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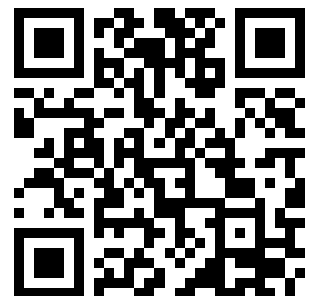
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SYLLABUS.

I. (Feb. 11.) *The Problem of Psychology.*—Claims of psychology to rank as a science; peculiar nature of its subject-matter; consciousness: the inner and the outer world: the ego and the non-ego: essential bipolarity: the unity of experience: relation between body and mind: consciousness as epi-phenomenon: the relation of education to psychology: place of the educational expert between the pure psychologist and the practical teacher.

II. (Feb. 18.) *Experimental Methods.*—Value of the different kinds of psychology (a) old-fashioned descriptive, (b) empirical, (c) rational, (d) genetic: introspection: need for an objective standard: statistical method: correlation: different kinds of development of psychology in the school, the study, and the laboratory: use of apparatus: combination of rational and experimental psychology: various kinds of experiments: danger and difficulties of experimenting by teachers: need for "controls" of experiments: what the teacher may legitimately demand from the psychologist.

III. (Feb. 25.) *Sensation and Perception.*—Both sensation and perception are direct and deal with stimuli here and now present: limitations of pure sensation: the threshold of sensation: the introduction of meaning marks the emergence of perception: the so-called *training of the senses*: the theory of the fixed coefficient: prodigality of sense stimuli and the need for selection: "the preferred sense": common misunderstanding of the term: substitution of one sense for another: interpretation.

IV. (March 4.) *Ideas.*—The passage from perception to apperception: ordinary psychological meaning of *conception*: resulting abstraction: the "faculty psychology": ideas as modes of being conscious: idea as specialized faculty: presented content and presentative activity: interaction of ideas: fusion, complication, and arrest: place and function of each of these in the teaching process: the dynamic and the static threshold: the conscious, the unconscious, and the subconscious in relation to ideas: apperception masses and soul building.

V. (March 11.) *Memory.*—Retention and recall: mediate and immediate recall: association, convergent and divergent: use of suggestion: native powers of retention and recall: "brute" memory: possibility of "improving the memory": purposive element in memory: need for selection of material to be memorized: mnemonics and the educational applications: learning "by rote": attempted distinction from learning "by heart": verbal, pictorial, and rational memory: memory by categories: personal identity and memory: connexion between memory and reality.

VI. (March 18.) *Imagination.*—Interpenetration of memory and imagination: literal meaning of imagination: the series—*percept, image, generalized image, concept*: manipulation of images: unintelligent limitation of the term *imagination* to the aesthetic aspect: suspicions of serious-minded persons: the use of the imagination in science: its place in the formation of hypotheses: clearly imaged ends: imagination as an aid and also as a hindrance to thinking: imagination should not be limited to the pictorial: nature of ideals: the case for day-dreaming.

VII. (March 25.) *Instincts and Habits.*—Nature of instinct: prevailing misconceptions: order of development of the human instincts: atrophy of

instincts: basis of habit: association as a general principle of organic development: relation of habit to instinct: racial and individual habit: formation of habits: the elimination of consciousness: turning the conscious into the unconscious: the upper and the lower brain: the breaking of habits: the possibility of habit forming being abused apart from the quality of the habits formed: accommodation and co-ordination: the growing point.

VIII. (April 29.) *Attention.*—The manipulation of consciousness: the prehensive attitude: state of preparedness for any one of a limited number of contingencies: the mechanism of attention: the vaso-motor, respiratory, and muscular elements: the span of attention: field of attention: distinction between area and intensity of attention: physiological rhythm of attention: psychological rhythm—alternation of concentration and diffusion beats: unsatisfactory classification of the kinds of attention: passing from the voluntary to the non-voluntary form: interaction between interest and attention: absorption.

IX. (May 6.) *Judgment and Reasoning.*—The narrower and wider meaning of *judgment*: distinction between understanding and reason: logical aspects of judgment: connotation and denotation: the laws of Thought as Thought: the syllogism: meaning of reasoning: relation between form and matter in thinking: the need for internal harmony: exact nature of thinking: the purposive element: fitting means to ends by the use of ideas: the two recognized logical methods—deductive and inductive: their interrelations: their special uses in teaching: analogy.

X. (May 13.) *The Emotions.*—Various theories of the nature of the emotions: evil reputation of the emotions among the philosophers: relation of the emotions to the intellect: Macdougall's theory of the relation between the instincts and the emotions: Shand's theory of the relation between the emotions and the sentiments: educational importance of this theory: Lange-James theory of the relation between the emotions and their expression: the mechanism of the emotions: the vascular theory and the nerve theory: manipulation of this mechanism by the educator.

XI. (May 20.) *The Will.*—Fallacy of the popular demonic view: unity of the ego and the will: unsatisfactory nature of the view that the will is "the choice between alternatives": nature of motives: fallacy of the popular view of "the strongest motive": relation between desire and will: the evolution of the will: relation of the will to the circle of thought: possibility of training the will of another: explanation of the phenomena of indecision: psychological meaning of the freedom of the will: the meaning of *aboulia*: fallacy of "breaking the will."

XII. (May 27.) *Character and Conduct.*—"Conduct is character in action, character is the accumulated capital of conduct": man's whole spiritual nature is involved in character: distinction among the terms *character, personality, individuality*: temperament and its relation to character: types of character: various classifications of characters by the French psychologists: mutability of character: views of Schopenhauer and others: examples of modification of character under external pressure: the sanction for such pressure: the conditions under which the educator may conscientiously seek to modify the character of the educand.

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The Educational Times.

1914-1915.

It is not possible at the present time to give our readers the good wishes of the season with the usual light-heartedness that comes from the increase of human joyousness at Christmas time and the fresh hopefulness of the New Year. War is a grave matter, for the victors as well as for the vanquished; and for five months almost the whole of civilized Europe has been waging war with death-dealing instruments perfected as never before. Few of our readers, if any, are free from anxious thoughts for relatives and friends; while the burden of the cost in money brings distress to many homes. The whole outlook of the nation upon life is changed. Education, a foremost duty in times of peace, must now give way to the exigencies of the campaign.

It is not to be expected, therefore, that the latter half of the year just past should be one of marked educational development; but in the early months several important movements were chronicled. In the matter of the University of London the discussion aroused by the Report of the Royal Commission made it perfectly clear that the external students of the University are strong enough and sufficiently well organized to ensure that their point of view shall not be overlooked. If there ever was any danger that the London degrees should be closed to students not attached to one of the recognized University Colleges, that danger is past. External students and private schools are to some extent fighting the same battle. In both cases the claim is that there should be opportunities for education outside the recognized State system. Those who believe in the value of private schools have done much during the year to consolidate their position, and to impress upon the public and upon the Board of Education the harm that would be done by any attempt to crush them out of existence. At the same time the representatives of private schools have shown their willing-

ness to form part of the national provision of secondary education, provided their freedom is secured. A deputation on this subject was received at the Board of Education, and the request for inspection was definitely made. Such an inspection is the duty of the controlling authority; but the Board have not yet seen their way to consent.

The Teachers' Register has grown steadily during the year. This is the first movement towards a consolidated profession of teaching. Registration has been decried in some quarters, and some few groups have neglected to enrol: but most teachers recognize the value of the Register, which in a few years will certainly contain the names of all entrants.

The year 1914 will be remembered for the definite attempt made by the Board of Education to control examinations in secondary schools. The scheme was considered in the leading article last month. There are at present few indications that the proposals put forward in the Board's circular have met with approval; but we publish in another column a detailed criticism just issued by the Executive Committee of the Association of Head Mistresses, the general trend of which is favourable to the Board's proposals.

In the elementary sphere of education the most remarkable happening of the year has been the strike of teachers against the penurious policy of a County Authority. The strike was successful, and the National Union of Teachers has again shown its power to protect its members.

The Council of the College of Preceptors has to regret the loss by death of two of its members during the year—Dr. Wormell and Dr. R. L. Scott.

Among the honours bestowed by the King in 1914 was a Knighthood for the Head Master of Mill Hill School. Sir John McClure receives the congratulations of the whole profession.

Among the subjects that have been discussed in our columns during the year the more urgent are: the teaching of English; the scientific basis of the curriculum; the methods by which State grants should be assessed; marriage as affecting the work of professional

women; physical education, including racial matters; and the general question, which is arousing thought among all teachers, of self-discipline as opposed to mechanical obedience.

A large number of important educational books have been issued, and have received adequate notice in our columns. It is the first duty of an educational paper to keep its readers informed of educational thought and practice. This duty has been admirably performed by the reviewer who deals with pedagogy.

The year 1915, which we are now entering, is not likely to be marked by any striking educational movement. The Treasury will scrutinize very jealously any proposals to increase State grants for secondary schools. The cost of the War, running into many hundreds of millions, will necessarily check further expenditure on education. Both in the University and in the secondary sphere there has been a tendency of late to follow the example of Germany. This tendency will, undoubtedly, be checked, though we hope there will be no excessive reaction. We have much to learn from Germany in educational matters, from her failures no less than from her successes.

