. Herbert Fisher of Sheffield that, during the campaign, he read Kant's "Critique of Pure Reason." He found it a great help to have a task which needed concentration of mind and took his thoughts from strategy and tactics. But General Smuts is a man of very powerful mind, and Prof. Maitland used to say that he was the best law student he ever had at Cambridge. I suppose it was this same desire for relief from other thoughts that made Dion and his friends talk philosophy on their way from Athens to Syracuse, and per-

haps it was in the same mood that Archimedes was sitting in the public square at Syracuse, lost in thought, with geometrical figures traced in the sand before him, when the Roman soldier in the surprise attack slew him with his sword.

Aubrey tells the tale that William Harvey, the famous physician who discovered the circulation of the blood, read a book during the battle of Edge Hill. As Aubrey was a gossip, the critics sniff at his authority, but I am inclined to think, Harvey's temperament being taken into account, that the story may be true.

Prof. Gilbert Murray's brother, who is now Governor of New Guinea, took with him on active service during the Boer War the poems of Pindar and read them through five times. He says that he took the volume partly because it was small and hard. Beaupuis, the friend of whom Wordsworth speaks affectionately in "The Prelude," held with him "many a long discourse on thoughts abstruse" during the most stirring days of the French Revolution. And a well-known Wykehamist, who during the Boer War was eighty times under fire, read "Paradise Lost" and "The Decline and Fall of the Roman Empire" while serving on the campaign. After the battle of Magersfontein, an English officer found the Boer trenches littered with books—Tennyson, Shakespeare and Milton, especially Milton. And the reading of poetry was not all on one side. An Englishman, who was then a private in the C.I.V., and is now in a great engineering firm in this country, took with him a selection of Keats and read the book in the trenches at Colenso, when his regiment had to wait a long time under fire.

III.

It may be noticed how many people have become more deeply interested in philosophy, and especially in ethics, since the war began. Perhaps it is because the conflict of ideals between the opposing forces raises fundamental questions of conduct and of duty. But few could have foreseen that Nietzsche would become a household word in the English press.

In many of the soldiers' letters written at the front there is, as Prof. Murray has pointed out, a noble Stoicism. Possibly one of the greatest of Stoics, Marcus Aurelius Antoninus, wrote part of the book which he entitled "To Himself" in camp during warfare. But this is not certain: there is no proof of it in the text. It is a little more certain that another great piece of literature—Julius Cæsar's Commentaries—was written during the excitement at the outbreak of war. The famous nephew of Constantine the Great, Julian the Apostate, certainly wrote much when he was on campaign, and he kept himself awake at

night by holding his arm out of the bed-clothes so that if he fell asleep he would drop a silver mortar into a brazen bowl.

At this time the greatest things, those which are truest to spiritual experience, have the surest power of consolation and encouragement. The Psalms speak our inmost thoughts: there is new meaning in the morning and evening prayers for peace. And there are parts of Wordsworth's poetry which glow as newly written. It is these, the greatest things, that touch us most deeply and give the fullest relief. It is these which, in the words of the report of the National Home-Reading Union, "heighten and steady" our thoughts. Plato had this in mind when he decided what, in their training, the future guardians of the State should hear and read. The leaders of his civilisation of the future were to be men trained under a stern discipline and, in order that they might grow up to be brave guardians of the people, he would have them know no literature but what was noble, no art but what was austere.

Along with the hellish horror of it, the war has raised the good things also to new heights of power we see that:—

He

That every man in arms would wish to be,
(Though) doomed to go in company with Pain,
And Fear and Bloodshed, miserable train,
Turns his necessity to glorious gain;
In face of these doth exercise a power
Which is our human nature's highest dower;
Controls them and subdues, transmutes, bereaves
Of their bad influence, and their good receives;
Is placable—because occasions rise
So often that demand such sacrifice;
More skilful in self-knowledge, even more pure
As tempted more; more able to endure,
As more exposed to suffering and distress;
Thence, also, more alive to tenderness.

It was in the anxieties of war, a war in which were raised great issues for the future welfare of the world, that Abraham Lincoln, a plain man of the people, but, like Wordsworth's Happy Warrior, "a man inspired," spoke the words of commemoration over those who had fallen along the escarpment at Gettysburg.

We are met on a great battle-field of the war. We have come to dedicate a portion of that field as a final resting-place for those who here gave their lives that a nation might live. It is altogether fitting and proper that we should do this. But in a larger sense we cannot dedicate, we cannot consecrate, we cannot hallow this ground. The brave men, living and dead, who struggled here, have consecrated it far above our power to add or detract. The world will little note, nor long remember, what we say here, but it can never forget what they did here. It is for us, the living, rather to be dedicated here to the unfinished

work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us, that from these honoured dead we take increased devotion to that cause for which they gave the last full measure of devotion; that we here highly resolve that these dead shall not have died in vain; that this nation, under God, shall have a new birth of freedom, and that government of the people, by the people, and for the people, shall not perish from the earth.

SCIENCE IN THE SCHOOL CURRICULUM.¹

By A. T. SIMMONS, B.Sc. (Lond.).

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FROM the school point of view, science lessons should be regarded as attempts to give children some intelligent, first-hand acquaintance with the world in which they find themselves. There is no end to a child's own questions about the natural objects around him, and concerning the natural phenomena of everyday occurrence. The unspoilt, healthy child is keenly alive to the awe and wonder of the ever-changing face of Nature; and if left alone will himself make scientific attempts to answer his own unending "whys?" He, at least, like primitive men, finds the orderly recurrence of natural events overpowering. Though, to us, because a mistaken system of school training has led us to take them for granted, they may seem "flat, stale, and unprofitable."

If, as is still sometimes the case, science is merely regarded as a subject or subjects on the school time-table, to be learnt much in the same way as others on which questions have to be answered in examinations, even if it is studied in a separate room and involves, as the bored schoolboy once remarked, "trying to do strange things one doesn't understand, and writing an account of results one does not obtain," it has neither a moral nor an intellectual value, and may with advantage be banished from the school forthwith.

The child's intelligent introduction to natural phenomena, that is, his study of natural science, begins in the nursery. In these early days every child is by nature a scientific investigator. If unthwarted by un-intelligent grown-ups, he will spend most of his healthy waking hours performing scientific experiments; at first studying unceasingly the form and texture of the objects around him; later, when natural locomotion has become easy, he shows himself an intrepid explorer, jeopardising life and limb cheerfully, without

a thought of anxious mothers; and, later still, propounding a never-ending series of questions to nurse and parents—questions, alas! which generally remain unanswered because those in immediate authority have not the wits to answer them. "Why does the wind blow?" "Where do the colours of the rainbow come from?" "Why does it rain some days and not on others?" "Why do leaves fall?" and many others of a more intimate and embarrassing kind.

And this inquiring attitude of mind, this intelligent curiosity, is brought by the child of sensible parents with him when he arrives at his first school. It is the function of science in the curriculum to foster, develop, and to methodise these natural propensities. While encouraging and conserving the alert interest, the spontaneous enthusiasm, and the persevering willingness to take pains, it is the teacher's business when school is reached to train the child to attempt the solution of problems one at a time; and out of the fulness of a larger experience, and from the results of endeavours with many other children, to see that questions for study and experiment are presented in the order of normal human development; proceeded with carefully and systematically; and that the child is trained to record in some way the results arrived at.

As Huxley said, "Science is nothing but trained and organised common sense, differing from the latter only as a veteran may differ from a raw recruit."

The young child concerns himself at first wholly with things; it is much later that he becomes obsessed with words, and, too often spoilt by "the letter that killeth," he turns frequently from the fair face of Nature herself to poor accounts of her beauty which he finds in books. So, too, in these early stages the child learns almost wholly by doing; and, as we shall see more fully later, forms few, if any, lasting impressions from what he is told.

But there is nothing new in all this. The heuristic method, which has had so profoundly beneficial an influence on the teaching of science, for such is the method I have outlined, was advocated—though without any specific name—by Rousseau. In his "Emile," he says:—

In general, never substitute the sign for the thing itself save when it is impossible to show the thing; for the sign absorbs the attention of the child and makes him forget the thing represented.

And in another place:—

Make your pupil attentive to natural phenomena, and you will soon make him curious; but, in order to nourish his curiosity, never be in haste to satisfy

¹ From a recent lecture to parents and teachers.

it. Ask questions that are within his comprehension, and leave him to resolve them. Let him know nothing because you have told it to him, but because he has comprehended it himself; he is not to *learn* science, but to *discover* it. If you ever substitute in his mind authority for reason, he will no longer reason; he will be but the sport of others' opinions.

The method of science is simply the plan of asking intelligent questions, trying to answer them by experiment, and when you are sure you have *really* got the answer to your question, not allowing anybody to persuade you that what you have proved is wrong; for are you not able to reassure yourself by a repetition of your work that you are right? It sounds so simple. Yet, so far as I know, it is just honestly doing this that has enabled men of science to harness the lightning; to release "the bottled sunshine" of the coal seam; to assuage pain; to annihilate space; and to accomplish the wonders which have made the nineteenth century for ever glorious.

The science teacher is not concerned very much with the number of scientific facts which the pupils manage to store up; if he succeeds in introducing his classes to the method by which the imposing fabric of scientific knowledge has been built, and in giving his boys and girls personal experience of the joy of discovering something for themselves, he will have implanted a seed, the fruit of which will in future days be intelligent work in the spheres they will be called upon to fill.

Science in its first stages is in good schools usually—and may well be—some form of nature study. It should be broad as Nature herself, quite incidental in character, and designed throughout to encourage open-eyed, first-hand observation. Of course, those of us whose duty it is to go into many schools and to hear these early lessons given know that sometimes it is far from being anything of the sort. Even to-day nature study lessons are given in the absence of any natural object whatever, and children are bored to distraction by hearing about plants, animals, and phenomena they have never seen or experienced. The picture or the book usurps the place of the object. This procedure is science falsely so called. Such lessons are worse than useless. They give the lie to the scientific method and they misuse valuable time which could be profitably employed in a thousand ways.

A course of nature study, earth knowledge, natural history, call it what you will, may, when given by a teacher who knows his business, begin anywhere, and be made to develop into a soul-inspiring course of work, which will bring untold benefits to the children. The important thing is that the chil-

dren do the observing, ask the questions, and learn to record what they see—whether by simple drawing, by word of mouth, or in writing. Evidently to do this they must, if in a classroom, each have the object itself under observation, and if in the open air be face to face with what is being studied.

Another point of importance must be mentioned before we go on to the next stage in the science work of schools. In the talks and discussions on animal and plant life, the form and character of the earth's surface, weather observations, or what not, the language used must be such as the children can understand. Technical terms, which give so false an impression of knowledge, are out of place, and generally hide ignorance. Teachers too often forget that to name a thing does not take one very far towards understanding it.

The time soon comes when, if the school is to do its best for the child, the study of the scientific method must become more formal. At about the age of thirteen—the age will vary with different children and in different grades of schools—some change is desirable. The work must now become more methodical and more formal. Definite laboratory work is now introduced, and a course of elementary physics and chemistry may well occupy the time available for science, during at least the next two years. It is outside my object to refer in any detail to the subjects which may be included in this course. But throughout it must be remembered we have to inculcate a method and only incidentally to impart facts. We have to teach how the man of science plans an experiment to answer a question, and how, when alternative solutions to a problem present themselves, he puts each to the test of experiment before he decides upon the proper explanation.

And just as we found it important to ensure that interest was aroused and maintained during the early science work of the school, so in this laboratory experience every care must be taken to avoid monotony and banish listlessness. Enthusiasm for science has been killed before now by making young boys and girls continue *ad nauseam* a series of measurements of length, area, and volume in the physical laboratory. This work more properly belongs to the mathematical class-room, and assists only in an indirect manner what we have seen is our main aim—the inculcation of the scientific method. The teacher must have his finger on the pulse of his class always and be able to judge to a nicety when some modification of procedure, some readjustment of the point of view, some variation in the method of approach, is desirable. We want this work to be a triumphal march towards

a complete appreciation of the method which, in the hands of its present-day exponents, is fast solving Nature's riddles and harnessing her forces to Man's use.

We will suppose that the science teacher has been successful and that, at the age of 15 or 16, the boy or girl *does* understand the meaning and significance of the scientific method; has become familiar with experimental research, and knows how to eliminate sources of error, and to draw legitimate conclusions. What should be the course of the work now, if the pupils are fortunate enough still to have two years of school life before them? Now is the time for some measure of specialisation. In every department of human life and work the discoveries of science have in the last fifty years worked revolutions; revolutions in the world of thought, in manufacture, transit, communication, everything; and it is desirable that our children should be given at least a glimpse of what we owe to men of science.

We may now ask: What is, in favourable circumstances, the outcome of the preliminary course of observational work in nature study or earth knowledge? We have urged that here we must insist consistently that there must be personal contact with the actual objects, which are the subjects of study; that the child himself shall do the observing, and that his record shall be of what he himself has seen and found out. From the beginning, in other words, we are encouraging self-reliance. The inference is at the outset that the important thing to the pupil is what he himself sees; not what others tell him they see. This procedure engenders just that amount of rivalry which is healthy. The desire to miss nothing, to find out for himself as much about the specimen as any member of the class, leads the pupil to use his powers for all they are worth, and at the same time leads to alertness of mind and body. And then there is the record: the pupil feels he must see things as they really are, because he has to show, by drawing, the essential characters of the specimen, and to write down an account of his observations. Surely this will teach the child the duty of a strict adherence to fact, which is another way of saying he will become by habit truthful and honest.