All possible efforts should be made to continue without interruption the education of the rising generation. Schoolmasters should not be urged to enlist in the Army. Their work at home is needed. Their influence is great in helping to maintain an even mind—not cast down by disaster, not unduly elated by success. Quietly, and as normally as possible, the work of the schools must go on; money may be wanting, but there will be the more need for individual effort. Perhaps it is unsafe to prophesy, but it seems to us that during this year there will be comparatively little activity in the Board of Education and in Local Education Offices, and that in consequence a further space of time will be allowed to private schools to show that they are worthy to play an important part in the education of the children of this country. On the part of teachers the main work should be to ensure the success of the Register.

NOTES.

MANY schoolmasters, it appears, have written to Mr. Pease to ask if it is their duty to enlist in the army. Mr. Pease replies, quite rightly, that it is not for him to lay down the rule of conduct for others; that each man must make up his own mind in which direction the call of duty is paramount. Many schoolmasters have enlisted: they have seen their duty clear, and have followed it. But Mr. Pease points out with some emphasis that the education of the children of the country is also a duty of high importance, and one that cannot be neglected without peril. The newspapers tell us that the schools in Hungary have been closed for some time and that, more recently, the influx of wounded into Austria have caused all schools in that country, except a few in Vienna, to be closed. It is

estimated that 40,000 German teachers have been called out. In these cases the loss of education to the children will be more disastrous than the material loss inflicted by shells. We sincerely hope that most schoolmasters in England will feel that their first duty, however much it may be against their inclination, is to go on with their work at home.

THE first list of registered teachers is shortly to be issued, and applications must be received soon in order that names may be included in this list. It is no longer

possible to avoid the conclusion that the majority of secondary teachers are as sheep wishing to be shepherded by the Board of Education rather than take the trouble to govern themselves. All the associations of secondary teachers have cried aloud for registration and have worked hard to carry the matter through. Now that the Register is in being, the greater number of members stand aloof. The choice lies before us. Either we can now become a self-governing profession or we can become more and more Civil Servants governed by the regulations of the Board. In combating this latter alternative we are making no criticism on the Board. The influence of the Board has been of immense advantage to secondary schools. But the Board is an administrative body. The professional government of members of a profession is best left to themselves. The Board would be the first to recognize that the secondary schools would be better off if the teachers showed sufficient initiative and sufficient power of combined action to manage their own domestic matters.

WE are told that 4760 names are at present on the Register. We are not told what proportion of these belong to secondary schools. Indeed, the line of demarcation between "elementary" and "higher" is difficult to define; but we know that hundreds of members of those associations that have done most to bring about the opportunity for registration have not at present made application for enrolment. No reminder of the need for a professional body could be more urgent than the recent circular on the subject of examinations issued by the Board of Education. This question of examinations must be dealt with, and the Registration Council are to discuss the Board's proposals during this month: the matter of curriculum is no less urgent. The question is simply whether teachers are to solve these difficulties for themselves or whether they are to sit down inertly and wait for orders from Whitehall. If any teacher, after reading this appeal, still refuses to send in an application for registration, it must be admitted with sorrow that the teaching profession contains members who are without public spirit. The plea of cost is not convincing. A guinea once paid in order to become a member of an organized profession is not prohibitive. Register now, or be governed by the State: that is the choice.

*Should
Schoolmasters
Enlist?*

Pease to ask if it is their duty to enlist in the army. Mr. Pease replies, quite rightly, that it is not for him to lay down the

*Register
Now.*

ALL visitors to a Montessori school are struck by the sense of confidence that animates the children. The visitor to an infant school sees rows of neat and tidy children, with all their natural impulses towards movement checked. If he speaks to one of them, shyness prevents an answer. If he visits the children in their homes they run away or hide behind their mothers, or weep when spoken to. In the Children's House they greet the visitor quite naturally, without shyness or self-consciousness. It is the atmosphere of quiet, affectionate freedom and control that effects this. No slaps, no scoldings are heard. The children expand like flowers that are sheltered from the winds. A definite proof of the truth of this observation was obtained the other day. A doctor accustomed to visit a Children's House found the children quite trusting and friendly. He had talked to one little boy in particular several times. It happened that this boy was ill, and came with his mother to see the doctor in the surgery. All his friendliness was gone. He refused to come to the doctor, and when his mother led him forward he wept. He was no longer in the atmosphere that gave him independence and the power of self-control.

THE newspapers report that a soldier aged eighteen, who has just gained the Victoria Cross, was for some time an inmate of a truant school. It is useful to have these reminders from time to time that the virtues recognized in school life are not the only ones of value to the race. This boy was, no doubt, troublesome beyond bearing to his teachers, and in consequence found life at school so dull that he declined to go except under the compulsion of a magistrate's order. Obviously he possessed an excess of vitality, which is an unmitigated boon to the possessor, and it is equally obvious that the organization of the school did not provide the necessary opportunities for the employment of his activities. Undoubtedly he was better off in a truant school, where the scholars are not kept for so many hours stooping over desks in a state of unnatural repression. All schoolmasters know that the "naughty" boy is likely to become a useful man, but we have not yet managed to widen our curriculum so as to employ the activities of a boy blessed with an excessive amount of vitality.

MR. MUNDELLA writes to the papers to state the law on the subject of the education of the children of refugees or enemies in this country. So far as concerns the children of Belgian refugees, great goodwill has everywhere been shown, and will continue to be shown, even if it were not strictly legal. But it is interesting to note that the Education Acts "know no distinction of race, creed, language, or nationality." Every child residing in Great Britain, for no matter how short a time, is under statutory obligation to receive efficient elementary instruction, at school or elsewhere. It appears, therefore, that it is the

duty of the Education Authority to provide education for all children residing in the country, even if technically they are alien enemies. It is also stated in "Whitaker's Almanack" that any child born in England is by law an English child, and, therefore, children born in this country of alien parents rank as English children in the schools. One Education Authority has declined to give a scholarship to a child who had earned it by examination on the ground that the father is German. But the child was born in England, and, therefore, it seems that the decision cannot be upheld in law.

THE experiment made by the Admiralty of offering special cadetships to boys leaving public schools seems to have been successful. In June sixty-two of these special entry naval cadets passed the Entrance Examination, and began their training at Keyham Royal Naval College in September. Owing to the War the cadets were given as much practical work as possible, in order to fit them for immediate service as junior officers. Captain Mansell, in his report, says that the progress of the cadets had fulfilled his highest expectations, and that he had already been able to recommend the names of fifteen for immediate appointment to two of the finest battleships of the fleet. Admiral Sir G. Le C. Egerton congratulated the cadets on their opportunity of entering the Navy at the most critical time in the history of the Empire; he assured them that it was the finest service in the world, and he was certain that they would prove worthy of it.

A GOOD deal of criticism has been directed towards players and spectators of football in order to induce them to leave their favourite game and enlist in the Army. The War Office has now authorized the formation of a special battalion of footballers, which may be joined by friends and supporters of the clubs as well as by players. Public feeling has been expressed with some fierceness on the subject; but it is necessary to distinguish. Many active young men are perforce kept in the country by work that is essential for the conduct of the War. It is reasonable that these should have recreation. "It is not football," says the *Times*, "that we wish to abolish, but professional football, just as we should need to abolish any other game that hired large numbers of able-bodied young men away from the service of their country. And our reason for abolishing it is not because it amuses many thousands of spectators." It is essential for all of us to maintain our good spirits and to keep as healthy as possible. So far as football contributes to this end it deserves to be recognized. But many men who cannot leave the country are finding as good recreation and exercise in drilling as members of a civilian force as they found previously in football, and they have the satisfaction of preparing themselves for future emergencies.

It is likely that we may see a good deal of military

Cadet Training in Elementary Schools. training introduced into the physical drill of public elementary schools. The matter had been discussed long before the War.

Nearly two years ago the President of the Board of Education stated in Parliament that he was not prepared to sanction the use of arms or the practice of military formations in elementary schools. But the Managers of the Central Schools in Wimbledon decided more than a year ago to provide rifles for the use of the boys, and their decision was upheld by the Local Education Committee. A protest was sent to the Board of Education, who replied that the matter was one for the decision of the District Auditor of the Local Government Board. The District Auditor declined to disallow the expenditure, and, on an appeal being made, the Local Government Board have now given their formal decision, affirming that of the District Auditor, and allowing the expenditure. The legal position is, therefore, that Education Committees can provide for the military training of cadets in elementary schools.

MR. A. W. DAKERS, an ex-President of the National Union of Teachers, speaking the other day at a meeting of the National Federation of Women Teachers, made a strong plea for equal salaries for men and women teachers. He pointed out with considerable force that the work done by teachers definitely added to the wealth of the country, and that the teachers who made that addition should receive, in the form of salary, a part of the wealth they produced. He maintained that the education of girls was just as important to the community as the education of boys, and that therefore the work done by women was as valuable as that done by men. He declined to accept the view that men should have a larger salary because they had a greater responsibility. The rate-payers, he said, were in the position of a customer purchasing a commodity: if they could not afford the commodity they should do without it. In the case of teachers the rate-payers said in effect, through their Education Committees, that they could not afford to pay the proper price for education, but that all the same they must have it, at the cheaper price they offered. The old tradition that the education of girls is of less value, because in the past girls have not been able to prove the value of their education in money, dies hard, but it is dying.

THE correspondence columns of the *A.M.A.* records a somewhat extended attack upon the **The Joint Agency.** This Agency was established by teachers and for teachers. It is a practical institution founded by the teaching profession for its own use, and, during all the years that it has been established, it has worked effectively for the benefit of the schools. Of this there is plenty of testimony, both from head masters and from assistants. For instance, Mr. Cholmeley writes to point out that the discrimination exercised by the Registrar saves both head masters and candidates for posts from unnecessary

trouble. This is a very valuable testimony to the efficiency of the work. The objectors apparently wish that all vacant posts should be advertised. This may be desirable, but experience shows that it is an unattainable ideal. But vague charges are also made. The matter will be discussed by the Assistant Masters' Association at their Annual Meeting. We agree with the *A.M.A.* "that the Agency and all concerned with it will court the fullest investigation; we are equally sure that the Agency will come out of the inquiry with flying colours."