An equally important outcome of these nature studies is the interest to which they give rise. Boys and girls who have had the good fortune to be introduced to Nature by some sympathetic and well-qualified teacher have come so to love plants, animals, and inanimate nature that they never cease to study them. And what an endowment for later life this is! For most of us the dark days come; for too

many of us, alas! life's experiences are usually drab-coloured; and for none of us is everyday existence so roseate that we can dispense with the joy and solace to be found from communion with Nature in her thousand moods.

This habit of careful observation, followed by a record as accurate as it can be made, will be strengthened by the science work which, as we have seen, will occupy the years during which the child is in the middle school. In all the examples of simple experimental research with which the pupil is engaged the good science teacher is always—though the children do not know it—a moral instructor. Measuring and weighing are daily exercises, and, naturally and unconsciously, exactness in deed and statement becomes an ingrained habit. The boy and girl come to loathe expressions "*about* so and so," which they recognise always as indications of laziness, because, by the expenditure of trouble in careful measuring, they know an accurate estimate can be given.

Again, before an experiment can be devised in order to answer some question which has presented itself in the development of an argument, a plan of campaign has to be decided upon. The invitation of the teacher to his pupils to make suggestions calls for intelligent thought on their part. Initiative is encouraged; resourcefulness grows; and the pupils learn—since they find their proposals adopted—to value their own ideas. Many times the suggestions made prove unworkable or unsuitable, and other expedients have to be tried; and in this way patient perseverance is engendered. And all the time grows the belief in the value of trying to solve problems for oneself—and the experimental plan is inculcated.

I have spoken of the failure of experiments. These failures are welcomed by the experienced teacher as pregnant with possibilities. In tracing the reason of the failure, the need for orderliness can be insisted upon, the need for fastidious attention to details be emphasised, and care in deciding upon suitable quantities pointed out. Every event in the laboratory is, in fact, brimful of opportunities for assisting the building up of the strong, well-equipped mind and character. Where can a wise economy be better taught? Economy in common things as well as the more expensive, economy in the use of gas, the electric current, water, and all those commodities of which the carelessly educated mortal is so prodigal.

Of the next result of good science teaching I wish to speak very emphatically. I mean precision of statement. So closely related is this to veracity and honesty, that I am often

staggeringly surprised with the kind of oral and written descriptions of experimental work which teachers will allow to pass muster. Clearness of statement is usually indicative of clearness of thought and complete understanding; while the muddled and ambiguous description generally reflects mental chaos. Incidentally, too, it leads to a good literary style, for surely pellucid expression, strengthened by accurate diction, ensures a measure of grace in what we write.

This experimental work on research lines when properly carried out is, from start to finish, a following out of logical argument. One step follows another naturally. Truth is established step by step. The establishment by experiment of one conclusion opens up another inquiry, and before long the pupil realises that by his work he is, as it were, forging a chain, the links of which he has himself tested, and the strength of which he knows cannot be doubted. Unconsciously, he becomes a logical thinker who proceeds by habit from cause to effect. Day by day he is testing evidence and comes before long to believe only when he has legitimate cause for belief. He desires always a reason for the faith that is in him. Boys and girls who at school learn in this way how to test evidence and examine the grounds on which generalisations are based, grow into men and women who adopt the same methods in their social and communal relations. The appeals of specious politicians, plausible advertisements, raging and tearing propagandists are one and all subjected to searching criticism similar to that which one man of science gives to the conclusions of another. For they have learnt, as Huxley pointed out, science warns us, "that the assertion which outstrips evidence is not only a blunder, but a crime."

The science teacher is able, if he is successful, to impress upon the minds of his pupils the nobility of science. The history of science teems with instances of lives nobly spent in the pursuit of truth. The pupil will, under the guidance of his teacher, be inspired by the lives of self-sacrifice lived cheerfully in obscurity; by the records of patient endeavour, far from the lime-light of popular esteem, to wrest her secrets from Nature; by the honest, unceasing application to the search for truth for her own sake by men who themselves reaped no material benefit, and often, alas! were rewarded only with contumely. He will hear, with throbbing heart and pent-up emotion, of great men, head and shoulders above their fellows in knowledge and attainments, declaring, despite their wisdom, that, compared with what there is still to be found out, their

accomplishments were but pebbles picked up by the ocean of truth!

Valuable though this acquaintance with the scientific method is, and impossible though it is to educate our children satisfactorily if they are never introduced to the triumphs of science, I must repeat, in conclusion, the man who knows science alone cannot be an educated man. Wisdom is greater than science, greater than literature, greater than art! Wisdom knows them all and admires them and every department of human thought and work. Wisdom bestows "sweetness and light," and it is the wedding of sweetness and light which results in the educated person. We have to arrange our curriculum so that boys and girls are introduced in due season to the best which has been done and thought by the great host of mankind which has come and gone before their sojourn here. Our children must be given opportunities to discover the direction in which their own special aptitudes and genius lie, and they must be encouraged to put their talents out to usury, which, being interpreted, means they must be taught to recognise the direction in which they may with advantage specialise. But equally important is it that they shall know enough of the subjects which do not make the same special appeal to them, so that they can appreciate and sympathise with the work of others, and recognise it as equally worthy with their own.

When we have accomplished this there will be no more battles between the ancients and moderns, or between humanists and realists; we shall all be worshippers in the great temple of human knowledge, even though we find ourselves prostrate before different shrines!

PERSONAL PARAGRAPHS.

THE death is announced of Mr. Tom Gallon. Comparatively few people remember that Mr. Gallon began life as a schoolmaster, and it is now many years since he gave up work of that kind. One of his colleagues writes: "Even then he struck me as a man of strong character and striking individuality, yet possessed of a deeply sympathetic nature. Some years later he embarked upon the stormy sea of letters; after the usual buffetings associated therewith, he succeeded in gaining a foothold on the shore of success with the publication of 'Tatterley,' which was favourably reviewed by the critics and eagerly read by the public. Henceforth he became a most prolific writer, too prolific in fact, but he probably found that he was working against time, for his health, always poor, was now failing. From time to time he

was to be found shining in literary circles, but for the greater part he lived a secluded life. It was, I believe, his indomitable pluck and the unceasing devotion of his sister that really enabled him to live so long."

* * *

THE death of the Rev. Douglas Lee Scott, headmaster of Mercers' School, occurred on October 29th, after a few days' illness. Dr. Scott was educated at Christ's Hospital and Peterhouse, Cambridge. He was for two years headmaster of Spalding Grammar School. He then came to London as a master at Aske's School, Hatcham, where he remained until he became headmaster of Mercers' School in 1879. Dr. Scott was a member of the Council of the College of Preceptors and a member of the Incorporated Association of Headmasters; it is not too much to say that he was beloved by his pupils, among whom, at the time of his death, were sons of those who had been educated by him.

* * *

THE death of Samuel Frank Edmonds, son of the Rev. T. S. Edmonds, of Foxton Vicarage, Leicestershire, occurred on September 25th in British East Africa. He was killed in a plucky fight, which took place on the Magedi River between a squadron of the British East African Mounted Rifles and a German force of greatly superior numbers. Mr. Edmonds was educated at Oundle School, where he reached the sixth form. He left Oundle in 1898 with an exhibition for Sidney Sussex College, Cambridge, where he took a first class in the Natural Science Tripos in 1901, and was elected a scholar in that year. His fourth year was spent in studying engineering subjects. Whilst at Cambridge he represented his College in cricket and football and rowed in the First Lent boat. He went to Bradford Grammar School as a master in September, 1902, and stayed until Easter, 1904, when he left to join the civilian staff of the Royal Naval College, Osborne. He was transferred to Dartmouth on the opening of the Royal Naval College there in September, 1905, and was made senior master in 1911. He left Dartmouth for Harrow at Christmas, 1912. Three months later he left England for the British East African Protectorate, with the intention of satisfying a desire for a more active life, which had been growing with him for some time. Mr. Edmonds was a man of wide culture who had read extensively in many subjects. In particular he was strongly interested in the social, political, and educational questions of the day. His early death will be deeply regretted by his many friends at Dartmouth, Osborne, and Harrow.

THE directors of Merchiston Castle School have appointed Mr. Cecil Stagg, a master of Marlborough College, to be headmaster, in succession to Mr. George Smith, who recently became headmaster of Dulwich College. Mr. Stagg, who was educated at Clifton College and Caius College, Cambridge, has been at Marlborough since 1905.

* * *

MR. H. A. CLAYBORN, a master at Cleckheaton Secondary School, has been appointed headmaster of the same school. Mr. Clayborn, who graduated in science at London University in 1907, and obtained the Teachers' Diploma in 1908, was a master at the Abbey Street School, Derby, from 1900 to 1904, at Raine's Foundation School from 1904 to 1906, and at the County Secondary School, Crewe, until 1909, when he went to Cleckheaton.

* * *

MR. W. A. T. JARRETT, house master and mathematics and history master at Wolverley School, near Kidderminster, has been appointed headmaster of Chard. Mr. Jarrett, who was at Denstone College as a boy, is a member of the Historical Association and of the Mathematical Association.

* * *

MR. W. K. RHODES, French master at Moorlands School, Headingley, has been appointed headmaster of Moor-Allerton School, West Didsbury.

* * *

A NUMBER of statistics have appeared relating to the representatives of various schools in the Army and Navy, but the basis is so varied that no comparison is possible. One master, who has joined as a private, found that his officer was a boy who had not been out of his form for more than a year and a half. ONLOOKER.

HISTORY AND CURRENT EVENTS.

DUNKIRK, Calais, and Boulogne have during the past month assumed a prominence from the English point of view such as they have not occupied since the days of Napoleon. The Germans, foiled in their efforts to capture Paris in the west and Warsaw in the east, have made their main objective the seizure of the Channel ports as a base for the invasion of Britain. They recognise, as Napoleon did in his later days, that Britain by reason of her position and her resources is the key of the hostile alliance. So long as Britain commands the sea, draws new armies from her Dominions, furnishes fresh supplies of arms and ammunition, and raises inexhaustible loans, no successes over France and Russia (assuming that they are attainable) can be decisive of the issue of the war. With the Channel ports in her possession Germany could, by means of aircraft, mines, and submarines,

hope so to impede the action of the British Fleets in the narrow seas as to make the transport of a large invading army practicable. Britain's insular position is far less a guarantee of her security now than it has ever been in previous wars.

OF the three ports at which the Germans have been aiming Boulogne is the one which to Napoleon in his day seemed most suitable for a base. Its harbour accommodation is the best fitted for the equipment of a large fleet of transports. Napoleon had the harbour enlarged and improved; he collected in it 2,000 specially constructed vessels for his troops and their armaments; in neighbouring camps he assembled "the army of England," a force of some 150,000 men. He could not, however, secure as against Nelson and his colleagues that twenty-four hours' control of the Channel which was all he asked for.

CALAIS, until some forty years ago the French spent a couple of million pounds on harbour development, was impossible as a naval base. At low tide it stood almost high and dry, or at best an oasis amid swamps. Even at full tide it could receive no ships that drew more than 18 ft. of water. Hence, in spite of its nearness to the English coast, it has played but a small part in schemes for the invasion of England. Only once has a would-be invader made it his headquarters. That was in 1692, when the exiled James II. waited there with his train of followers hoping to hear that the French Fleet had cleared the way for his return to his kingdom. His hopes were dashed to the ground by the news of the battle of La Hogue. The harbour improvements of 1875 and the following years have made it for the first time a formidable naval base. If the projected Channel tunnel from Calais to Dover had been constructed, no matter how many precautions had been taken against its use for military purposes, it would have been a position of most serious menace to our safety.

DUNKIRK, if it were to pass into German hands, would play in the twentieth century a part very similar to that which it played in the seventeenth century when it was in Spanish hands. In war time it was a haven for the enemy's ships, and even in times of nominal peace it was a nest of privateers and pirates who made havoc with English merchantmen. The records of the period are full of stories of the depredations of the "Dunquerkers," and of appeals to the Government to take strong action respecting them. Hence it was with a profound sense of relief that the country received the news in 1658 that Cromwell's soldiers, operating with the French, had conquered and occupied the pestilential port. The transference of Dunkirk to the French by Charles II. in 1662, in return for a payment of five million francs, was an unpopular act which had a good deal to do with the fall of Clarendon, to whose policy it was attributed. The French, as soon as they had got it, fortified it, and during the War of the Spanish Succession used it to hamper English operations in the Low Countries. Hence one of the terms of the Treaty of Utrecht in 1713 was the reduction of Dunkirk to the condition of an open seaport.

THE presence of Prince Ruprecht of Bavaria among the German troops who have been striving to hack and blast their way through the lines of the Allies to the Channel ports and England recalls the interesting fact that this young man—whose proclamations breathe an extreme detestation of the English—is the heir-presumptive of the Stuart claim to the English and Scottish crowns, according to the Stuart theory of the divine hereditary right of kings. Nine generations of his ancestry carry him back to Charles the First of England. Charles's daughter, Henrietta, married Philip of Orleans, brother of Louis XIV. of France. Their daughter, Anna Maria, married Victor Amadeus II. of Savoy, and from them sprung a numerous progeny, the senior male representative of which is now this Bavarian firebrand. This Orleanist-Savoyard-Bavarian line of the Stuarts inherited the visionary Jacobite claims to the British succession on the death of Henry Stuart, the so-called "Cardinal of York," grandson of James II., in 1807. This Henry Stuart had taken orders in the Roman Catholic Church on the failure of the 1745 rebellion. On the death of his brother, the young Pretender, in 1788, he had proclaimed himself "Henry IX., King of England, by the grace of God, but not by the will of men." He made no effort, however, to disturb the Hanoverian Government, and George III. recognised his amiability by granting him in 1800 a pension of £4,000 a year. Prince Ruprecht of Bavaria is not at the moment so well disposed towards George III.'s successor on the English throne, and perhaps that curious political coterie, the "Legitimist Jacobites," who still profess to remain true to the Stuart traditions, may begin to feel some doubts as to desirability of a Stuart restoration in existing circumstances.