THE *Building News* of December 4 devotes a leading article to the subject of ventilation in **Ventilation.** schools. The greater part of the article deals with the evils of open windows and their accompanying draughts, especially where these are accentuated by cross-currents of air. It is said that the cold air, entering from above, in addition to causing dangerous draughts, prevents the warm, used air from rising, and so the children sit in and breathe exhausted air. Commander Peary, on his return from the North Pole, said that during the whole period of the Expedition he had never once contracted a cold, but that on his return to civilization he had hardly ever been free from cold, and he attributed this to draughts. The problem of proper ventilation has not yet been solved, and the *Building News* gives us no definite help beyond saying that the matter should be left in the hands of architects and engineers and should not prove beyond their powers. We consider the proper supply and regulation of fresh air in our schools a matter of the very first importance, and we can only hope that engineers will continue their investigations and experiments until a satisfactory solution is found.

THE Authorities of the London Royal Free Hospital School for Medicine are making an appeal for funds to enlarge the buildings, on the **Women Doctors.** ground that more women doctors are urgently needed, and that the provision for their training must be increased. The medical profession yields to none in its usefulness and in its absorbing interest. Among the "Careers for Girls" which have been dealt with in our columns perhaps the profession of doctor makes an appeal on highest grounds. There is no difficulty in securing posts when qualified. Three women doctors have just been appointed as resident medical officers at the Wolverhampton and Staffordshire Hospital. The appeal referred to above says:—

The demand for medical women constantly increases. In public departments throughout this kingdom, in sanatoria, in Poor Law institutions, in hospitals both in England and India, and as medical missionaries all over the world, they work in ever-growing numbers. At the present time medical women are urgently called upon to fill the places and supplement the work of the medical men serving with the Army, and they are doing this both in this country and in France, so far as their numbers permit. This demand will be increased in the near future owing to the number of young men now joining the Army who might otherwise have studied medicine. Were twice as many to qualify as qualify now, all would be absorbed by these and other needs.

SUMMARY OF THE MONTH.

TEACHERS' REGISTRATION COUNCIL.

At its December meeting the Teachers' Registration Council arranged to hold a discussion in January on the subject of the Board of Education Circular 849, which deals with examinations in secondary schools. It was announced that the number of applicants for registration was 4,760. A comparison of the average number of applications per week before the War with the average number during the past three months shows that the entries have been adversely affected to the number of about 1,500. In spite of this, however, it is already evident that a Register will be framed and that it will gain increasing support as time goes on. The Council is making preparations for the issue of the first Official List of Registered Teachers, which will be published in May or June next. It is therefore important that those teachers who wish to have their names on the first List should apply without delay. Among recent applicants for registration may be mentioned:—Dr. Michael Sadler, Vice-Chancellor of the University of Leeds; Miss M. K. Higgs, Classical Mistress of the Ladies' College, Cheltenham; Mr. Herbert Ward, H.M. Inspector of Schools; Prof. Phillips, of the Education Department in the University College, Cardiff; Mr. G. P. De Martyn, Inspector of Schools, Hong-Kong; Miss E. L. Jones, Head Mistress of Park Walk School, Chelsea; Mr. R. A. Sheldon, Lecturer on Electrical Engineering, University College, Nottingham; Prof. Nunn and Miss Punnett, of the London Day Training College.

THE GIRLS' PATRIOTIC UNION OF SECONDARY SCHOOLS.

The Union's activities are classified under eight different heads—"Services to Men at the Front or in the Fleet," "Services to Troops at Home and to Recruits in Training," "Care of Sick and Wounded," "Contributions," "Saving and Self-denial," "Relief of Distress," "Educational Activities," and "Prayers." The schools have ventured on no great and combined undertaking, but all the work of the busy fingers and active brains of the girls has been properly appreciated by the recipients—the horse whose back has been spared unnecessary torture through the protection afforded by the wither-pad which tiny fingers knitted; the convalescent soldier, whose health and spirits have benefited from motor drives arranged by members of the Union's Schools; the Belgian children, who have been supported by their British debtors; the British girls, who lost their work through the War, and for whom employment has been secured. The Hon. Secretaries of the Union are Miss F. R. Gray, St. Paul's Girls' School, Brook Green, W., and Miss Steele, the Grey Coat Hospital, Westminster. Miss F. Gadesden, of the Blackheath High School, is Hon. Treasurer; and the office of the Union is that of the Association of Head Mistresses, 61 Great Ormond Street, W.C.

THE MONTESSORI SOCIETY.

A meeting of the Montessori Society was held at 90 Buckingham Palace Road on Saturday, December 12. At this meeting rules, a revised aim for the work of the Society, and a scheme for study circles were adopted. It was announced that Dr. Montessori had accepted the office of President of the Society. The Hon. Secretary for the ensuing year is Miss Rennie, Sway, Hampshire, and the Hon. Treasurer Dr. Jessie White, 49 Gordon Mansions, London, W.C. It was also announced that a London Study Circle would begin work in the New Year, and that this would be organized by Mr. C. A. Claremont, B.Sc., who has attended two students' courses in Rome. Those who wish to join and undertake systematic study of Dr. Montessori's views should communicate with Mr. C. A. Claremont, 7 West Heath Avenue, Hampstead, N.W. The fee for the course provided by the Study Circle is 10s. 6d., in addition to the 2s. 6d. for membership of the Society. The Society is hoping to collect records of the experimental work carried on in different parts of the country on scientific lines.

BRITISH UNIVERSITIES AND FOREIGN STUDENTS.

The Vice-Chancellor of Sheffield University (Mr. H. A. L. Fisher), speaking at the annual meeting of the Court of Governors, said that German Universities had been frequented

by Russians, Spaniards, Frenchmen, and also by Americans in great numbers, but he believed that when the War was concluded it would be possible for England very largely to step into the place hitherto occupied by Germany. If our Universities would only be a little imaginative and try to reproduce some of the perfection of organization which did undoubtedly prevail in Germany, and which brought eternal honour to the German nation, they might become cosmopolitan Universities in the sense in which Oxford was the great cosmopolitan University of the Middle Ages. It was only since the Reformation that English Universities had become, in a sense, provincial. In the Middle Ages Oxford and Paris were the two intellectual capitals of Europe. In certain regions of applied science there was no reason why in the next fifteen or twenty years Sheffield should not be the intellectual capital of Europe.—*The Times*.

CLASSES FOR SOLDIERS.

With a view to assisting Local Authorities, with the approval of the Military Authorities, to provide instruction, other than instruction in military duties, for recruits and other men serving with the colours, the Board of Education have issued special regulations for grants in aid for the purpose. Where the Local Education Authority desire to provide such instruction and are unable to secure regular attendance at progressive courses satisfying the full conditions of the Board's Regulations for Technical Schools, &c., the Board may aid the provision of informal instruction, which may consist of short courses in geography or history illustrative of the present campaign; topography, mapping, and map-reading; first aid, ambulance, and hygiene; telephony and telegraphy; conversation classes in foreign languages; singing; field cookery; practical instruction in simple crafts; illustrated lectures of a popular and instructive kind; tutorial assistance for backward students in the composition of letters and in simple calculations; or instruction in such other useful and interesting subjects as experience and the wishes of the students may suggest. The Board will make grants in aid at the rate of from 2s. 6d. to 5s. for each hour of instruction, the total grant to a Local Education Authority not to exceed two-thirds of the cost of the instruction.

GERMAN PROFESSOR'S RESIGNATION.

The Council of Liverpool University have accepted the resignation of Prof. Kuno Meyer of the honorary Chair of Celtic at the University. Prof. Kuno Meyer is one of the best-known authorities in this country on Celtic literature and languages.

THE FIGHTING SPIRIT.

The Parliamentary Recruiting Committee have received the following communication from a Yorkshire lad:—

Dear Sirs,—Will you kindly accept our services, four smart boys, I am officer we have got up a regiment. Nothing but death will stop us when doing something for our country I am eleven on Friday news as just reached us of the attack on the east coast. The other boys are about my age, we want to guard a bridge or something one for each corner our names are David Atkinson, Jack Atkinson, Charly Clarkson and I tom Dent. give me an answer soon or I will run away to France to fight. I pity the poor german spy that we get hold of.

Yours truly Tom Dent

a British lad.

APPOINTMENTS.

At a meeting of electors, the Fellows of the College, held at Oriel College, Oxford, the Rev. Lancelot Ridley Phelps, M.A., Fellow and Tutor of the College, was unanimously elected Provost, in place of Dr. C. L. Shadwell, who resigned that position last month.

The Council of East London College have appointed Mr. Ernest Classen, M.A., Ph.D., to the Lectureship in the English Language.

The Rev. Leonard Hodgson, B.A., late Scholar of Hertford College, has been appointed Vice-Principal of St. Edmund Hall, Oxford.

The Council of Bradfield College have appointed the Rev. R. D. Beloe, one of the house masters of Winchester College, to be Head Master from Christmas next. Mr. Beloe was educated at Oundle and took his degree in history at Corpus Christi College, Cambridge, in 1890. He has been at Winchester since 1902 and was ordained in 1908.