ITEMS OF INTEREST.

GENERAL.

THE annual meetings of the Incorporated Association of Assistant-masters in Secondary Schools will be held on Friday and Saturday, January 1 and 2, 1915, at University College, Gower Street, London, W.C. There will be two sessions of the council on the first day and one on the morning of the second day, and the general meeting of the association will be held on January 2, at 2 p.m. It has been decided that, in the present state of public affairs, not to hold the usual annual dinner.

THE Teachers' Registration Council has considered the position of teachers who are temporarily absent from school work and engaged in various ways with the forces. In order that such teachers shall not be penalised if they desire to become registered it has been decided that the period of experience in schools which is ordinarily required as a condition of registration shall be reduced by a period equivalent to that which the applicant has devoted to service during war time in the Army, Navy, Reserve Forces, Ambulance, or Nursing Service.

THE Education Committee of the London County Council has considered the desirability of insuring

against war risks the council's educational buildings and exhibitions, and it has been decided to take no steps in this direction.

THE outbreak of war had a great effect on the number of new students enrolled for the winter session of the Manchester School of Technology. No fewer than 557 of last year's students of the school are now serving with the forces. There was a reduction of 39 per cent. in the enrolments compared with those of last year, but an appeal to those unemployed through the war to devote some of their leisure to study has had a good effect.

TWO meetings of the London branch of the Parents' National Educational Union will be held during December. The first will be on Tuesday, December 15th, at 3 p.m., at 133, Queen's Gate, S.W., when Miss M. Frere, of the L.C.C. Education Committee, will lecture on the care of the child in school and out. The second meeting will be on Tuesday, December 22nd, at 3 o'clock, at Lindsey Hall, The Mall, Notting Hill Gate, W., when Sir Edward Cook will lecture on why Britain is at war.

A PAPER on the geography of the war was read by Mr. Hilaire Belloc before the Royal Geographical Society on November 9th; and as a statement of effects of accidents of physical features of the earth's surface upon military operations it is of interest to teachers of geography and history. Mr. Belloc pointed out that geography affects war in two main aspects—(1) the provision of lines for advance and retreat; (2) the provision of obstacles more or less transverse to such lines. The geographical conditions establishing a line of advance on land are of two kinds, (a) the river valley, (b) the defile. It may be asked whether modern conditions have not modified this primitive and universal statement. The answer is that it has been but slightly modified even by industrial activity. Over the greater part even of Europe the river valley is the principal line of advance, and the defile is the secondary condition of a line of advance. Over the rest of the world the rule applies absolutely.

THE main natural obstacles in land warfare are, in order of their importance as obstacles, the river, the forest, hill country, the desert, and the marsh. Strategically the offensive uses the obstacles to retain the advance of an enemy. In the present war in France and Belgium the strategical examples of lines of advance include one main river valley—that of the Oise—and a linking up of various valleys—the Oise, Sambre, Meuse—the Moselle, Meuse and Aisne each with their defiles forming the attachments between the various branches of the system—the defiles east of Liège, at Longwy, etc. The river as a strategical obstacle is very rare; as a tactical obstacle, common. The examples in this campaign: the Sambre, the Ourcq, the Marne, the Sonne, the Yser. Hill country appears strategically in the effect of the Ardennes compelling the mass of the German advance to pass south or north of it. It appears also in connection with the Vosges, isolating action to the south and to the east. There are no other hills strategically appearing, but slight rises appear in one great tactical instance, the

defensive line from Noyon to the Argonne. The forest appears strategically in the Ardennes and in the Vosges, but, in a far more interesting fashion, in the Argonne. The Argonne hampers the whole German scheme in the east—its clay soil, the rarity of its defiles, and the way in which it covers the great fortress of Verdun. The desert does not appear at all, and it is unlikely to appear in the campaign as a whole. Marsh has unexpectedly played a great rôle, not strategically, but tactically, in one episode at the marshes of St. Gond, and in another much more important episode upon the Yser.

THE annual conference of the London Teachers' Association was held on October 31st. In the course of his inaugural address, the president, Mr. G. D. Bell, said the war had curtailed some of the activities of the association, but in other directions they had increased in an unlooked-for manner. The association has been appointed an independent sub-committee of the War Refugee Committee to find suitable accommodation for Belgian refugees. In addition a large number of teachers have come forward with offers of hospitality. Mr. Bell expressed the sympathy of the association with the Belgians in their time of trouble, and expressed the hope that it would not be long before they were restored to their country and peace. In connection with this great war, he said, they ought to congratulate themselves on the ready response which the teachers of London have made to the call of the nation. More than a thousand of their men have volunteered for service at the front. The association has instituted a fund for the relief of distress, and contributions to the National Relief Fund amounted to more than £2,600 within a period of two months. The Belgian Relief Fund has reached a total of more than £400, and that money is being used and disposed of in the work which has been undertaken in finding suitable homes for the refugees.

THE officers of the Geographical Association inform us 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 of either sex who have had experience in teaching geography, and who possess an adequate knowledge of it. Applications for the studentship should be sent to the hon. secretary, Geographical Association, 40, Broad Street, Oxford, not later than February 7th, 1915. 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. In general, nine months will have to be devoted to the work of the studentship. A report on the work done as Gilchrist student must be submitted. If this is held worthy of publication the trustees will be prepared to contribute a sum of not more than £10 towards the expenses thereof. The student shall sign a declaration that he or she intends to continue to be a teacher of

geography for not less than two years after the expiry of the studentship.

THE report on the work of the Department of Technology of the City and Guilds of London Institute for the session 1913-14 has now been published. Commenting on the general character of the work of candidates in the examinations conducted by the Department, the report states that the examiners have again to direct attention to the difficulty that simple mathematical calculations present to many candidates—a defect which can only be attributed to insufficient preliminary training. The power of drawing clear and sufficient diagrams should, they point out, also be encouraged so far as possible; such diagrams at once make evident the candidate's knowledge of the subject in question, and save lengthy and possibly difficult descriptions in words. Before commencing, therefore, the distinctly technical part of their course of training, students should be further encouraged to attend schools, where provision is made for the teaching of English and practical science, and for regular and systematic instruction in some form of handicraft. Indeed the managers of all technical schools would do well to require intending students to pass an entrance examination in these preliminary subjects. Where candidates for admission fail to pass such an examination, or to produce evidence of having acquired the necessary knowledge, they should be advised to attend suitable courses of lessons before commencing their trade instruction.

THE following numbers will serve to give an idea of the extent of the work accomplished in the technical classes in connection with the Department of Technology. At the last examinations, 23,119 candidates were presented in technology from 467 centres in the United Kingdom, and of these 14,570 passed. These figures show an increase of 1,241 in the number of examinees and of 952 in the number of those who passed. By including 753 candidates from India, from the overseas Dominions, and from other parts of the British Empire, 998 candidates for the special examination in magnetism and electricity, held by arrangement with the Postmaster-General, 67 for special examinations in cookery and needlework, and 1,839 for teachers' certificates in manual training and domestic subjects, the total number examined was 26,776.

INTERESTING statistics as to the provision of secondary education in Bradford are included in the report of the City Education Committee for the twelve months which ended on July 31st last. Bradford has thirteen secondary schools with 3,692 pupils—1,911 boys and 1,781 girls. The ratio of secondary-school pupils to the population is nearly 12.8 per 1,000, and may be regarded as high. The thirteen secondary schools are on a two-grade plan. The eight municipal schools are outgrowths of the elementary schools, and have, for the very large majority of pupils, a leaving age which is now between fifteen and sixteen. The two grammar schools, both great in size and reputation, have a much wider range of age. The Board of

Education grant for secondary schools received for the school year ending July, 1913, amounted to £8,876, being an increase of £797 on the previous session.

THE report makes it clear that in Bradford the agreement binding parents to keep their children at the secondary school until the end of the school year in which the age of fifteen years is attained is now working satisfactorily. The results are greatly to the advantage of the children, both directly from the longer education secured, and indirectly through the consequent improvement in the schools. The majority of the pupils are now in the schools for three or four years, whereas formerly many attended only for a year or two and left often at the age of fourteen. It is gratifying to note that the average age of leaving has gone up at least a year. The first result of these agreements was, as naturally expected, a fall in numbers. This fall has been gradually balanced by a longer school life. The total number of pupils in the secondary schools of Bradford is now greater than in any past year. The entry to the schools is mostly between ten and twelve years of age.

WHICH is the correct spelling, Liège or Liège? The termination *-ege* used to be pronounced with the "close e" (which is often represented by *é*), as was the case with *-elle* and *-ere*. In the course of the eighteenth century the pronunciation with "open e" (often written *è*) became common, but the sixth edition of the dictionary of the French Academy (1835) gave *collège*, *priviège*, etc., as the correct spelling of these words—apparently an attempt to reinstate the older pronunciation. In its seventh edition (1878) this was abandoned, and the words were spelled with *-ege*, in accordance with the universal usage in standard speech. This is also found in the geographical names *Ariège*, *Corrèges*, *Norvège*; in the case of *Liège* the older pronunciation and the corresponding spelling (*Liège*) survived for a long time; but the word has now fallen into line with the other *-ege* words, and the "Liégois" (with acute accent) insist upon "Liège"—the same in pronunciation and in spelling as *liège* (cork). This is the spelling used in "The Statesman's Year-Book," but the "Encyclopædia Britannica" gives *Liège*, which is the form adopted by most of the daily papers and other periodicals since the beginning of the war, though apparently it is incorrect.

THE current number of *Science Progress* contains an article entitled "Vitamines," written by Dr. H. W. Bywaters, which is specially worthy of study. It is not yet generally known, outside the circle of physiological chemists, that the existence has been established beyond all doubt, of an entirely new type of ingredient in our food materials. Until recently foods were classified on the basis of their containing so much protein or carbohydrate or fat, and their nutritive value could be calculated. It is now known that for the food to be of any real value, either in causing growth or in maintaining life, it must contain minute traces of some still unknown constituents somewhat happily termed "vitamines," which enable the re-

ipient to make proper use of the bulk of the food. This article gives a very readable account of the present state of knowledge. An unsigned article defines a programme for the betterment of the position of science workers which will be read with interest by all concerned.

SCOTTISH.

THE rectorial elections for three of the Scottish universities fell to be held this year. Each of the political parties had its candidate in the field, and much powder and shot were expended on their behalf last session. The outbreak of the Great War has, however, here, as elsewhere, stilled the voice of controversy. With one accord the various partisans have withdrawn their candidates, and by acclamation chosen Lord Rectors on imperial grounds alone. Edinburgh gave the lead by electing Lord Kitchener. Glasgow, if possible, was still happier in its choice, for it selected the official representative of our gallant French allies, President Poincaré, himself a distinguished member of the French Academy, a master of arts and a doctor of laws. The election of an alien as Lord Rector has no counterpart in the annals of the university since the early days when students of all nations formed the universities and chose as their Rector the most eminent of their number regardless of race, language, or nationality. Aberdeen's choice of Mr. Winston Churchill is a well-deserved tribute to the man and to the gallant Navy over which he presides.

THE half-yearly meeting of the Scottish Class Teachers' Federation was held in Edinburgh on the 7th ult. The president, Mr. Neil S. Snodgrass, reported that the committee had met with the special committee of the Educational Institute regarding the proposal for an incorporating union of all Scottish teachers. They had not been able to accomplish much as they had no mandate or guidance from their constituents on this question, but he hoped that they might have an exchange of views on the subject that day. During the discussion that followed the most diverse opinions were expressed. Many members were strongly opposed to the disappearance of the Class Teachers' Federation, as they believed it had a special work to perform that could be accomplished by no other body. Others believed that the true solution was to be found in amalgamation with the Educational Institute, whilst another section would sweep aside all existing associations and build up a strong union of all teachers from the foundation. In the end it was agreed to remit the matter to the local associations for their opinion.

At the first meeting for the session of the Secondary School Association (Edinburgh branch) the president, Mr. John Watson, Broughton Higher Grade School, took as the subject of his address, "The Training of Teachers." There was, he said, a concensus of opinion at the present time that the training given in the normal colleges was defective in many respects. In particular the course in practical teaching was neither sufficiently continuous nor sufficiently serious. He thought that the plan adopted in some of the

English training colleges, notably in London, should be introduced, whereby the whole work of education in the schools was taken over by the students, who were responsible for the efficient education of the pupils. It might be said that this plan would sacrifice the pupils for the teachers, but this was precisely what the present system did. Students came out of the colleges certified to be able to teach, whereas the great majority had to learn their business at the expense of their pupils. Under the system advocated by him no student would be allowed to leave the training college until he was capable of handling and managing a class, even though it took him half a dozen years to acquire the power.

At the statutory meeting of the general council of Glasgow University the question of the preliminary examination again came up for consideration. The committee presented a report on the subject, in which they expressed regret that they could not approve of the establishment of an entrance board with the constitutions and powers expressed in the ordinance. They would prefer to continue in power the present joint board until an important authority, such as a Royal Commission, qualified to take a wide and national view of the entire situation, had revised the regulations for preliminary examination. The committee's report was approved by the council, and strong objection was taken to that part of the proposed ordinance which continued Latin as a compulsory subject in the examinations.

At the annual meeting of the governors of the Royal Technical College, Dr. Beilby, chairman, reported that as a result of the diminution in numbers owing to the war, the fee fund would be reduced from £7,000 to £3,000. Far from regretting this loss they gloried in it, because it was a splendid tribute to the devotion and self-sacrificing spirit of their students and staff. Altogether, more than 1,000 students had now joined the Forces, one department alone contributing thirteen commissioned officers. The report showed that there were 669 day students and 4,342 evening students in attendance last session.

THE Board of Education and the Scotch Education Department have issued an appeal on behalf of the Army Council for teachers qualified to give instruction in military drill and physical exercises. The Army Council states that any teacher who can produce a certificate that he is a competent drill instructor and has the necessary personal qualities for maintaining discipline, will, on enlistment, be given the rank of corporal. It is to be hoped that a generous response will be made to this appeal, for the need for instructors is almost greater than the need for men. This is not the time to raise difficulties or to stand on ceremony, but when the war is over it will be the duty of the various associations of teachers to enter a protest against the place assigned to the teaching profession as compared with the other learned professions in the army hierarchy. Ministers, doctors, and veterinary surgeons joining the army are graded as commissioned officers, and teachers as a profession can afford to be content with no less. The point is

raised here, not to give an excuse to any one for not coming forward at this time, but lest judgment should go against the profession by default.

THE Glasgow branch of the Educational Institute has contributed a special donation of £250 to the Scottish Teachers' War Relief Fund, and a similar sum has also been voted to the Fund by the Federation of Class Teachers.

IRISH.

THE Protestant Schoolmasters' Association held its annual meeting on October 31st in Dublin, the president for the year being Mr. Jas. Moore, headmaster of the Masonic School for Boys. A report was presented dealing with the grant of £40,000 embodied in the recent Act of Parliament, but in the absence of the official schedule of regulations for the working of the Act the association passed no resolution. The introduction of a course of manual instruction and practical mathematics as a subject in the Intermediate programme was discussed, and the feeling was strong against it. It was generally held that unless relegated to an entirely subsidiary position, advantage would be taken of it in such a way as to lower the standard of Intermediate education throughout the country. Various resolutions were proposed, the most important of which suggested that for classical honour papers three hours should be allowed and not two as up to the present.

THE Leinster Women's Branch of the Association of Secondary School Teachers held a meeting in October in Alexandra College, Dublin, Miss Cunningham presiding, at which a discussion took place on possible reforms in the programme of the Intermediate Board for different subjects, especially English, history, and geography. An interesting discussion showed that the present syllabus of English, including English composition, English literature, history, and geography, is open to serious criticism, but no practical suggestion for its improvement seems to have found general acceptance. Some members were in favour of including under English more grammar and analysis, and putting history and geography into a separate subject. Others pointed out that this used to be the case in earlier years, and that then history and geography were made tabu by many schools, while there were obvious objections to making history and geography as a separate subject compulsory. The present course seems overloaded, and in some respects the course is unsatisfactory. Unless a student proceeds to the senior grade he learns nothing of modern history, and the geography is unsound, as it nowhere includes a foundation of physical work.

THE Standing Committee of Queen's University, Belfast, has reported to the Senate that an advisory committee should be appointed in reference to the new department of education, including representatives of the County Councils of Belfast, Antrim, Armagh, and Down. This advisory committee would advise the Senate from time to time of the educational needs of these counties. The committee should also include representatives of the Schoolmasters' Association and of the Belfast Teachers' Association.

THE Department of Education in University College, Dublin, announces two courses of public evening lectures on geography for the Michaelmas term and for the Hilary term, to be given in the Lecture Hall, Stephen's Green. The lectures in the Michaelmas term deal with "The Value of Geography as a School Subject in Ireland," and those in the Hilary term with "The Practical Teaching of Geography in Ireland." An Education Society has also been founded in the college under the direction of the professor of education, the intention being to undertake research work into the history of education in Ireland and into other educational questions affecting Ireland. A permanent record of the results of these investigations will be kept, and meetings held from time to time to announce and discuss the progress and results of the researches made by members. Membership of the society is limited to members of the staff of the education department and graduates who have been intern-students in that department, and have obtained a post-graduate qualification in education under the regulations of the National University.

THE Department of Agriculture and Technical Instruction announces that a limited number of science and technological scholarships and teacherships in training will be offered for competition among students of science and technology in 1915. The limits of age are sixteen and thirty on June 1st, 1915. The value of the scholarships is £50 per annum for the associate course of four years, and of the teacherships a maintenance allowance of 21s. a week for the session of forty weeks, and free instruction during the associate course. There will be a preliminary qualifying examination, and a competitive examination held at the end of June in mathematics, experimental science, and drawing.

THE Department has also issued two small reprints in the form of pamphlets dealing with technical instruction as applied to industries which are of special interest at the present time. The first is "Technical Education in Connection with the Irish Woollen Trade," by J. F. Crowley, member of the permanent committee of the Textile Institute on mill driving, and is copiously illustrated by photographs. The other is entitled "The Problem of Small Industries, with Special Reference to Machine Embroidery," by G. Fletcher, the Assistant Secretary for Technical Instruction, also illustrated by photographs.

WELSH.

YET one more item to the score that is mounting up against the Kaiser! Speaking of teachers in English schools, Mr. Pease said "they had his sympathy, not only in the difficult task they had to perform, but in regard to their inadequate salaries. In no other country could better teachers be found." Thus the President of the Board of Education. Mr. A. T. Davies, the Permanent Secretary of the Welsh Department of the Board, said at Llanrwst that among other pressing questions of school organisation, "the position of the assistant-master in the teaching profession must be made as attractive as possible." Mr. O. M. Edwards recently announced that Welsh Inter-

mediate schools were to receive a grant equal to £2 per pupil. In reply to a request from the Association of Assistant-masters that this grant should be earmarked for the improvement of salaries, the information was given that owing to the outbreak of war the grant was indefinitely postponed. This was not surprising—but perhaps it explains the number of teachers who have enlisted! Certainly with the Board of Education in this mood it was a thousand pities that anything should have interfered. At any rate, teachers have come forward well, both as instructors and as fighters, and in many non-combatant ways. Newport teachers agreed to a voluntary levy, estimated to produce more than £20 a month, for the relief fund; Maesteg teachers decided to form a Red Cross Corps, Dr. Bell Thomas consenting to act as honorary instructor. There has been some talk of cookery teachers being required to instruct Army cooks, of whom there was a great deficiency.

THE Welsh university colleges have suffered severely from the war, a large proportion of their men students having enlisted; it is estimated that the University College of South Wales and Monmouthshire will lose £2,000 in fees from this cause. The secretary of the Welsh Appointments Board reports that out of 147 students who had registered with him as candidates for appointments, more than twenty cancelled their applications as they had enlisted; eight of these secured commissions.

IN view of the desirability of obtaining Welsh officers for the Army Corps which Wales is furnishing it is proposed to utilise the existing Officers' Training Corps in the colleges, in a special short course, and that able-bodied and otherwise suitable men from outside should be admitted to participate in this training as officers, to supply the needs of the new force. The college authorities and the Welsh National Recruiting Committee are working together in the matter.

EARLY in the war the War Office applied to the Monmouthshire Education Committee for the use of their new training college at Caerleon for the purpose of lodging German prisoners of war; the application was refused, with the suggestion that the neighbouring industrial schools, which had been vacant for years, would be a more suitable place. The request was not pressed, and the training college was duly opened.

H. E. WHITEHOUSE, a pupil at the Barry Intermediate School for Boys, has gained the £80 scholarship offered by Jesus College, Oxford, for the most promising boy in Welsh Intermediate schools; the scholarship is awarded on the results of the Central Board's annual examination, and Barry School has the splendid record of having taken it five times in six years.

CONSIDERABLE excitement has been caused by the treatment of Prof. Ethe at Aberystwyth. It is, of course, desirable to have all alien enemies safely out of harm's way and where they will be harmless; but that is the business of the authorities, and it is intolerable that crowds should be allowed to drive them away from wherever they may be, or that 3,000 people

should threaten a man of more than seventy, who has won the esteem and affection of his students, and besides is of French extraction, being descended from Huguenot ancestors who fled to Germany for safety! Of course, we know that in Germany on the outbreak of war the crowd was allowed to do practically what it liked with foreigners, but that has nothing to do with the matter.

THE death of Sir T. Marchant Williams, stipendiary magistrate for Merthyr, removes an important figure from the ranks of Welsh Nationalists; his services to the cause were great, especially in the revival and development of the National Eisteddfod; on many minds the most abiding impression will be that of the vigour of his controversial methods. He was a self-made man, who delighted to recall the fact that he had risen from being a mere teacher, while one of his schoolmates had remained a poor curate in North Wales. He loved fighting, and his readiness to engage in strife caused many to be ignorant of the kindness of his nature.

WAR LITERATURE.

By F. J. C. HEARNshaw, M.A., LL.D.,
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University of London.

NOT within living memory has the teacher of history been so much in demand as he is at the present moment. With Europe once more in the melting-pot, and with a conflict raging which makes the greatest of earlier wars seem but a skirmish, everyone is eager to know whence the hideous turmoil arose, and why the nations so furiously clash. *Felix qui potuit rerum cognoscere causas*; hence blessed is the historian who is sufficiently well acquainted with the events of the last forty years of European history to answer the questions with which he is bombarded. Why were Serbia and Austria at loggerheads last July? Why did Russia feel bound to come to Serbia's support? Why did Germany intervene in an Austro-Russian dispute? Why was France involved in this Eastern embroglio? Why did Great Britain join in; why Japan; why Turkey? The war has brought within its meshes not far short of one-half of the human race; almost every great historic problem of modern times has been opened up afresh. The fate of Alsace-Lorraine, of Poland, of Belgium, of the Balkan States is once more in the balance. The destinies of Germany and Austria, of France, Russia, and the British Empire are being decided. The very future of civilisation is at stake. Never has the teacher of history had a greater opportunity to make his influence felt; never has he had a heavier responsibility placed upon him.

If, however, he is called upon to fulfil a difficult duty, he cannot complain that he is left without assistance. For authors and publishers, leaving their ordinary channels of activity, with extraordinary energy and productiveness supply him with war literature.

The Encyclopædia Britannica Company has, with commendable enterprise, issued in book form at the rate of 2s. 6d. each, the articles contained in the recent eleventh edition of the Encyclopædia on all the leading countries engaged in the war; they are invaluable for reference, or as a means for making a rapid survey of the ground. The Oxford University Press, in a

volume entitled "Why We are at War," provides a lucid sketch of the growth of alliances and the race for armaments since 1871, as well as a summary of the events leading to the war and a statement of Britain's case as a belligerent.

Supplementary to this volume come a number of pamphlets written by experts on certain special aspects of the war and its antecedents. The following (published at 2d. or 3d. each) may be specially noted as useful to history teachers: (1) "The Germans," by C. R. L. Fletcher; (2) "Austrian Policy since 1867," by Murray Beaven; (3) "French Policy since 1871," by F. Morgan and H. W. C. Davis; (4) "Serbia and the Serbs," by Sir Valentine Chirol; (5) "Russia," by P. Vinogradoff. The Oxford University Press might with advantage have put some sort of a cover upon these pamphlets.

It is fully recognised at the present day that ideas lie at the root of all historic movements, and nothing is clearer than that this war is primarily due to aggressive Pan-Germanism. The principles of this dangerous mania are to be found in a number of works, most of them written before the war, but unfortunately ignored by Britain in her complacent blindness. Specially illuminating are Bernhardt's "Germany and the Next War" (Arnold, 2s.); Bülow, "Imperial Germany" (Cassell, 2s. net), and Frobenius, "Germany's Hour of Destiny" (Long, 2s. net). An English estimate of the Prussian peril is to be found in the monitory pages of Prof. J. A. Cramb's "Germany and England" (Murray, 2s. 6d. net), while the views of an American scholar who impartially surveys the situation are depicted in Prof. R. G. Usher's "Pan-Germanism" (Carslake, 2s.).

The specific causes of the war are dealt with in an article in the October *Quarterly Review* by Sir Valentine Chirol, whose diplomatic experiences in Berlin and elsewhere make his opinion particularly weighty. They also form the theme of a pamphlet by Sir E. Cook entitled "Why Britain is at War" (Macmillan, 2d.). But first in importance as authorities, and as a means of instruction for the upper classes in schools, come the collections of diplomatic correspondence published for the Government by Wyman and Sons at prices ranging from 1d. to 3d. These consist of the English Blue Book (*Great Britain and the European Crisis*); the Russian Orange Paper, translated; and the Belgian Grey Book. It is expected that the French documents will be published shortly. A statement of the German case, partially documented, prepared for American consumption and translated into American language by the German Foreign Office, is reproduced as an appendix to the Oxford volume, "Why We are at War." It is a valuable exercise for advanced pupils, under their teacher's guidance, to piece together from these sources the puzzle of European diplomacy during the month preceding the war.