GERMAN v. ENGLISH EDUCATION.

A PRIZE-GIVING ADDRESS.*

By Sir PHILIP MAGNUS, M.P.

You will have gathered from the Report of your Principal, Dr. Sumpner, that the prizes which I have had the pleasure to present this evening and the certificates you have gained have been awarded on the results of two very different types of examination. Each, I venture to think, is of some value to your teachers and to yourselves. Educationally, the two types of examination should be carefully distinguished. I refer to the internal examinations of your teachers and to the more general examinations of wider competitive character, open to students of other Technical Schools, conducted by external bodies such as the City and Guilds of London Institute. In the prefatory note of the Board of Education to their recently published "Regulations for Examinations in Science and Technology," the Permanent Secretary states, "The Board have for some time felt considerable doubt as to the value of their examinations as tests of the progress of students which would, in their opinion, be better tested by internal examinations, carefully adjusted to the character and conditions of the instruction given in the individual schools."

In this opinion of the Board I fully concur. No general external examination can test so satisfactorily the progress of students in the subjects in which they have received instruction as an examination on those subjects by their own teachers. Indeed, such an examination does more. It shows the teacher whether his instruction has been of such a kind as to impress his students—in other words, whether it has succeeded in its purpose.

But the examinations of such bodies as the City and Guilds Institute have a very different object. Their immediate purpose is not so much to test the "progress" of the student under instruction as to afford some generally recognized proof of the knowledge he has acquired of the trade or profession in which he is engaged, or is about to engage, and his competency to practise it. These examinations are similar in character to the tests which candidates in Law or Medicine or Surveying or Accountancy are required to pass before commencing their professional work. I am glad to find that a large number of students of this school have qualified by such tests for certificates of competency to practise. It should be remembered that these Certificates afford employers some independent guarantee of an applicant's skill and knowledge, and consequently possess a recognized commercial value, not only in his own locality but elsewhere, in assisting him to obtain employment or to improve his position in his trade. We have been told that external examinations are not held in Germany. As a fact, that is not the case; but the conditions of education in Germany, as I hope to show, are very different from our own, and I should be sorry to see German methods imitated in this country.

Of late years, we have heard a great deal of loud talk as to the excellence of German education. There was a time, some twenty or thirty years ago, when I admit our school organization was very defective. It was at a time when the late Matthew Arnold was continually telling us to organize our secondary education. But that has now been partly accomplished, and it is well to remember that there can be too much, as well as too little, organization. What is more important than organization is the character and spirit of the teaching given in our schools; and, viewed as a whole, I believe our own system and our own methods are distinctly better than the German. In Parliament and elsewhere, I have frequently heard men occupying high positions endeavour to enforce their arguments in favour of some

new measure or proposal by saying, "It is done in Germany." Well, I must own that argument has had little weight with me, and it has the less appealed to me, because I have known that if these distinguished authorities, instead of selecting for our imitation some particular feature of German practice, had explained to us more fully German methods, the picture would have proved less attractive. But this by the way. No doubt you have been impressed, as we all have been, by the intelligence, the foresight, and attention in detail shown by the Germans in their preparation for the War in which we are now engaged. But the lessons to be learnt from this War—lessons not to be despised nor to be regarded as the German Emperor is said to have spoken of Sir John French's "little army"—do not lead to the conclusion that their men and women are more competent or more highly cultured than our own, nor even that the instruction provided in their schools and colleges is more educational in the true meaning of that word than that provided in our own institutions. Judging from the Report of the Principal read to us this evening, I do not hesitate to say that there is no school similar to this in Germany doing equally good work. The much praised German efficiency is due to many causes, but it cannot be ascribed to the intellectual, and certainly not to the moral, pre-eminence of their ordinary citizens. It is due largely to the concentration of their educational efforts on a specialized form of training—a training the advantages of which have been recognized at all times and in all countries except our own—I mean military training; and, strange to say, it is this training, which those who have been loudest in their praise of German education have consistently deprecated.

Everyone who has studied German social conditions has known that German life in all its varied aspects has been, and is now, dominated by one idea—the preparation for war. I am not one of those who speak disparagingly of the beneficial influence on character of military exercises. I recognize their value in developing bodily activity, in quickening the perceptions, in rendering the intellect more alert, and in creating useful habits. But that the soul of a nation should be wholly preoccupied with warlike preparations, that all social, political, and economic efforts should be determined by military considerations, that the Universities, the technical and other schools should be saturated with thoughts of war and conquest, and that the conceptions of the people should be so warped that they fail to distinguish between Might and Right, and learn to exalt necessity above moral law is, as the result of education, so opposed to our own ideals, and is so antagonistic to all civilizing influences, as to compel every effort to prevent its spread, and to sanctify the sacrifices which we and other nations are making to resist it.

The German Government, realizing that some justification was needed for this deification and worship of brute force, would seem to have invited, or required, the Professors of their State-supported Universities, themselves servants of the State, to proclaim the great superiority of their own culture over that of any other country, and the consequent urgent necessity that Germany should acquire, by force of arms, supreme political power, in order to fulfil what she claims as her heaven-imposed task and civilizing mission, that of spreading her own culture and her own civilization throughout the world. The arrogance of this claim is only equalled by its absurdity and purposeful self-deception. Prussia has dominated the rest of Germany, and some of the finest features of German idealism have been destroyed by her powerful penetrating spirit. She has not yet succeeded in dominating Britain, and in literature as in science, in discovery and invention, she remains far behind us. And, if we eliminate what Germany owes to Slavonic and Semitic genius, we may truly say that, except perhaps in music, there is no form of culture in which the Teutons, as a race, are superior to the Anglo-Saxons. It was necessary, however, to fan the native conceit of the German people, in order to gain their support for the costly scheme of conquest on which they had determined to embark. Hence their Culture

* Delivered at the Municipal Technical School, Birmingham, on November 12, 1914.

cry. But we all know now, and many knew long since, that their real object was to strike at England, and by first destroying, and then rearranging, the scattered elements of the British Empire, to subdue and to govern the habitable globe. Well, they have not done that yet; but the picture of the Kaiser and the Sultan marching arm-in-arm among the nations, distributing tracts on Culture and the higher civilizing influences of Prussian discipline, would indeed be comic, were it not for the pain and sorrow which have followed from the overbearing conceit that has brought about this devastating War. And now, let me briefly explain, how this swollen-headedness and ambition have affected the whole scheme of German education.

In their educational system, and indeed in the entire organization of their social life, compulsion is largely substituted for free volition. Slavish obedience is regarded as essential for the exercise of what is claimed as *deutsche Tugend*, or German virtue, and it is so enforced that freedom of expression in thought or action is rigorously suppressed. From his earliest childhood, throughout his entire youth the ordinary citizen is trained in accordance with the requirements of a State policy, and is treated as a part of a great military machine. In a very interesting book, recently published, entitled "Memories of the Kaiser's Court," the author, who was English governess to the Princess Victoria Louise, now Duchess of Brunswick, says: "Education in Germany seems to be strictly standardized. At a certain age every child, be he prince or peasant, will be in a certain class, learning certain subjects. Each year he will move a grade higher, or if he does not the whole family will feel that some dreadful, irretrievable disgrace has befallen it. The mother will weep about the house, sighing and swallowing her tears. The father will wear a corrugated brow, and perceive, looming in the distance, a son who is a *Zweijähriger*, that is, one who must give two years instead of one to military service, since he has not passed the necessary examination which reduces the term by twelve months. This is one of the most terrible things that can happen to a German household."

There is not much suggestion of love of learning in the passage I have quoted. The parents' sorrow is not for their son's failure to appreciate German culture, but for the more disappointing fact that he will be forced to undergo two years' military service instead of one, and will be pointed at as a *Zweijähriger*.

In this family picture, in the description of German social life, which may be found in many works of fiction and in other publications, and in the events which have led up to this War, and also in its conduct, we see the grave defects and not the merits—although there are some—of the German as compared with our own system of education. We see the lack of sympathy and of imagination and the consequent narrowness of view, the paralysis of individualism, the exaltation of mere intellect, and the absence of any high moral sense. We see a whole people organized into a vast and nearly perfect military machine, its human elements so controlled and tempered as to act with the accuracy and precision of the cogs and wheels of some highly finished mechanical appliance. As an example of discipline, and of the effect of enforced obedience, it is nearly perfect. But when, under changed conditions, as in a state of war, these leading strings are loosened and the accustomed fetters are removed, we find that the average man, so educated, relapses into a state of almost native barbarism, and acts under the savage impulses of his untrained and undeveloped character. Too many sad examples of the excesses to which he is liable the history of this War has disclosed. Such conduct, which has come as a painful surprise to most of us, is very largely due to the system of education, which coerces instead of training the will, and compels obedience, instead of encouraging a healthy sense of freedom and responsibility. To this system of education our own is a happy contrast, and I hope it will continue to remain so.