As to the history of the opening stages of the war it is far too soon for the teacher to touch it. Several serial publications, it is true, have begun to appear on the bookstalls; but so far they have prudently confined themselves to preliminary matters. The secrets of the War Offices have been too well kept up to the present to allow any satisfactory account of military operations to be written.

Questions arising out of the war are dealt with in numerous pamphlets published by Messrs. Macmillan, Methuen, Cassell, Black, and others. Among them may be noted: "Why India is Heart and Soul with Great Britain," by B. Basa (Macmillan, 1d.); "Neutral Nations and the War," by Lord Bryce (Macmillan, 2d.); "Britain's Duty To-day," by Edward Lyttelton (Francis Collas, 4d.); "War Studies,"

by Dr. John Kirkpatrick (Black, 3d.). The last-named contains a most impressive statement of the case for including military training for home defence in the educational equipment of every young man.

Booklets specially intended for boys and girls are "How the War Came About," by Dr. Holland Rose (Francis Collas, 4d.); "Why Britain Went to War," by Sir James Yoxall (Cassell, 1d.); and "The Children's Story of the War," published in parts at 1d. each, with numerous illustrations (Nelson and Son).

THE PEDAGOGUE'S BOOKSHELF.

(1) *State and County Educational Reorganisation*. By E. P. Cubberley. 257 pp. (New York: The Macmillan Company.) 5s. 6d. net.

(2) *Froebel as a Pioneer in Modern Psychology*. By E. R. Murray. 230 pp. (Philip.) 3s. 6d. net.

(3) *A History of Philosophy*. By F. Thilly. 612 pp. (Bell.) 10s. 6d. net.

(4) *Mentally Defective Children*. By A. Binet and Th. Simon. Translated by W. B. Drummond. 180 pp. (Arnold.)

(5) *The Mental Health of the School Child*. By J. E. W. Wallin. 463 pp. (Oxford University Press.) 8s. 6d. net.

(6) *Nature and Nurture in Mental Development*. By F. W. Mott. 151 pp. (Murray.) 3s. 6d. net.

(7) *Know Your Own Mind*. By W. Glover. 204 pp. (Cambridge University Press.) 2s. net.

(8) *An Introduction to Experimental Psychology in Relation to Education*. By C. W. Valentine. 194 pp. (Clive.) 2s. 6d. net.

(9) *Studies in Questions relating to Eye-Training*. By W. Phillips. (Library of Pedagogics.) 128 pp. (Blackie.) 1s. 6d. net.

(10) *A Schoolmaster's Apology*. By C. A. Alington. 207 pp. (Longmans.) 3s. 6d. net.

(1) IN our own country educational administration has not yet formed the subject of systematic investigation at the seats of learning. There is indeed a chair of educational history and administration at one of our local universities, but, so far as we know, little has yet been done by its successive occupants to justify the latter part of the title. It is otherwise in America. There, quite a respectable body of literature is growing up relating to the public organisation of education. The latest addition to this literature, by Prof. Cubberley, of Stanford University, develops a scheme of State and county organisation for a sort of educational Utopia, "the hypothetical state of Osceola." The work relates, of course, to specifically American conditions, but it takes up problems of general interest, such as the relations of State, county, and district school authorities; the provision of different kinds of instruction—elementary and secondary, vocational and supplemental, higher and professional; the supply of school buildings; the supply and training of teachers, and so on. We should certainly like to see the book paralleled on this side of the water.

(2) Froebel is, we believe, one of the most difficult of writers to expound, and no one is in the least likely to succeed in getting at the real truth about him who is not a sincere sympathiser as well as a discerning critic. Of sympathy without discernment, and of discernment without sympathy, there is enough and to spare in Froebelian literature. Miss Murray is one of the few who bring both qualifications to bear upon the task of separating the gold from the dross in Froebel. We are not sure that she has adopted the best method of exposition. She takes up topic after

topic, tells us what modern psychologists have to say about it, and then shows us how, and to what extent, Froebel had anticipated them. We think it would have been better if she had given us the cream of Froebel in a fresh translation, adding a running commentary. Still, she has done a useful piece of work, and one for which many teachers of young children will thank her.

(3) We make no apology for including in this brief survey of recent pedagogical literature a notice of Prof. Thilly's "History of Philosophy." For the names of Plato, Locke, Kant, Herbart, and Spencer sufficiently attest the close affinity between philosophical speculation and the higher flights of educational thought. And apart from this, many of our readers will be glad to know of a history of philosophy which is not merely a translation (however good) from the German, and is brought down to date, so that the pragmatism of James, the intuitionism of Bergson, and the realism of certain English and American thinkers can be viewed in their historical setting. Prof. Thilly writes clearly; wherever we have tested him he seems to us to make his naturally abstruse subject as simple as possible; and he adopts the sound method of letting successive systems speak for themselves and correct one another.

(4) A translation of MM. Binet and Simon's work on mentally defective children is a very welcome addition to our pedagogical literature. The translation has been done by Dr. W. B. Drummond, already well known for his books on child-study; and a useful introduction is contributed by Prof. Darroch. The value of this work lies in its scientific precision. The authors first classify defectives, and then proceed to give psychological descriptions of each class. They then describe with care the parts to be played by teachers, inspectors, and doctors in the treatment of defectives. Lastly, they discuss what educational and social return can be claimed for the special schools and classes that have been established for defectives in France. In an appendix we are given a translation of the Binet-Simon tests of intelligence, already well known in England and America. To anyone interested in the subject, whether as teacher, or inspector, or administrator, or social worker, we unreservedly recommend this volume.

(5) The scientific supervision of the mentally defective broadens out, in the next book on our list, into what claims to be a new science, that of clinical psychology. Dr. Wallin, the professor of this new science in the University of Pittsburg, gives us, in his work, "The Mental Health of School Children," not indeed a systematic exposition of the subject, but a comprehensive set of papers written at different times and collected from various quarters. He thinks that eventually instruction in clinical psychology will be afforded in all large progressive normal schools and colleges, and that there will be psychological, as well as medical, clinics in the large school systems, for the purpose of classifying the educational misfits. For this work special clinical training is necessary, the ordinary psychologist, or educationist, or medical inspector, being useless for the purpose. The practical outcome of the psychological clinic would be seen in the more scientific classification of children, and in the substitution of individually adapted curricula for the uniform curricula that now prevail. Though Dr. Wallin's book is not a systematic treatise, it contains a mass of material to go on with.

(6) The next book on our list, by the accomplished pathologist to the London County Asylums, is manifestly the work of a busy man, who has been unable to afford time for the systematic exposition of his great subject, "Nature and Nurture in Mental De-

velopment." Still, the book, which is an amplification of three lectures delivered last year, will, we believe, fulfil its purpose of stimulating the reader to further inquiries regarding the respective parts played by environment and heredity in mental hygiene. Dr. Mott goes into considerable detail regarding the correlation of mind and matter, drawing freely upon his knowledge of the brain conditions of the feeble-minded. He also gives considerable attention to neuropathic inheritance in relation to crime and insanity, and here it is cheering to note that he is no believer in Lombroso's theory of the born criminal. Dr. Mott's few notes on sex and education are significant as coming from one who sees both sides of the question of women's higher education. The book is throughout both informing and suggestive.

(7) We give Mr. Glover's little book, "Know Your Own Mind," a high place among the many attempts that have been made to select the leading topics of practical psychology, and to expound them in simple untechnical language. Such books evidently have important uses. They suit the general reader who wants an elementary introduction to the subject, and they suit the teacher who suspects that modern psychology may have something to tell him which is worth knowing, but who feels repelled by the technical treatises. Mr. Glover lays claim to no originality except in the mode of exposition, and in this respect he is both original and effective. For ourselves, we wish he had not been quite so much tarred with the Herbartian brush, though all his materials, from whatever source they are derived, are used with sense and discretion.

(8) To those teachers—and, for better or worse, the number of them is on the increase—who are interested in the application to educational problems of the methods of experimental psychology, Dr. Valentine's book will certainly prove useful. Especially for the class-rooms of training colleges, where elementary instruction in the subject is beginning to be given, notwithstanding the frank hostility of the Board of Education, the book is eminently suitable. At present most of the literature of the subject consists of advanced treatises and learned memoirs. Dr. Valentine provides fare of a humbler character, but very necessary for the purpose he has in view. The experiments he describes do not involve the use of expensive apparatus, and they bear upon the practical problems of the schoolroom, such as economical methods of learning, the improvement of memory, and the acquirement of skill. The book is evidently the work of one who is an experienced teacher as well as a trained psychologist.

(9) What is known as the doctrine of "formal training," and known to some as the *dogma* of formal training, inevitably occupies much of the attention of those who cultivate the theory of education. The upholders of this doctrine believe that mind and body are cultivable in definite directions, and that the curriculum should, partly at least, be designed to secure such cultivation. Evidently this position, if it is to be overthrown, has to be attacked experimentally and in detail. Can the school, for instance, do anything (apart, of course, from taking hygienic precautions) to increase acuity of vision—to make the eye a more accurate instrument than it otherwise would be? Common phrases used in educational circles, phrases such as "hand and eye training," suggest that the school *can*. Prof. Phillips denies this, and works out the reasons for his denial in a series of useful and suggestive chapters. He has, in other words, exposed one of the misleading shibboleths of education. The phrase, "hand and eye training," has a meaning, but not the meaning usually attributed to it.

(10) Mr. Alington writes pleasantly, often amusingly, and sometimes wittily, on the public schools and the Church. Both these institutions seem to him "in an incontestably better state than they have ever been in before," and that is enough for him—enough at least to enable him to go about his work in good heart and in good hope. He states his conviction that "an English public school is the best instrument yet devised for making a decent citizen out of an average English boy." That may be so, but we do not think that Mr. Alington will succeed in convincing anyone who was not convinced before. He partly disarms the critic by confessing that his book is "scrappy and superficial," and that with some trifling exceptions it was written within a week. To be quite frank, we think the confession superfluous. Still, the book will be found entertaining, especially, we imagine, by the writer's personal friends.

BOOKS FOR THE STUDY AND FOR THE SCHOOLROOM.

- (1) *The Country's Call*. Edited by E. B. and Marie Sargant. 32 pp. (Macmillan.) 2d.
- (2) *Tennyson's Patriotic Poems*. 8 pp. (Macmillan.) 1d.
- (3) *An Introduction to the Study of Language*. By Leonard Bloomfield. 335 pp. (Bell.) 6s. net.
- (4) *Anglo-Saxon Christian Poetry*. A lecture by A. J. Barnouw, translated by Louise Dudley. 41 pp. (Nutt.) 1s. 3d.
- (5) *An Introduction to English Medieval Literature*. By C. S. Baldwin. 261 pp. (Longmans.) 4s. 6d. net.
- (6) *Old English Grammar*. By Joseph Wright and Elizabeth Mary Wright. Second edition. 361 pp. (Oxford University Press.) 6s. net.
- (7) *The Renaissance*. By Edith Sichel. (Home University Library.) 256 pp. (Williams and Norgate.) 1s. net.
- (8 and 9) *Dreamthorp*. (Alexander Smith's Essays.) Edited by Prof. Walker. Without notes, 319 pp., and with selections from *Last Leaves*, 1s. With notes, 317 pp., 1s. 6d. (World's Classics.) (Oxford University Press.)
- (10) *Ralph Roister Doister*. Edited by Clarence Griffin Child. 174 pp. (Harrap.) 1s. 6d.
- (11) *Chaucer, Parlement of Foules*. Edited by C. M. Drennan. 94 pp. (Clive.) 2s. 6d.
- (12) *The Faerie Queene*. Book II. Edited by Lilian Winstanley. 294 pp. (Cambridge University Press.) 2s. 6d.
- (13) *Hyperion*. Edited by Margaret Robertson. 102 pp. (Oxford University Press.) 2s.
- (14) *Gray's English Poems*. Edited by R. F. Charles. 108 pp. (Cambridge University Press.) 2s.
- (15) *Tennyson: Poems Published in 1842*. By A. M. D. Hughes. 432 pp. (Oxford University Press.) 4s. 6d.

A NUMBER of most interesting books has been awaiting notice; *inter arma cetera silent*. Yet but two, and those small, deal with war. (1) "The Country's Call" puts together some patriotic verse; it is excellent, pocketable, and could be committed to memory in a week. We are glad to see that anthologists are slowly beginning to make extracts from the Bible. But why, oh why, are the deathless lines of Simonides forgotten? Perhaps our readers may like a lame but appreciative rendering:—

"Of them that died in Thermopylæ
Glorious was the fortune, fair was the Fate.
For a tomb, they have an altar;
For lamentation, memory;
And for pity, praise."

It is to Tyrtaeus and Simonides, as well as to Swinburne and Tennyson that we should look to-day. (2) A penny Tennysonian "Call to Arms," with the significant "Britons, guard your own," is also welcome. Both these booklets should bring home to schools the miracle taking place in our midst to which Mr. Algernon Blackwood has directed notice in the *Westminster Gazette* for October 31st.

(3) The "Study of Language" is a lineal descendant of Whitney, but it lays great stress upon the mental equipment of learner and teacher. No useful handbook to English syntax has appeared; and Weil's "Order of Sentences" is probably forgotten. Prof. Bloomfield has chapters on the physical basis of language, in which he directs attention to much that phoneticians neglect; on the mental basis, on the forms of language, on internal and external changes, on syntax, and on the teaching of language. His phonetic system is sometimes puzzling, and he worries the ordinary reader by references to Chinese and Greenlandish (*sic*); but the great merit of the book is that it insists on the psychology of the nation and of the individual being reckoned with; for, after all, psychology (of which euphony is part) and geographical conditions make up our materials for the study of language. A short bibliography is appended.