One lesson, however, of practical importance we may learn from the study of the great warlike instrument which has

been largely fashioned in the schools of Germany. We may learn the value of thoroughness in any work in which we may be engaged. It may be—I fear it is so—that in much that we have undertaken we have been content with something too far short of the perfection which should be our aim, and towards which, by more concentrated study, we might be able more nearly to approach. We may have become a bit slack owing to the individual liberty which we enjoy, and which we rightly prize. We may suffer from the drawbacks to our advantages. If so, let us be warned in time. In physics, we know what is meant by the dissipation of energy. In all our undertakings we should endeavour to avoid it. On the battlefield the enemy have scored successes, gained by their previous preparation for every conceivable emergency, by their careful survey of the conditions of the problem they had set themselves to solve, and by the swiftness and strength of their attack at selected points. They have made mistakes. They have failed, from lack of imagination, to anticipate the action of their opponents. They may have miscalculated the effect of certain unknown, and possibly unknowable, forces. But we cannot fail to admire their thought and care in preparation and their thoroughness in actual work. Those qualities are worthy of imitation and are potent elements of success. In all our educational efforts we should avoid superficiality, applying all our energies to master each separate difficulty with which we are confronted. Such difficulties meet us in the classroom, and in the laboratory, and be sure that we gain more intellectually by the thorough mastery and complete solution of some one problem, by the determination of all relevant considerations in any single investigation, than by covering in a partial and *dilettante* manner a much larger area of work. It is an old educational axiom—to which, in many of our schools, too little attention is given—*non multa, sed multum*; it is a still older maxim, applicable to all our undertakings, "Whatsoever thy hand findeth to do, do it with thy might."

Before sitting down, there is one educational question of wide significance, to which the attention of Parliament has recently been directed, on which I desire to say a few words. The question has special reference to the work of great technical institutions, such as this school. I refer to the importance of some preparatory and intermediate training for children between the ages when they leave the elementary school and when they should commence their distinctly technological instruction. There are many more ways than one of bridging over this critical period in a child's life. We have adopted from the French and the Belgians, whose artisans have always been distinguished for their efficiency, a system of continuation trade schools, known as "Apprenticeship Schools." We are establishing evening junior technical schools, which will serve as feeders for the higher technical institutions. But we cannot escape from the conclusion that the majority of children between the ages of thirteen and sixteen, or indeed fourteen and seventeen, who have spent the whole day in the factory or shop, or in other work, are too tired to profit fully by evening teaching. Time and money are, therefore, wasted in driving them into evening schools. What I am very anxious to prevent is the enactment of any measure compelling these children to attend such schools. Here, again, we should avoid imitating what we are told is the German practice. I appeal, therefore, most earnestly to manufacturers and employers of labour, to afford facilities to their apprentices and young employees to join, if only for a few hours a week, day classes, in which they may receive practical instruction, and to make it as far as possible a condition of employment that they attend those classes. Further, I venture most respectfully to urge Local Education Authorities to arrange for the formation of day classes during those hours that may be found most convenient to employers. I am quite certain that much may be effected by co-operation and by the mutual efforts of employers and Local Authorities. Encouragement is far better than compulsion, and is better adapted to our ingrained British

principles. There are duties which the State has a right to exact from its citizens, and in enforcing these the State may have been too lenient; but in educational matters, where compulsion can be avoided, let us leave to our young students above school age as much individual liberty as possible.

Well, I have ventured in these few remarks to afford an example of that superficiality I have asked you to avoid. I have touched upon many subjects without fully discussing any one. I apologize. But I could not refrain from all reference to the distinctive differences between the overpraised German system of education and our own, and from pointing the moral which those differences suggest.

CŒURS FRANCAIS.

By MARION CAHILL.

It may perhaps interest English readers in these days of stress and waiting to hear how little French girls, with all their loved ones at the War, support the same strain. The following vignettes, taken "in time of war," show some phases in the character of our little Gallic neighbours.

I.

School life and *cours* must continue as usual, of course, War or no War. But with what a difference! French children are merry little souls; but now it is as though a blight had fallen on the school. Fathers, brothers, cousins are all at the front, whither anxious, loving little hearts follow them many times a day. Whatever we may be doing, it is easy to read from their mobile little faces that their minds are far away with Jean, Louis, or Marcel.

Every evening at six o'clock they go to the chapel to beg La Sainte Vierge to bless the Army and *les braves Anglais*. It is a thrilling experience to see them on their knees, hands clasped, head thrown back, as though gazing straight into the tender eyes of Notre Dame.

"See you," said Solange, aged seven, to her *bonne amie*, Muguette, aged six, "it was on the fête day of La Sainte Vierge that *les Boches* retreated," and her beautiful brown eyes grew large and soft with awe and love.

"Dieu aime la France!" they cried enthusiastically when they heard the good news, for the enemy had been at the very gates of their beloved city. And there was a ring of triumph in their young voices as they lifted eyes, wet with happy tears, to the calm face of Notre Dame, and cried again and again in love and gratitude, "Salve Regina! Mater Misericordiae!"

II.

They are stern critics, these soft-mannered little French girls. The "bomb-dropping" on Paris created great consternation.

"What then," exclaimed Gilette indignantly, "were our aviators doing, that they allowed it—that they did not kill *ces chiens allemands*?"

"Not possible to be everywhere," said Suzanne reproachfully. "They do magnificent work—but magnificent!—with the Army."

"Know you, then, there is a fleet of aeroplanes especially to guard Paris? What, then, were they doing? It is all that I ask. Did they sleep? *Mon Dieu! c'est trop fort, ça.*"

And on occasions they go to the other extreme. In one of the official *communiqués* it remarked on the desperate nature of the German offensive.

"And the poor Allies," sighed Marcelle, "they receive these blows?"

"Without doubt," I replied comfortingly, "they return them."

And yet, when the Turcos, with barbarian single-mindedness, presented some rather gruesome relics to the thrilled Parisians, my gentle little French girls remarked, with satisfaction: "C'est bien, ça."

A great contrast this to the scene when they were told that war had been declared. The Principal, Gallic drama in every line of her figure, marched into the Salle to announce the

stirring news, followed by the Infirmarian with a bottle of wine. And it was needed! Some fainted, many were hysterical, all wept.

On those early days, when the news was bad, not a sound but weeping was to be heard. They were prostrate with grief and depression. The chapel was besieged with earnest children, imploring Heaven's protection for their beautiful country.

"Bienheureuse Jeanne d'Arc, priez pour nous," they cried at the foot of the Warrior Maid's statue. And the slender boyish form of the Maid, in her white armour, holding aloft her white banner, was illuminated with the soft glow of many candles. "Souvenez-vous, Jeanne, de votre chère patrie."

III.

That the English could remain calm, cheerful, confident in the face of disaster, appeared to them little short of miraculous.

"Ah! ces Anglais! nos chers Anglais!" they murmured in amazement. "Mon Dieu! quelle ténacité!"

When they knew that we had printed the full tale of the early disasters, with their deathless heroism and heart-breaking casualties, they were almost dumb—but not quite; it takes a great deal to deprive a Parisienne of her powers of speech.

"But how rash, how unwise; they will be discouraged!"

And when they heard that the result of our first casualty list was to increase the number of our recruits, they broke out into loud exclamations of admiration.

"C'est impayable! Ah! no wonder the English are great."

"And after the war, Mademoiselle, you English will be greater than ever, for you are the admiration of the world. You take *les pauvres Belges* to your hearts. You even open your Universities to the students and professors of Louvain. Without doubt, *les Alliés* will be victorious, for *le bon Dieu* will bless generous England."

IV.

To-day news came that both the brothers of little Yseult have died for France. Poor boys! They were only eighteen and nineteen years of age. The elder, a St. Cyrien, was sent to the front at the beginning of the war. The younger, a student at a well known Belgian college, enlisted with impulsive generosity in the gallant Belgian army. Wounded in his first engagement, and unable to escape, he was found by German soldiers, and at their hands met with a violent death.

One can never be entirely accustomed to the French nature, for it is constantly taking one by surprise. I thought this news, bringing the actualities of war so near to them, would paralyse them, emotional to excess as they are. But no, they remained quite calm. The child herself, a pathetic, delicate little figure, goes about as usual. The only effect she confesses to are "bad dreams." She is afraid to sleep. They are all nervous, strung up to a pitch that would destroy our northern calm and wreck our nervous system. But they possess such resiliency, such immense stores of vitality, that their power of recuperation is very great. And yet, when Gilette received a letter from her father, who had been in action at St. Quentin, she promptly fainted. He was now in Brittany preparing a new army corps, therefore out of all immediate danger. There was nothing about which to be alarmed, much for which to be grateful. But if, in the next engagement, she hears of his death, she will, I am sure, accept it with fortitude, and amaze us with unexpected powers of endurance.

VI.

Some very charming and interesting letters come to them from the front. French families are very united, and their tender, beautiful language lends itself in a marvellous manner to the expression of affection. I think all the French, both young and old, live to a certain extent in the *pays du tendre*.

One young soldier, André, writes to his sister from the South: "When we had mobilized, we marched with our general to Lourdes. And there Mgr de Tarbes blessed our swords before the Grotto of Notre Dame. Every one in the regiment, from the chief officer downwards, went to confession and received Holy Communion. It was a sight I shall never forget. Have no fear, little sister; we draw the sword

for God and for France. *La Sainte Vierge* will not let us fail. *Courage, petite amie; que le bon Dieu vous protège!*"

Another, Marcel, with the flying corps, writes: "Yesterday I saw the English fight. *Mon Dieu! Qu'ils sont vaillants, ces Anglais!* Never, never, will France forget the English for this. It is superb."

VII.

"Who, Mademoiselle, is Teeperairee? My brother, 'e write that *les Tommies—c'est drôle ça, Tommee!*—they sing always of Tipperairee. *Qui est cette dame, Tipperairee?*"

A French child by instinct imagines Tipperary to be feminine. Now, supplied with the words and music of this classic, they can be seen marching round with a Union Jack to the strains of—

Eets a lon' wai to Teeperairee,
Eets a lon' wai to gô;

and *da capo*. And they are mightily puzzled at our strange choice of war songs.

"It is different—but different!—from 'La Marseillaise,' *mais c'est chic, Teeperairee, et tout-à-fait Anglais!*"

But when they heard that Tipperary was in Ireland they were more puzzled still.

VIII.

Impossible to describe the children's idea of the Kaiser. An evil spirit, the incarnation of wickedness: none of these suggestions convey any idea of the horror with which he is regarded.

"*Le Kaiser*, is he, then, the Devil?" inquired Solange. "*Mon Dieu!*" her eyes grew round; "we fight *le diable!*"

A little later she had disappeared. We hunted high, we hunted low, but nowhere could we find her. It grew late, and all grew anxious. She is so wilful and headstrong; anything might have happened to her. At last, in a desolate corner of the garden, we heard a low monotonous chanting. Soon we saw a lonely little figure, with bare, bloodstained arms, brandishing a huge bunch of holly.

"*Va-t-en!*" she growled threateningly, waving the holly menacingly, "I scourge myself for the deliverance of France," and she continued to chant.

She was taken up to bed, and the poor little arms were bound up. I went to see her when she was settled for the night.

"Why did you do such a thing?" I said to her. "See you, it is not for little girls to scourge themselves. That does not please *le bon Dieu.*"

"*Ecoutez, mademoiselle,*" she said confidentially, leaning towards me; "I read the life of the 'ermit in the old days. It is in the little book one gave me on my *jour de fête*. You know well that since I have seven years I can read very well—but *very well!* And the 'ermit, 'e go to the desert and 'e scourge 'imself for the sins of the world. And, first, I scourge myself for France, that she may be delivered. And then I think to myself, the Kaiser, he is *méchant*. If it happen that to him there arrives a bullet, and he die—*nevaire, nevaire,* 'e see *le bon Dieu*. See you, mademoiselle?" and her voice grew pitiful. "But that is terrible, never to see *le bon Dieu*. So I scourge myself again with the tree of 'olly, that after the purgatory Guillaume may go to Heaven. *C'est fini!*" she cried dramatically, slipping down between the sheets.

"But *le bon Dieu,*" I replied, "does not ask little girls to do such things. See you, it is *un peu extravagant*. If thou wishest to make a little sacrifice, choose another way, but do not scourge thyself. *Bon soir, ma petite, dormez bien.*"

Next day, after *déjeuner*, there lay at the foot of the altar a small sticky, crumbling, jam tart. I met Solange on the chapel stairs. "Where hast thou been, little one?"

"I have made a sacrifice," she said gloomily, her brown eyes fixed on vacancy. Poor Solange! And she loves jam tarts.

IX.

It is otherwise with Muguette. Not so naughty as Solange at times, nevertheless she is not so spiritual, nor has she Solange's capacity for either goodness or wickedness.

"What are you doing, Muguette?" I said, as I saw her very busy over a piece of paper.

"I draw," she answered briefly. It was a wild array of what were evidently meant to be devils, judging by their

tails. It would have had no topical interest had not one of the devils rejoiced in an enormous moustache.

"*C'est Guillaume dans l'enfer,*" explained the artist. "*Les autres sont jaloux, il est roi—le Kaiser.*"

X.

They all have an idol. It is not Joffre, nor Castelnau, nor Pau. It is "KISHENAIRE." I print it in capitals to show its supreme importance. It is quite wonderful how Lord Kitchener has taken hold of their imaginations. For the nonce Napoleon has been ousted from his place in their hearts. Kitchener, in the form of picture post cards, adorns their desks and their cubicles in the dormitory.

Even Solange, who for many weeks has been faithful to the small acolyte who daily adorns the sanctuary, has had her fidelity shaken to its very foundations. "I cannot marry thee, Antoine," she said, ruthlessly; "I have another *affaire,*" unconsciously placing one little hand dramatically over her heart. "Perhaps it may be that I make myself *religieuse*. *Peut-être. Je ne sais pas.*"

XI.

"*Nous végétons.*" It is the sixteenth day of the so-called Battle of the Aisne, and they are bored. "*C'est trop long,*" with the inevitable shrug. "*Je m'ennuie.*" News has come from an apparently reliable source that the big battle at present shows no sign of the *dénouement*.

Only a nation like *les Anglais* can support such a situation happily. And they are superhuman. For do not the people whom they conquer learn to love them? Nothing has impressed them so much as the response of the Empire to the call of the Motherland. Their eyes fill with the quick tears of sensibility as they read the affectionate messages of loyalty that pour in from the Colonies. Even the Boers are eager to fight for us. "Ah! but you must be kind, you English, that even the conquered love you."

And at last they understand why we love our navy—to adoration, as they say so picturesquely. At first they were only interested in the war on land, but now that they see the whole world of water open to our ships, our transports landed where and when we will, an enemy apparently loath to meet us, and the Union Jack flying bravely on every ocean, they realize what it means to be mistress of the seas. And their faith in England, always great, grows and waxes greater as the days pass by. Depression recedes into the background, and they are again becoming the French that I know, and have learnt to appreciate—a race of exceptional mentality, great sensibility, and indestructible gaiety of heart.

WHY?

DEAR and enlightened Press, we read and mark
And inwardly digest your diatribes,
We issue forth to bite and eke to bark
At the behest of your insistent scribes;
We know, or shall do, ere your work be done,
That German is synonymous with Hun.

And they, illumined in their turn as we,
By every scribbler talking through his hat,
Realize now that, o'er the narrow sea,
There lurks a Monster, cowardly and fat,
Incisor'd like a walrus, dripping gore,
Whose rankling jealousy evolved the war.

Why then, amid your objurgations loud,
Trickle these tales from out the fighting line?—
"Trenches ten yards from ours; a sporting crowd:
They yell across inviting us to dine:
We have a truce from four to five each day
So that the food-supply may come to stay!"

If it be thus, not with the men who talk,
But with the other men who know and do,
Who count Death's footsteps as they hear him stalk,
While, shivering, they watch the night-hours through;
If this their answer to your hatred's call,
In God's own name, why must it be at all?

A. C. B.

ASSOCIATION OF HEAD MISTRESSES.

MEMORANDUM ON PROPOSALS CONTAINED IN BOARD OF EDUCATION CIRCULAR 849.

Annual Examination of Grant-earning Schools.

Paragraph i.—The Executive Committee of the Association of Head Mistresses welcomes the proposal of the Board of Education to co-ordinate the school examinations conducted by various University examining bodies.

The Committee notes, with much satisfaction, that the Board of Education sanctions variety in the examining bodies for different schools. It would deprecate any scheme for the conduct of examinations by one Central Authority.

Provision of Two Examinations.

Paragraph ii.—(a) The Committee welcomes the proposal for examinations of two grades.

(b) The nomenclature and status of classes and forms differ very widely according to the conditions and circumstances of individual schools.

The Committee would much prefer, therefore, that all reference to "forms" be omitted in any regulations to be issued hereafter, as such reference may be misleading.

The First Examination.

Paragraph iii.—The Committee approves of the main provisions, but, with regard to the statement that "the candidate will be expected to show a reasonable amount of attainment in each of these (three) groups," it would express a strong opinion:

(a) That, in Group iii, the candidate should be allowed to offer either Arithmetic and Science or Mathematics including Arithmetic.

(b) That proficiency in the fourth group of subjects described in (vi) should count towards a certificate as an alternative to either Group ii or Group iii.

Paragraph v.—(a) In reference to the concluding sentence, the Committee would deprecate any raising of the examinations standard for admission to training colleges for elementary teachers.

(b) The Committee recommends that the fourth group (described in paragraph vi) be added to the three groups in (iii); and that a candidate should be expected to show a reasonable amount of attainment in Group i and in two of the remaining three groups.

N.B.—Many head mistresses are in favour of requiring a "school record" of instruction and attainment to be produced in the group not offered in the Examination, and the proposal is supported by at least one local association of head mistresses and by influential members of the Committee, though not by the majority.

Paragraph vi.—The Committee strongly recommends that physical exercises be added to the subjects enumerated in the fourth group.

Concluding Sentence:—The Committee takes strong objection to the regulation that "All schools which claim to be recognized as efficient secondary schools should be able to present a whole form for the first examination."

(a) The Committee desires that no examination be made compulsory. It is fully sensible of the gain to education due to the substitution of inspection for examination as a test of general efficiency.

(b) It deprecates any assumption that the efficiency of a school should be judged by the power of presenting a whole form for such an examination. It is of opinion that local conditions and the economic circumstances of the pupils strongly affect the standard of work reached by the upper forms, and some schools, most thoroughly efficient and filling a necessary place in the education of a district, may yet find it difficult to present a whole form even for the first examination.

(c) The classification of the older girls in a school should not depend only on their ability to pass examinations. There is in almost every school a certain number of girls of "reasonable industry and ordinary intelligence" whom it is useless to expect to reach the normal examination standard, but who are yet valuable members of the higher forms of the school.

The Second Examination.

Paragraph vii.—*Concluding Sentence*:—The Committee desires, owing to the varying conditions in schools alluded to above, to use some qualifying expression (e.g. "as a rule") prefixed to this regulation of an interval of two years between the two examinations.

Examination open to all Candidates under Nineteen.

Paragraph viii.—The Committee deprecates the institution of an age limit for external candidates only. It would recommend the raising of the upper age limit to twenty for all candidates.

Teachers and the Examinations.

Paragraph ix (c).—The Committee would prefer to see this proposal made permissive only, the word "allowing" being substituted for "requiring" (in the first line).