(4) A brief reprint of a useful lecture on "Anglo-Saxon Christian Poetry" conveys admirably a sense of the old alliteration and assonance; the history is woven with the language, and the feeling of melancholia so inevitable in our song from Caedmon to Henley is well brought out. These nettings of the straws that are in danger of being swept away ought always to be noticed; we cannot afford to lose a good lecture in the oubliettes of great libraries.

(5) Prof. Baldwin, in his "English Medieval Literature," also has a chapter on the same subject; but his book is more elementary, and is, we are glad to see, full of quotations. The necessity of compression allows him little space for Barlaam, so important to the student, and his statement, *tout court*, that the Grail is a parable of the Mass is needlessly alarming. We wish that someone would do for us a good introduction to the Christian side of the Tier-Epos; ten lines on Reynard are scant measure as compared with three pages given to the dull Bruce. Malory and Gawain are more fully treated, and there is an illuminating comparison between the A.V. diction and Malory's. Even professors do not always know that the true date of our Bible is about 1500. We find here a clear but not fervid appreciation of the all-important Langland, and the chapter on Chaucer might have found room for Longfellow's sonnet, not too well known. But we cannot have everything; and the book may be put side by side with Ker and Schofield, to which it is a very good companion.

(6) A second edition of the "Old English Grammar" of Prof. Wright needs merely to be mentioned; it is intended for quite advanced students, and it runs parallel with Sievers. The authors, for Miss Wright is associated with her father, regret that competent people will not face the drudgery of a Middle-English grammar, much more needed, one would think, than that of the older language, for everyone nowadays can puzzle out the later work; and here it is that our own interesting speech-history begins. The book belongs to a series of grammars, and is one of the not too many linguistic productions which we can offer to our German friends.

(7) Miss Sichel writes in her usual interesting way on the Renaissance. "Men make movements and then it would seem, that the movement, once created, makes the men." This is too simple, for it takes no account of the striking hours. Plenty of movements

have failed to make or find the men; and the objector may say that unknown forces make the movement, the movement, if it be fortunate, finds and takes (not makes) the man, and that then and then alone the movement moves. Very often, as in the Peasants' Revolt, the Armada, the work of Charlemagne, *carent vate sacro*. The Friars failed precisely because the movement found but a handful of men. The little book takes us to Renaissance Rome and Florence, and though for the ordinary reader it is too full of names that mean nothing except to the student, here and there we find a glowing quotation, as in the case of Machiavelli's letter beginning "When evening falls. . . ." Miss Sichel is breezy in her descriptions; Aretino is "the prince of ruffians," and our old friend Cellini "the prince of liars"; but to say that Erasmus looked upon teaching as the highest of callings is to put a halo round that uncardinalled head which it does not deserve. Erasmus praised teaching and loathed it; and Colet was providentially saved from him at St. Paul's, for the boys would have been better off under a Samuel Johnson. The chapter on the English Renaissance dismisses in a line the allegory of the Faerie Queene; one would like to hear the frank opinions of a Catholic of those days respecting Fidessa and the Cave of Error. The author is cautious in regard to the paganism of the times. Pan rose from the dead, and he has no idea of ever dying again; but there is no doubt at all about the beauty, the enthusiasm, the wild energy of Italian ruffianism.

(8 and 9) An edition of Alexander Smith's essays shows that at last this writer is coming into a tardy renown. He belonged to the *avertis*, though the editor, Prof. Walker, calls his life commonplace. The book is well adapted for an introduction to Charles Lamb, that is, if we must treat classics as school-books, for Lamb is infinitely hard. Lowell reads well along with Dreamthorp; but Lowell's "Essay on Chaucer" puts Smith's to shame. The "Lark's Flight" and the "Writing of Essays" have won renown, but we are in doubt about the famous adjective "ghastly"; at any rate the lark was not ghastly. It would be an excellent thing if some competent editor would collect and make a subject-index of important classical essays. How many have been written on dreams, on vagabonds, on a "shelf in my bookcase"? But this comparative way of treating literature is as yet not popular. Still, it is the only way to pigeon-hole one's own private criticism, that most valuable of all criticisms.

(10) "Ralph Roister Doister," like "The Knight of the Burning Pestle," and one or two more, but only one or two more, of the early plays, are worth reviving and editing for schools. Its importance in literature is another matter; and in this edition, to which is attached an honoured name, an attempt is made to combine the fun and the learning. A preface, unusually long and full, supplies all the information needed, and the text and notes are quite enticing. We can see boys and girls delighted to act the play, with a necessary omission or two.

(11) The extremely beautiful "Parlement of Foules" is edited, with an introduction and notes, for the school and for private students. We cannot agree with the editor that it is a pity that Chaucer is best known for the "Tales." The Parlement may have been first in his development, but the earlier work is less unequal than the later, and even more mature in its music and its thought. The section on our debt to Chaucer is very well done; it reads as though it wanted to make people love the "way to al good aventure," and school-books ordinarily fail in this; the very first lines of the poem ought to attract the most careless.

(12) The second book of the Faerie Queene is remarkable for a very full preface, in which the editor deals with all the usual questions; but it is high time that editors should give up talking about Spenser's debt to Aristotle and to neo-Platonism, without ever troubling to explain to the student what they mean. This cannot be done without quotation, and, so far as we know, there is not a single guide in existence that points out exactly, and with apposite quotation for the beginner, what Platonism and Aristotelianism (let alone Plotinism) meant to the Middle Ages. "The Medieval Mind" (H. O. Taylor, 1911) does this; but it is not for beginners, and all the so-called primers on the subject are unsatisfactory. Yet it could be well done, for the beginner, in thirty pages. If Miss Winstanley's preface were a little less learned and did not presuppose a nodding acquaintance with three languages other than English, it would be not better perhaps, but more suitable. In comparison with the preface the notes are nursery work; yet the notes give what is required. The Aristotelian account of the virtues, again, is excellent, but the virtues form but a short part of the Ethics. The same criticism applies to many of our school-books; they are far too learned, and only lead young students to talk about what they cannot understand, one of the very worst faults in our teaching of English. Praise is due to the admirable type and to the careful printing of the Greek extracts.

(13) The mention of type and founts brings us to our next book; we do not know how the Clarendon Press manages to produce these old-world-looking volumes, but the very opening of them is a joy, and it does one no harm to be transported at once to the times of the lyrical ballads and Charles Lamb. The notes to this "Hyperion" seem as if they could have been much shortened, and if, as in the older books, they had been put at the bottom of the page, the effect would have been heightened; this fetish of notes at the end is a schoolmaster's fetish and is modern. What is the excuse for a note like this: "*purge the aether*," "clear the upper air"? Let us have notes, but let them be brief, sharp, and not insulting to teacher and reader. But notes or no notes, the edition in its tidy modest cover is a boon.

(14) "Gray's English Poems" are always worth presenting to the school; it is not fair to judge him or his title to immortality by one poem alone. The notes here are again too long; and we cannot understand the objection to the syntax in the stanza beginning "Perhaps in this neglected spot." The editor tells us that Gray, who did plagiarise, took the phrase, "a torturing hour," from Milton, but does not add that Milton took it from Shakespeare; thus *nostra ante nos dixerunt*. Probably the uninstructed boy and girl at school will prefer Gray's way of looking at nature to Wordsworth's, but we suppose it is heresy to say that for the boy and girl Gray is the healthier of the two.

(15) We may end this list of books with one from an ever-welcome editor, Mr. A. M. D. Hughes. It is as good as the same editor's "Prometheus"; its one-page preface, its variants, its inclusion of the disgusting *Quarterly* article, its scholarly notes, mark it out with Miss Lee's "Paracelsus" as an example of "how it should be done." Moreover, it has, as all editions of poets should have, two indexes, one for titles and one for first lines. We miss one note in Ulysses; no annotator ever troubles to say a word on "I am a part of all that I have met." Mr. Hughes speaks, as all writers do, of Tennyson's own declamation of his poems, and says it was a "thing to be remembered." No doubt; so was Swinburne's; but people who heard are not unanimous in praise. 1842 was a great year, and by its Tennysonian book

alone will be for long remembered; but the student may be told without any offence to the poet that many of the poems are tessellated, and to say that the Epic, especially in its conclusion, is "founded" on Malory is doing a cruel injustice to that masterpiece of prose which Mr. Hughes very rightly quotes. One has only to read Malory's concluding chapter aloud to an audience that knows the Epic to find it realised that Tennyson has definitely "lifted" and doubtfully improved. We wish that Mr. Hughes could be appointed State editor of English classics.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

A French Picture Vocabulary, together with a German Vocabulary. By J. H. B. Lockhart. 74 pp. (Bell.) 1s.—A picture vocabulary is undoubtedly most useful, especially for the teacher who works on reform lines. It is often difficult to explain a foreign word designating a concrete object, and the picture supplies the meaning readily. This was recognised long ago by the Swiss, and Egli's "Bildersaal" is the model of Mr. Mansfield Poole's "Picture Vocabulary," as well as of that before us. The weakness of all three lies in the idea that each picture can serve to illustrate one word only, whereas it may serve profitably to represent several; and the grouping of the objects is not sufficiently careful. We have a typical example on p. 18 of this book. The objects represented are ear, arm, eye, head, tongue, hair, tooth, back, tail, wing, beak, claw. Three pictures would here have sufficed, viz., head (with hair, ear, eye, tongue, tooth, etc.), bird (with tail, wing, beak, claw), body (with back, arm, etc.). Further, it would be useful to add related adjectives and verbs. For the way in which this can be done we may refer to Rippmann's "Picture Vocabulary." The illustrations are by Mr. George Morrow, the clever *Punch* artist, who has done his work very amusingly, but has confined himself to English types; it would have been more instructive if the pupil were shown a French (or German) postman (iv., 9), butcher (vi., 12), policeman (vii., 3), etc. The thirty pages, each containing twelve pictures, are followed by a vocabulaire containing the French words with phonetic transcription, and a Wörterbuch, with the German words and phonetic transcription, and some rather scanty phonetic exercises (French only). All this has been carefully done: misprints are very rare.

Guy de Maupassant, Six Contes. Edited by H. N. P. Sloman. xi+119 pp. (Cambridge University Press.) 2s. 6d.—This is a volume in the senior group (designed for pupils of seventeen to nineteen years of age) of the "Cambridge Modern French Series," of which Mr. A. Wilson Green is the general editor. The stories are varied, some uncanny, others realistic; we regard them as, on the whole, not too well suited for reading in class. This is, however, their purpose; for exercises have been supplied which, the general editor informs us, "follow, in the main, the lines of my exercises on Erckmann-Chatrian's 'Waterloo,' published by the Cambridge University Press in 1909." He adds that "some of the most distinguished teachers of French have expressed to me their approval of these exercises; others have paid them the sincerest compliment in imitating them." We are at a loss to understand what features can be claimed as original in these exercises. They consist of passages for retranslation, questions on the text, and exercises in grammar and vocabulary. We have before us a set of books issued in 1903 with all these

features. The only difference is that in grammar there is "a systematic series of questions on verbs and pronouns," about the value of which opinions may be divided; and the exercises are based on arbitrary divisions of the text, e.g., on pp. 1 to 4, although p. 4 ends in the middle of a sentence, whereas in the older book to which we referred the text is divided into sections according to the sense. The exercises are of average merit; those on the text do not always fulfil the promise in the preface that "they are not of the kind that may be answered by selecting some particular scrap of the text," and they are often scanty. The grammar questions are often of the statistical kind, e.g., "Donnez les terminations des substantifs qui sont masculines sans exceptions," and many seem elementary for pupils who have learnt French for eight or ten years. The text is carefully and clearly printed; the only misprints we have noticed are *am* (for *ma*) on p. 10, *hotel* on p. 89, *nourissent* and *épousette* on p. 91, *préferer* on p. 107.

Till Eulenspiegel. Edited by M. L. Secbohm. 92 pp. (Oxford University Press.) 1s. 6d.—Till Owl-glass, whose merry jests were once almost as popular in the English version as in the original, is here presented as an aid to the teaching of German. Anything is acceptable that adds life and interest to our classes, and this book may be welcomed, especially as it contains good questions on the text and reform exercises. The only drawback is that the text has not been sufficiently modernised. Simrock's version may seem merely quaint to a German child; for our learners the archaic modes of expression are troublesome. It would have been easy to tell the stories in good modern German. The book is well printed; in the *Fragen* we have noted some faulty punctuation. *Kirchtürme* (p. 10) should surely be *Kirchtüren*; *Christoffer* (p. 29) becomes *Christopher* (p. 52); *die Schuhe* (p. 56, B.3) should be *den Schuh*. The strange imperative *liest* (for *lest*) occurs on pp. 59, 63, 64, 67. The book can be obtained with or without the German-English vocabulary.

Classics.

An Introduction to Latin. By J. C. Kirtland and G. B. Rogers. xvi+261 pp. (New York: The Macmillan Co.) 5s.—A well-produced book with good illustrations (chiefly from busts of prominent Roman characters) which turns out to be, not a book to put into a boy's hands to interest him in the Romans before beginning his study of Latin, but an ordinary first-year manual and reader combined. It has its special features, such as careful comparison of forms in accident, careful grading combined with the omission of rare forms, an intelligent use of the help of English derivatives, etc., but the exercises consist of the old wearying disconnected sentences. The reading lessons are adapted from Eutropius, Nepos, and Cæsar. There is a conspectus of grammar, vocabularies and index, and long vowels are marked. The book represents the old methods of teaching at their very best, and those who like the old methods will here find those methods treated in the most intelligent way possible.

The Making of the Roman People. By Thomas Lloyd. vi+136 pp. (Longmans.) 4s. 6d. net.—The first chapter of this little book is the least controversial part of it, and describes the Brown race which occupied the Mediterranean region from the beginning of the Neolithic period. Mr. Lloyd regards the Egyptians and Cretans as a branch of this brown race, and thinks that the European Basques and African Berbers are their modern representatives; but his real thesis is that the Latins were descended from Gaulish clans which, after subduing the Etruscans,

forced their way into central Italy; these Gaulish clans become the Patricians, and the plebeians are the original Brown race. He attempts to support his theory by four chapters on the affinity of Latin and Gaelic with parallel columns of words. In a preface he frankly admits that he does not expect to convince the "middle-aged" classical scholar, but we think that even the young will gasp at some of his arguments, as, for example, at the parallel use of "and" for "when," "even when" or "while" in the following literal English translation of a Gaelic proverb, "Life is precious, as the tailor said, and he running away from the gander," and Virgil's "Timeo Danaos et dona ferentes"! There are misprints on pp. 114 and 123.

Thucydides, Book VI. By Charles Forster Smith. xiii+250 pp. (Ginn.) 6s. 6d.—This is a notable addition to the publisher's well-known "College Series of Greek Authors." The text is that of the Classen-Steup edition (Berlin) of 1905, all variations from which are dealt with in the notes. The introduction gives a lucid exposition of the historical situation, ending with the remark: "But as Thucydides does not accuse, so he does not excuse; he simply mentions the facts." Prof. Smith therefore ends his introduction with two pages of very compressed and very good criticism dealing both with the mistakes of Nicias and the art of Thucydides. The commentary is in double column at the bottom of each page, and is very full. There is also an appendix of some thirty-five pages dealing at length with variant readings and other disputed points, as, for example, an examination of the argument that linguistic peculiarities such as the use of *ὄρις* for *ὄρ*, point to some Ionic source, and so confirm the assumption, probable even on other grounds, that for Sicilian affairs Thucydides used written sources. Prof. Smith's sanity of judgment throughout may well be illustrated by this point, which he will not admit as definite evidence for Antiochus, but only for some Ionic source.

Livy, the Revolt and Fall of Capua. Edited by T. C. Weatherhead. xli+166 pp. (Cambridge University Press.) 2s.

Livy, Book XXVII. Edited by S. G. Campbell. xxviii+218 pp. (Cambridge University Press.) 3s.

Mr. Weatherhead's edition is a selection from Books XXIII.-XXVI., leaving out all surrounding matter in Livy's history as is not closely connected with the central event. The volume is one of the Cambridge Elementary Classics, but the text is Livy's, *i.e.*, it is not a *simplified text*. It is therefore highly preferable. The long introduction gives an interesting account of the Punic Wars, enlivened by quotations from Horace and others in a rather charming way. The notes avoid ready-made translations, and there is an index of constructions and words together with a vocabulary. It is a pleasing volume, with three maps, and should prove useful.

Mr. Campbell's edition is one of the Pitt Press Series for somewhat more advanced students. The introduction deals with the position of affairs in 210 B.C., Livy's sources, and the narrative of Book XXVII., and the campaign of the Metaurus. There is a table showing the distribution of the legions from 210-207 B.C., and an excellent map of Italy. The introduction is somewhat congested, but Mr. Campbell's deductions as to Livy's probable method of work are most interesting and well founded. The notes, as usual, are full, and contain a great store of useful and necessary information, but they are overloaded with much that is unnecessary. We should like to see editors working on the principle of saying as little

as possible—we shall then probably get all that is needed. Textual questions are treated in an appendix, and there is a subject and grammatical index.

Vergil, Aeneid ix. Edited by J. F. Richards. 57 pp. (text and notes) +117. (Lexicon.) (Clive.) 1s. 6d.—This is one of the University Tutorial Press series. Chief of its merits is the introduction, which, besides giving a lucid account of the known facts of Vergil's life, has a simple appreciation, quite intelligible to a schoolboy, of his chief literary merits. The notes are brief and sensible, but marred by ready-made translations. The vocabulary is so overpowering that it is called a lexicon. As the preface says, "it should be useful for candidates preparing for such examinations as the Junior and Senior Locals, College of Preceptors' certificates, and other examinations of the same standard." And yet it might so easily have been useful for something better!

Noctes Latinae. By Walter Madeley. vi+166 pp. (Macmillan's Elementary Classics.) 1s. 6d.—This is a useful little reader, the object of which is to provide boys of about thirteen with a translation book in which they can be interested. There are ten stories adapted from Aulus Gellius, Herodotus, Cicero, and others. "Gemini," which is a prose exposition of the plot of the Menaechmi, is particularly happy; equally good is the story of the man who, with an eye to the main chance, had taught two birds, one to greet Cæsar and the other Antony as victor. The rest deal with Papirius, Arion, Androcles and the lion, Simonides, Damocles, etc. The stories are told in a simple and interesting way, and there is certainly room for a book like this. We have two criticisms to make: long quantities should have been marked, and the illustrations which precede each story should either have been omitted or given a less modern appearance.

English.

Bohn's Popular Library. Vols. 61-80. (Bell.) Each 1s. net.—Eighty volumes have now been published in this remarkably cheap and attractive selection from the famous Bohn libraries. From the twenty volumes just issued we select for mention a few of especial interest. Stewart and Long's translation of Plutarch's immortal Lives appears in two volumes, each of nearly five hundred pages. Munro's admirable prose translation of Lucretius, with an introduction by Mr. J. D. Duff, forms No. 65 of the series. Mr. Hardress O'Grady has prepared a representative selection from Poe's essays and stories, and he contributes an introduction to the volume in which these are now brought together. Miss A. D. Greenwood has similarly prepared a representative selection of letters of that voluminous correspondent, Horace Walpole, and has written an introduction to them. The complete Aldine edition of Keats's Poetical Works, with the newly discovered poems included, forms vol. 68. Cary's complete translation of the Divine Comedy of Dante appeared a century ago, and the revised edition, published in Bohn's Standard Library in 1909, is now included in the Popular Library. Other notable volumes are Coleridge's Lectures and Notes on Shakespeare, Washington Irving's Bracebridge Hall, Sir Thomas More's Utopia, and Lessing's Laokoon. Each volume is a classic in itself, and to have it available at the price of a magazine is little short of marvellous. Every lover of good literature should be grateful to the publishers for their enterprise in providing some of the best works the world possesses at such a modest price.

History.

A Short History of the Canadian People. By Dr. George Bryce. New and revised edition. xi+611 pp. (Sampson Low, Marston.) 10s. 6d. net.—This revised edition of Dr. Bryce's popular history of Canada is practically a new work. It is a quarter of a century since the first edition was issued, and that edition has for some years been out of print and scarce. For this present issue not only has the text been largely rewritten in the light of recent knowledge, but a supplementary chapter has been added bringing the story, as Dr. Bryce claims, "right up to date," while illustrations, mainly of prominent statesmen, have been introduced. Useful appendices give a summary of the *British North America Act*, which established the Canadian federation, a list of important dates, and similar information. In the date list, which is headed "Canadian Annals," it is amusing to find the first entry giving the birth of Solon B.C. 638, while it is almost equally unexpected to discover the "Timæus" of Plato and "Medea" of Seneca among the "Authorities and References" quoted. In point of style Dr. Bryce cannot compare with John Richard Green, whom he has taken as his model; but he has produced an up-to-date record of events which should prove to be of general value.

Peeps at History: Ireland. By Beatrice Home. 92 pp. (Black.) 1s. 6d. net.—Miss Home provides in this book an excellent outline of Irish history. Her text is accompanied by eight full-page illustrations in colour and twenty small sketches. The title given to the series to which this book belongs, viz., "Peeps at History," is not a happy one. Whether a person can profit by peeping at anything is doubtful. Certainly history is not a subject which can be surveyed adequately after the manner of Tom of Coventry.

Preliminary History of England. By M. K. and M. S. Elliott. xviii+310 pp. (Clive.) 2s.—This little sketch of English history is intended for children between the ages of ten and thirteen. In addition to an outline of political events it tries to give some idea of social and constitutional development, and also to connect history with geography. It is clearly written and well illustrated.

A Short History of the Egyptian People. By E. A. Wallis Budge. ix+280 pp. (Dent.) 3s. 6d.—The first six chapters of this concise little volume are devoted to a general survey of Egyptian history from the earliest times down to our own days. Its object is said to be to provide beginners "with a handy introduction to the study of Egyptian history." The result—a mere chronicle of names and events—is rather tedious, and we cannot help feeling that a better "introduction" would have been found in some more general descriptive and less detailed account. It is true that the following three chapters, dealing with the religion and daily life of the Egyptians, are more inspiring and leave a far clearer impression on the mind, but they should have come first and not last in the book. The coloured frontispiece and numerous illustrations are very good indeed. There is a short bibliography, list of kings, and index.

Geography.

The Excelsior School Map of the United States. Scale 50½ miles=1 in. (Bacon.) 15s.—This wall map will serve excellently for reference and for class teaching of topography. The several States are marked clearly, numerous towns are shown—many more than most teachers will need—and railways and sea routes are indicated. The political divisions are shown, so far as is possible, for Canada and Mexico. An inset

map of the Philippines is added. The publisher states that there is also available a contour edition of the map, price 16s.

New Contour Wall Map of Scotland. Scale, 5 miles=1 in. (Bacon.) 16s.—This new map is a creditable piece of work. The relief is shown on the layer system, the contours being 250, 500, and 1,000 and 2,000 ft.; sea depths are indicated by shades of blue for 60, 180, and 300 ft. levels. There are two editions, a "full" edition containing political and physical names, and a "test" edition showing physical names only. Despite the opinion of teachers of geography, the specimen before us is varnished.

Round the Wonderful World. By G. E. Mitton. 398 pp. Illustrations. (Jack.) 7s. 6d. net.—This account of a trip round the world is a true travel book. Eastwards to the Nile, Jerusalem, and India; onward by the East Indies to Japan; across the Pacific and home by Canada; such is the trip taken by the author and Jim. The book is full of varied interests, and is written entertainingly, so that it makes a good prize or gift book.

(1) *Under Greek Skies.* By Julia D. Dragoumis. 395 pp. (2) *In Sunny Spain.* By Katherine L. Bates. 300 pp. Illustrated. (Dent.) 3s. 6d. net each.—The publisher says, "this series of stories for young people is designed to make English children fully acquainted with children of other nationalities. The scenes of the stories being laid in different countries and the child life described very intimately, it is hoped that not only will the children be keenly interested in the stories, but will feel the 'atmospheres' of the different peoples." Every word of this claim will gain assent from those who read these two books. Charming, fascinating, thrilling stories, vivid pictures of child life set in foreign surroundings, these word-pictures should hold the attention of all readers who are youthful in spirit. The heroes of the stories are alive, the setting in which they move is real; the child who is given one of these books as a prize or as a Christmas present, or who borrows one from the school lending library, will find a sympathetic soul who will answer all the questions to which these books will surely stimulate the youthful mind. May we add that the globe, not the duller atlas, should be at hand to make the story more definite.

Special Contoured Map of North-Eastern France, Belgium, and the Rhine. (Bartholomew.) Folded in case, 2s.; cloth, 3s.—The limits of this map of the western theatre of war are 47½° N., 51½° N., 0° and 10° E. The scale is 16 miles to 1 in. The contours present the physical features of the country in great detail; fortresses, railways, main and secondary roads are well marked. We can say little more than that we have used this map, in another edition, since the commencement of the war, and have found it excellent in every way.

The Rambler Nature Books. The Story of Our Weather. By W. J. Claxton. 80 pp. (Blackie.) 9d.—This book merits careful attention; it will serve excellently as an introduction to the study of weather and climatology. A notable point is the excellence of the photographic illustrations, which include eight pictures of cloud forms by Dr. W. J. S. Lockyer, and two pictures by Mrs. Aubrey le Blond.

The Scholar's European War Record Book. By H. W. Donald. 24 pp. (Charles and Son.) 3d.—This book is intended to provide the child with a stimulus and an opportunity to record the main features of the war. Maps and vacant spaces are to

be used to complete the record, and suggestions are made as to the items to be noted.

Black's Travel Pictures. Europe. Selected and edited by R. J. Finch. 49 pictures, 24 in colour. (Black.) 10d.—Messrs. Black have rendered a service to teachers of geography in issuing these sets of pictures selected from the stores of pictures for which the firm has become noteworthy. Mr. Finch has made an admirable selection; the set before us presents vividly the main features of the geography of Europe as required for beginners. The pictures are arranged in a file, so that they may be detached for display and examination; the cover of the file contains a set of typical problems and exercises and a map which shows the location of each picture.

Science and Technology.