Co-ordinating Authority.

Paragraph x.—The Committee resolved that criticism be reserved on Paragraph x, which deals with the functions of the Co-ordinating Authority.

Such an Authority is obviously indispensable to the scheme, but the Committee is uncertain how this clause would work out in practice, and would therefore refrain from fuller criticism for the present.

Paragraph xi.—The Committee is of opinion that (1) it is important that teachers should be adequately represented on the Advisory Committee—"a" representative from the Teachers' Registration Council is altogether insufficient for the purpose; (2) the status of the Advisory Committee should be carefully safeguarded in order that its advice may be effective.

Certificates.

Paragraph xii.—The Committee desires to express general agreement with the scheme for certificates outlined in Paragraph xii, subject to the following observations:—

(a) Certificates should be issued by the University responsible for the Examination.

(b) Some apprehension is felt lest the Board of Education should exercise a too rigid control (by requiring examinations to be subject to special approval).

Paragraph xv.—The Committee wishes to record its satisfaction that the connexion of the certificate with the school has been fully recognized and provided for. It believes that this connexion, if maintained without undue rigidity, will afford the best security against the disadvantages of the present examination system.

Other Examinations in Grant-earning Schools.

Paragraph xvii.—While recognizing the desirability of diminishing the number of examinations and wishing to co-operate heartily in any effort directed to this end, the Committee, as has been already said (paragraph xii), does not wish to see a rigid control by the Board of Education over the schools, or individual scholars, in the choice of examinations for special purposes.

In conclusion, the Executive Committee wishes to emphasize its opinion that the success of the new scheme depends in the main on the degree to which the new examinations can be utilized for: (1) entrance to Universities; (2) entrance to professions; (3) award of scholarships, &c.

It recognizes that the Board of Education expressly disclaims (in paragraph v) the intention of laying down conditions of this kind, but it is obvious that, if pressure is exerted on grant-earning schools to use the two examinations only, such schools will be at a very serious disadvantage, unless the Board also exerts pressure to secure due recognition of the certificates gained.

Signed, on behalf of the Executive Committee,

M. E. ROBERTSON, President.

FLORENCE M. A. GADESSEN,

December 17, 1914.

Chairman Examinations Sub-Committee.

PROF. SADLER ON GERMAN EDUCATION.—The healthiest thing in English education is its moral sanity. The plague-spot in German education during these last unhealthy years has been its growing acceptance of the doctrine that Might is Right, that "the end-all and be-all" of a State is Power, that treaties must be treated as mere "scraps of paper" if they stand in the way of a State's supposed interest in an hour of furious ambition, and that unscrupulous selfishness is the height of diplomatic skill. This is the mischievous propaganda to which worthy men have lent themselves in many German Universities and schools. They have imagined themselves, men of peace as they are, more formidable and furious when they parroted the angry words of the military party; but, in their failure to withstand this temptation, they have disclosed their intellectual weakness—their too ready subservience to fashionable theorizings. And, in not seeing that the only sure foundation for national strength is honesty of purpose, they have betrayed once again the old-standing German lack of true insight into the fundamental truths of political action.

PROF. GILBERT MURRAY has nearly completed a verse translation of Euripides' "Alcestis," which will in due course be published by Messrs. George Allen & Unwin, Ltd. Prof. Murray has also revised his own play, "Carlyon Sahib," which will be issued by the same house.

CORRESPONDENCE.

WAR, THE BOY, AND THE INCOME TAX.

To the Editor of "The Educational Times."

SIR.—There is one aspect of the War, and especially of the doubled income tax, to which as yet no sufficient attention has been directed. War or peace, boys grow up, and when the age of fourteen draws near a parent must decide, at least provisionally, what the boy shall be. Under present circumstances the problem is often complicated by loss of income, and even by the death or disablement of the father.

In my capacity as Director of the Future Career Association, which is affiliated with all the leading public schools, I have made inquiries, which convince me that we are faced by revolution in the prospects of the middle-class boy. Hundreds of boys who have looked forward to a University education will have to forgo that privilege, and the large public schools will also feel the strain. Two practical suggestions may be made. First, that all pensions to officers or their dependents be made free of income tax, and, secondly, that there be scholarships instituted on a general scale for the children of officers killed or disabled in the War. The cost would not be heavy, and it would meet part of the difficulty.

The widest publicity should be given to the following simple facts as regards certain of the professions. Lord Kitchener has already submitted to the Treasury his scheme for the better remuneration of officers in the Army, and the course of instruction at Woolwich and Sandhurst has been reduced from one and a half years to six months and three months respectively. The fees, which stood at £150, have been entirely suspended for the present, with the exception of £35 due for books, uniform, &c. Thus the profession of a soldier is easier to enter and more attractive financially than it has ever been before.

In the next few years there will be undoubtedly a great shortage of doctors. For fifteen years the medical profession has been insufficiently recruited. Last year the number of students increased, but this autumn it has dropped again, and there are large numbers of openings in the medical profession, like hospital appointments, which will be vacant owing to the lack of suitable candidates. I have been asked by the Secretary of the Conjoint Board of the Royal Colleges of Physicians and Surgeons to make these facts as widely known as possible among the public schools. The need for doctors is aggravated by the fact that thousands of practitioners are fully employed over the wounded under circumstances in which their own death-rate must be abnormal. Many scores of medical students have gone to the front, and, although their service counts for qualification, they will have to complete their curriculum before they can pass their examinations. On the top of all this, the steadily developing National Insurance scheme is furnishing to doctors new opportunities of earning a regular professional income. At one London Hospital alone there are 20 per cent. fewer commencing students, while 15 per cent. of the students have joined the Army.

I might mention that, if the recommendations of the recent Royal Commission are carried out, the Civil Service will be in many ways a more open profession for the man of small means.

To sum up, the community will be seriously at a loss if at this time of stress we compel the middle-class parent to terminate or interrupt the education of his son. I submit that all school and college bills should be exempt from income tax, and my appeal is based on ten years of confidential correspondence with the head masters of all our greatest public schools and with the parents of their boys.—Yours faithfully,

The Future Career Association,
39 Victoria Street, Westminster, S.W.

G. DEVINE.

ST. OLAVE'S GIRLS' GRAMMAR SCHOOL.

To the Editor of "The Educational Times."

SIR.—May I ask your valuable help in correcting the statement to which wide publicity has been given that the Girls' Grammar School in New Kent Road, in connexion with the St. Olave's and St. Saviour's Grammar School Foundation, has been ordered by the Board of Education to be closed? The origin of this damaging statement was an announcement in the Minutes of the London County Council that the Board of Education were making an order in respect of a small public elementary school for girls in Maze Pond, in the Parish of St. Olave's, which is to be closed, and the small endowment made available for exhibitions. Journalistic enterprise has led to the flourishing Grammar School in New Kent Road being described and its work referred to, followed by an expression of surprise and regret that the Board should order such a school to be closed.—I am, Sir, your obedient Servant,

FRANK E. LEMON
(Clerk to the Foundation).

CURRENT EVENTS.

THE GEOGRAPHICAL ASSOCIATION.—The annual meeting of the Geographical Association will be held in the Jehangier Hall at the University of London, South Kensington, on January 7. Mr. Belloc will deliver his presidential address at 2.30 p.m.

IN consequence of the War, the Westminster Play and Epilogue will not be given this year.

THE late Dr. Douglas Lee Scott's head mastership of the Mercers' School is to be commemorated by a portrait and a fund for special work in connexion with the school. For this purpose a committee, of which Mr. W. E. Paterson and Captain Fenton-Jones are joint secretaries, has been formed, representative of the school, the old boys, and the Honor Deo Masonic Lodge, of which the late Dr. Scott was a founder.

Two women teachers employed by the London County Council, who are engaged to members of his Majesty's Forces about to go abroad on active service, have applied for a relaxation of the Council's rule against the marriage of women employees. The Education Committee recommends that the request be granted and that the teachers in question be permitted to retain their positions after marriage while the war lasts.

THE Annual General Meeting of the Incorporated Association of Assistant Masters will be held at University College, Gower Street, London, W.C., on the afternoon of Saturday, January 2, 1915, at 2.30 p.m.

THE Annual General Meeting of the Modern Language Association will take place on Thursday and Friday, January 7 and 8, 1915, and will form part of the Conference of Educational Associations. The Annual Dinner will not take place this year, and the meeting will be limited to three sessions.

THE Third Annual Conference of Educational Associations will open at the University of London on Monday, January 4.

THE Secretary of the Appointments Board of London University, which assists graduates and students of the University to obtain appointments, will be pleased to see inquirers, whether registered or intending to register, or desirous of obtaining information or advice, at the Central Offices (Room 23) of the University, South Kensington, S.W., on Wednesday afternoons, from 2 to 5, or Thursdays, 12 to 1.30, or at other times by arrangement. The effect of the War on employment is being carefully watched, with a view to assisting graduates who may be thrown out of employment, and ensuring that advantage shall be taken of new openings and opportunities that may arise in the future. Special efforts are being made to open up more non-scholastic posts for men and women graduates, and the Secretary would be glad to receive suitable introductions, with a view to securing engineering, chemical, and business appointments for men, and chemical, business, and secretarial appointments for women.

DR. MONTESSORI has given permission for the parts of the Didactic Materials to be sold separately. The complete equipment costs £8. 8s., a price prohibitive to many. Purchases may now be made from a few shillings upwards. The manufacturers in England are Messrs. Philip & Tacey, Norwich Street, E.C.