Primary Handwork. By Ella V. Dobbs. xii + 124 pp. (New York: The Macmillan Company.) 3s. 6d. net.—The author of this book is assistant professor of manual arts in the University of Missouri, and her volume contains the results of long experience as a teacher of primary grades, followed by special study of handwork as a factor in elementary education. Various methods are described and illustrated, such as paper-cutting, booklets, house problems, the village street, sand tables, animals, toys, and holidays. The special value of the book lies, however, in the helpful suggestions given regarding the treatment of young children, the relations of teacher and children in co-operative work, and especially the child's outlook. In selecting work to be done, suggestions should relate to things of immediate value and use to the children themselves, rather than to things commonly comprehended in a list of articles which are useful from the adult point of view. The work must be kept on the level of the child's constructive ability in order that he may do things by himself. Wherever possible, the child should be allowed to select his own work. Thus, a long story may be illustrated by the class as a whole, each child selecting two or three of the important events. Teachers who are in charge of young children in this country will find much to interest them in this book.

Carpentry and Joinery. By J. Ernest Marshall. 184 pp. (Routledge.) 2s. 6d. net.—This book, another of the "First Year" volumes issued in the Broadway Series of Text-books of Technology, is one of the best introductions to such standard treatises as those of George Ellis that we remember to have seen. The author is evidently a teacher of experience, and he has made an interesting, and at any rate partly successful effort to combine pure technology with the practical mechanics, mathematics, and draughtsman's work underlying and necessarily involved in all construction work like carpentry and joinery. The attempt to deal with any branch of technology in a manner at once comprehensive and elementary is bound to lead to overlapping between the various volumes of a series and, in some measure, to loose and unscientific treatment. So in this book—which is illustrated by some 350 figures, and should therefore prove most useful to the apprentice carpenter or joiner—the discussion of experimental statics is didactic but somewhat sketchy, while such exercises as those on pp. 78, 82, 145, and 146 need further consideration.

Practical Drawing for the Preliminary Technical Course (Second Year). By Frank Brotherton. 140 pp. (Routledge.) 2s. net.—This volume, which also is included in the Broadway Series of Text-books of Technology, should serve on the whole as an excellent introduction to more formal treatises in descriptive

geometry and mechanical drawing. The elementary treatment of solids, in particular, is admirable, although the presentation of plane geometry—as, for example, in the discussion of similar figures—is somewhat unsatisfactory. A fair number of exercises is given, and the text is illustrated by some 185 figures. While there may be differences of opinion as to the value of "Practical Drawing," and its place in the curriculum, there is no doubt that the subject must receive recognition as an auxiliary in schools where "Practical Mathematics" is firmly established. That mathematics and drawing of this kind should be dealt with in separate text-books, is—one would suppose—unavoidable, considering the cost and bulk of a single book dealing adequately with the combined subject. In the hands of a judicious teacher who recognised that "practical" drawing involved "practical" mathematics and *vice versa*, the book should prove most useful.

Preliminary Chemistry. By H. W. Bausor. 106 pp. (W. B. Clive.) 1s. 6d.—The unfortunate teacher, confronted with the imposing array of elementary text-books on chemistry, might well exclaim, "How happy could I be with any—or none!" There is little in Mr. Bausor's book that is original or calls for commendation. The nature and composition of air and water, chalk, salt, sulphur, and carbon have been treated as fully and as exhaustively in at least a score of previous text-books. Perhaps, however, the reason for the existence of his book lies in the fact that it "will be found to cover fully the requirements of such examinations as the Preliminary Cambridge Local."

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CORRESPONDENCE.

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The Monsoons.

RIGHTLY enough, the phenomenon known as monsoon rainfall dominates the teaching of the climate of India and Asia. It is usual to describe the cause of the monsoon in terms of land and sea breezes with a difference in magnitude both of space and time. Such an explanation will not bear investigation for several reasons which can only be set out here in great brevity. First, the winter monsoon

is but the north-east trade wind, locally blowing off-shore and locally blowing on-shore—a world phenomenon, not a local circumstance limited to the Indian ocean. Secondly, there is very little evidence to show that the land of India is hotter than the sea during the summer months; we have no maps of soil isotherms, and the air isotherms and sea isotherms of which we possess maps do not indicate any marked difference of temperature between, for example, the sea water off the coast of India and the atmosphere over the Indian lowland. Thirdly, the weight of the atmosphere over India, as shown by the average monthly isobars, declines in company with a decline in air temperature from May to July as the monsoon increases. Fourthly, the south-west monsoon appears to be a portion of a gigantic swirl of air which sweeps the face of the Himalayas towards the north-west, and centres round an area of low pressure which lies over Egypt and Arabia, where air temperatures are, during the hottest months, abnormally high. The south-west monsoon is no more a "sea breeze" than the westerlies which sweep over Britain and swirl round a low-pressure area in the north-western Atlantic, which is most strongly developed precisely when the temperature of the air is abnormally high.

While on this question of the monsoons it may be well to elucidate another matter of importance. A rainfall problem depends ultimately upon the measurement of two characteristics of the rainfall of an area; the first of these is total quantity and the second relative intensity.

Now the total quantity of the annual rainfall in India is, in places, so stupendous as to stagger the child-mind; but the total rainfall of other parts of India is even less than that of London. Consequently amid such diversity it is necessary to seek some elements of similarity, which are provided by the measurements of rainfall intensity. When the intensity of Indian rainfall is measured it is found that the phenomenon is precisely of the same kind as the phenomena which occur in north and south Africa. It has been known for some time that the rainfall of Abyssinia is of the same type as that of India, but it is not commonly known that over a broad belt of latitude in north Africa and over a smaller area in south Africa the rainfall is exactly similar in monthly sequence of intensity with the rainfall of India.

African rainfall swings with the sun; it is almost wholly the result of two factors:—

(i) Intensity due to solar radiation.

(ii) Quantity due to local elevation and situation in relation to the sea.

African rainfall is therefore the result of local influences upon a world phenomenon; therefore the rainfall of India, which is in similar latitudes, is due to a world phenomenon, and only the quantity of the rainfall is of local importance associated with the Indian ocean and the south-west monsoon.

With reference to the "monsoon rainfall" of China and Japan, it is well to compare the "rainfall intensity" of eastern Asia north of lat. 35°N. with that of eastern America in the same latitudes. The comparison yields precisely the results obtained in the case of the comparison between India and Africa. The monthly sequence of rainfall intensity is the same, the hottest months have the intensest rainfall, so that here, again, rainfall intensity is a solar or world phenomenon, and total annual rainfall quantity is a local matter due to elevation, nearness to the sea, and the characteristic on-shore winds.

In conclusion, and in summary, the point of this letter lies in the question of how much we shall teach. The answer depends entirely upon the teacher; if he chooses to ignore the world phenomenon either

in relation to air pressure and winds or in regard to rainfall intensity, then he should not explain any causes of winds and rainfall, but confine his attention to the description of the facts. In many cases the discussion of the causes of the monsoons appears to be beyond the scope of junior geography.

B. C. WALLIS.

Examinations in Needlework.

It has occurred to me that there may be other teachers of needlework, besides myself, who would gladly welcome a slight change in the character of the tests set in this subject from year to year. Generally speaking, a candidate in a needlework examination must show that she is proficient in sewing, able to make ordinary calculations, and able to draw from memory patterns of any garments commonly worn.

So far as I know, there seems to be little connection between the questions set in these three branches of the subject. Usually, the sewing test comes first. Would it be possible to give the cutting-out test first? Then might come the sewing test demanding a further development of the first question. And, lastly, might come calculations connected in some way with questions one and two. By these means there would be a certain relation between the different parts of the paper which would give an added interest to the whole.

Paper pattern-making, when it comes in its natural place in the year's work, is one of the most popular branches of the subject; it is one of the most "living" lessons, because the value of the pattern can be tested at once on a neighbour or "lay figure." Such patterns are never drawn from memory, though the means used for producing them are very numerous. It comes as a real disappointment to many girls, to be told, when preparing for a public examination, that their knowledge of pattern-making and pattern placing is to be judged almost entirely on memory work, with the help of a few measurements.

If "pattern-making" is a suitable test for girls of fifteen or sixteen, would it not be possible for every candidate to be provided with a lay figure on which to test the value of her pattern? The skilled workwoman does not consider her pattern ready for use until she has applied it to some figure, human or otherwise.

Personally, I should much prefer that a candidate's knowledge of cutting and placing should be tested by supplying her with a straightforward paper pattern and sufficient material from which to cut it out. She would then have in her hands the material on which to show her proficiency in sewing, and might be requested to make up any one part of the garment she has cut out, bringing it to its final stage. Such tests might encourage the teacher as well as the pupil, and the complaints that one hears, that girls cannot handle patterns bought in shops might not be so well founded.

I feel strongly on this subject, because I value it very highly, and it would be a pleasure to me to know what other teachers of needlework feel in this matter. For nine years I have prepared girls for different examinations in needlework, and the tests dealing with pattern-making have been set very much on the following lines:—"Draw a pattern of an overall half-size, suitable for a girl whose height is 5 ft. 2 in. Write on the pattern the amount of material required and the cost of the garment full size."

Needlework in all its branches is one of the subjects that is well worth teaching, and it can be made a real test of ability, and it is a pity to detract from its value by unsuitable examination tests

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Notes on the Teaching of Congruence.

IN treating of the copying of triangles as one of the modern methods of arriving at the conditions of congruence of triangles, Mr. Coates remarks: "It is found that (a), (b), and (d)"—i.e. two angles and a side, two sides and the included angle, and three sides—"always give a satisfactory copy." And he goes on to add, "this may be verified by careful measurement of the copy and comparison with the original." This remark seems to me to be wrong both philosophically and pedagogically. If the pupil requires any verification by means of measurement, then he has missed the whole point of the matter, which is the inevitableness of the fact of congruence once the conditions (a), (b), or (d) have been satisfied. For example, he must see—and will see most readily—that once we have secured the equality, say, of two sides and the included angle, there is nothing more to be done; the copy is *complete*, and must be exact or "satisfactory." If he is allowed to "test" it by means of measurement, it must be impressed upon him—and must be appreciated by him—that what he is testing is not the truth of the proposition in this particular case, but the accuracy with which he has carried out the work of copying. So that if he finds the "copy" not accurate, he must conclude, without the slightest possibility of doubt, that the fault lies in him and not in the proposition. This seems to me to be the proper place and function of all measuring and drawing exercises in geometry, and any method which encourages in the pupil's mind the idea that his drawings and measurements lend an empirical support to geometrical propositions is, in my opinion, most pernicious. Many, if not most, of the textbooks written of late years should be consigned to the dust-heap or burned in a public place for that reason.

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MR. SCHWARTZ objects to the use of measurement in experimental geometry except as a test of a boy's accuracy; I say that its function is greater. We are all agreed that measurement cannot yield a conclusion, but only a suggestion or suspicion. Even this suspicion is only from the results of a class, and not from those of the individual. I admit "the inevitableness of the fact of congruence when conditions (a), (b), or (d) are satisfied." But my point is that the boy will admit the inevitableness of the construction if given two sides and a not-included angle. Mr. Schwartz says, "He must see—and will see most readily—that once we have secured the equality, say, of two sides and the included angle, there is nothing more to be done; the copy is *complete*, and must be exact or satisfactory." But if you give him two sides and a not-included angle from a triangle in your own possession, he will probably find, if unprompted, that the construction is just as inevitable, and the copy just as complete and satisfactory. But if he measures the third side, and I give him the length of the third side in the original in my possession, he will be convinced that the difference is not the result of inaccuracy. Is his conclusion not warranted? Again, measurement emphasises what I may call the "each to each" equality of the sides and angles of congruent triangles—a very important part of the subsequent work.

J. V. H. COATES.

Simplified Spelling.

IN the admirable article in your November issue by Prof. Rippmann, "Phonetics as an Aid to English Teaching," occurs this sentence:—"Owing to the inadequacy of our spelling, it is desirable to use standard symbols, each of which stands for one sound and no other, and the same signs with certain limitations should be used for all vocal sounds uttered by

the child in school." The trend of the article is to show that only by a grounding in English phonetics can the average child, with the average defects in speaking, get rid of the confusion born of our unstable alphabet, and attain to a pleasing precision in speech. Phonetic teaching is the goal to which all lovers of beautiful speech are marching, and in good time they will carry the Board of Education with them. But, meanwhile, there is a kind of half-way house in which the progressive and retrogressive (or rather standstill) parties could meet—I mean the reformed spelling with which Prof. Rippmann's name is associated. There sound and symbol are no longer at war, although the alphabet used is simply the old Roman alphabet, with the exception of the letters *x* and *q*.

Hear what a headmaster says of it:

"I wish to thank you for the copies of the 'Star' (in simplified spelling). I gave them out to my Standard VI. boys and let them read aloud 'straight off.' It was remarkable how easily they got at the sense, with scarcely a stumble, especially the better boys. It was curious how the weaker boys found difficulties here and there; in fact, I am inclined to think that the exercise formed a mental test of some value. *It was noticeable how the articulation of the words was made more distinct and pronunciation given more accurately.*"

Let anyone use simplified spelling constantly, and he will find that the sound of the words is continually in his subconsciousness as he writes. He begins to speak "thinkingly," if I may coin the word. That consciousness is a very different thing from self-consciousness in speech, which leads merely to affectation.

No revolution would be required to bring in reformed spelling. Those brought up on the old system could still read the new; those brought up on the new would also be able to read the old. The Simplified Spelling Society is at present getting up a petition asking for a Royal Commission on the subject. This will not be presented, of course, until the war is well over, but hopes are entertained that if it is signed by a large and representative number of people, it may touch the springs of official action.

If this would constitute a revolution (to quote an old pun), simplified spellers are the people to make it. What makes a revolution? A crank. And who have more often been dubbed cranks than our friends of the Simplified Spelling Society? A. COPESTAKE.

24 Mountfield Road, Ealing.

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