THE National Fire Brigades Union, of which the King is patron, has issued pamphlets dealing with precautions against fire in public schools and in boarding schools. Copies of these may be obtained from 20 Northumberland Avenue, W.C. The Union also offers to inspect fire drill in schools.

THE Vice-Chancellor of the University of Cambridge announces that he does not at present propose to announce a date for the discussion of the Report, dated June 1, 1914, of the Council of the Senate on the suggested appointment of a Syndicate on Military Training as a requirement for proceeding to a degree.

THE London School of Dulceroze Eurhythmics issues the result of the examination for the certificate in Rhythmic Gymnastics. The certificate gives the right to proceed to the Diploma examination after a year spent in teaching and further study.

THE Mathematical Association holds its Annual Meeting on January 9, 2.30 p.m., at the London Day Training College, Southampton Row.

At St. George's School, Harpenden, on January 9, will be held a gathering of teachers, consisting of a service in chapel and a conference on "Teachers and the Formation of National Ideals." Those who wish to attend are asked to apply at once to the Conference Secretary.

THE subscriptions of London Teachers to the Prince of Wales's Fund have reached a total of over £5,000.

ON account of the War there will be no Easter Conference of the N.U.T.

THE Incorporated Association of Head Masters will hold their annual meeting at the Guildhall on January 5 and 6.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE DECEMBER COMPETITION.

Either an original poem on any educational topic, or the best original device (mechanical or otherwise) employed in teaching any subject of the school curriculum.

Educational topics do not seem to lend themselves to poetical treatment. The few serious poems we have received are too serious for publication. Their unredeemed dullness is more than we can ask our readers to face. The tolerable contributions are those that have a humorous flavour. "Our Only Boy" is a theme that has inspired one contributor to produce twenty-two stanzas. No doubt the interview between the head master and the female parent of a prospective boy subtended a big enough angle in our contributor's personal experience to warrant this epic treatment. But the reader will probably be content with the final stanza containing the lady's last appeal:

Sir, do not strain him.
Do not pain him.
Though he should annoy
Strive to train him,
Gently rein him:
He is our only boy.

The following makes a wider appeal:—

THEN AND NOW.

Then a brainy classic thrall,
Spread a theoretic pall.
On the efforts of our youth,
After scientific truth;
E'en our isles, and capes, and bays,
Strung in bead-like rhythmic ways,
Smacked of words that do decline
From true gender into rhyme:
And our English grammar forms,
Were all swamped in classic storms,
Till the Greek and Roman rule
Quite enthralled the British school.
Now, another king awoke,
And Utility outspoke,
For, our Common Sense prevailed
That Geography entailed

Many reasons why at length
"Learnèd rote" was waste of strength.
Nesfield's brooms did quickly change
Classic sway, o'er English range:
All our Perrys, Halls, and Knights,
Gave old Euclid several frights;
Now there's little else to do,
But adopt a spelling "nu."

The author of the above does not seem to think he has given us enough, so he adds a postscript in the form of an appeal, which we cordially endorse, to enrol on

THE TEACHERS' REGISTER.

Register! Register
Register! forward!
All that have 'listed yet,
Number five thousand.
Forward the "light" brigade,
'lightening the brains, they said:
To join the 'listed set
Rush in your thousand.

None of the devices for teaching that have been sent in are original. We do not doubt that in every case the device suggested has been discovered anew by the person sending it in: but in all cases we are able to find the device in actual use. One of the best suggestions, for example, the use of the map of a river to illustrate the history of English literature has been used more than once in textbooks—notably in a little sixpenny or sevenpenny book published many years ago by Messrs. Nelson & Sons. The scheme sent in, however, has obviously been worked out with much labour and no little success by its rediscoverer, who makes out an excellent case for its practical utility. Several competitors have sent in ingenious methods of working particular problems in mathematics. But these belong rather to the subject-matter than to the teaching of the subject. For example,

To square a number ending in 5.

The square of a number ending in 5 ends in 25. Therefore, replace the given 5 by 25; multiply the rest of the original number by the next natural number, and prefix to the 25. Thus

$$\begin{aligned} 75 &= (7 \times 8) \ 25 = 5625, \\ 95 &= (9 \times 10) \ 25 = 9025, \\ 115 &= (11 \times 12) \ 25 = 13225. \end{aligned}$$

A half-guinea prize is awarded to the author of "Then and Now," who will please send his or her name and address to the Editor for publication in our next number. A second prize is awarded to "Melcombe," Church Road, Thornton, Preston, who will also please send his or her name to the Editor. The winner of the November Competition, "Kynde Wytte," has now sent his name: Mr. W. D. Roberts, Watford House, 16 Cheriton Gardens, Folkestone.

SUBJECT FOR JANUARY.

The best brief statement of the merits and defects of any textbook at present in use in schools.

THE Board of Education announce that they will make grants to day nurseries during the financial year ending March 31 next in respect of provision made for the care and physical welfare of infants and young children attending them. The grant will be assessed on the basis of the work done by the institutions during the year, and may be paid at the rate of not more than 4d. for each attendance, provided that in any case the total grant shall not exceed one-half of the approved net expenditure. No attendance will be counted for grant unless the infant or young child has attended the day nursery for not less than nine hours during the day. In fixing the rate of grant the Board will take into consideration the scope, character, and efficiency of the work of the institution.

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VIII.—BUSINESS.

By MARGARET CORNER, M.A.

It would be a difficult thing to compute how many women are engaged in business in this country. In the first article of this series, it is stated that there were 117,057 women clerks in England in 1911, in addition to 31,558 employed by the Government. But even if this figure includes private secretaries, it leaves out of account all women trading independently, and those who render assistance to their male relatives in business. Although the last is a class of whom this article cannot speak with precision, we know that the assistance given by wives, daughters, and sisters is often invaluable, that they may even be the moving spirit of a successful concern.

It must, therefore, appear that the entry of women into business has long been established, and that their position there is assured and satisfactory. Unfortunately, this is only true to a certain extent. Almost all of us know that it is in the subordinate positions in business that women are most frequently employed, and that it is rare to find an employer who will credit women with the qualities necessary to discharge the responsibilities of better ones. Yet it would be difficult to deny that many qualities inherent in women are just those required of business people. Energy, patience, and devotion to duty, rapidity of thought and judgment, a clear, practical view of the ordinary concerns of life—these are attributes in which many women excel, and which all business people need. But it is still rare to find girls embracing this calling because it is a vocation, and because their parents recognize in them the business instinct, which is as clear a talent in its way as one for art or scholarship. It is much more usual that the girl about to leave school "thinks she would not fancy teaching," so she had better "be a secretary," or "go into an office."

* Previous articles have appeared in May, June, July, August, September, October, and November, 1914.

When such considerations impel one to the choice of a career, rapid advancement does not always result. Yet we can all call to mind cases where, in spite of the general prejudice, women have excelled in business, and hold positions of high trust and responsibility. And it is easy to discover that their rise is not an accident. They have been keen, energetic, devoted, ambitious, and industrious, and their interest in their work is greater now than ever it was—so much we can ourselves perceive. But in addition to this, we shall soon learn, if we question them, that they have been thoroughly well educated and specially trained for their career. There are, of course, as among self-made men, isolated cases where the woman has acquired both her general and her technical knowledge after her entry into business life. Nevertheless, even among widows who continue a husband's affairs single-handed after his death, it is unusual to meet one who did not serve a long unofficial apprenticeship to her husband while he was alive, or has had some other experience of business. Otherwise, disaster is almost certain. To admit such exceptions is at once to admit the rule of excellent preparation being in this, as in every career, a *sine qua non*.

I have already mentioned that one reason why prejudice against women's advancement in business continues to be so strong, is the fact that the task is only too often unwillingly shouldered instead of being gladly attacked. A second is the lack of adequate preparation. A stronger public demand would probably have produced a better system long ago. At present, with honourable exceptions, the girl "must do something until she gets married." When her choice falls on clerical work, a superficial efficiency in shorthand and typewriting and some acquaintance with book-keeping are easily and quickly acquired. These are the first (sometimes the only) qualifications asked of a woman clerk. So the entry into wage-earning is effected and only later is it discovered on what poor foundations this efficiency has been built. It may safely be asserted that without a complete understanding of her own tongue, skill, accuracy, and facility in handling it, and a good working knowledge of two foreign ones, besides the more technical subjects mentioned above, it is often impossible for a woman clerk to rise. Not less necessary are some training in the science of economics, which underlies all business; an insight into questions of currency, banking, and international trade; some knowledge of economic history, and an acquaintance with the workings of the Government under which one lives. And it would be difficult even to attempt to give these to a girl who had not first received that incomparable endowment for all business life, a sound general education. The girl who has had it is ready to understand and appreciate such new subjects as those named. She is able to continue reading for herself. She can follow intelligently the questions and controversies of the day, and appreciate their bearing on her calling.

An education on some such lines has not always been accessible to boys; for girls it is in its very beginnings. It has long and often been expected of girls in their "teens" that they should earn through the day, and acquire a rudimentary and inadequate theoretical knowledge under poor conditions in the late evening. The alternative was a period of preparation, economized to a minimum of time and subject-matter, in a private institution for "commercial training." There has also been a noticeable tendency of late to provide some of the technical training of a clerk in the upper forms of secondary schools, in localities where the industrial conditions made it desirable. Each of these systems has its own disadvantages, but one is common to them all, namely, the fact that none offers education. Each offers a little technical skill, either instead of, or alongside, the general "schooling." But none offers training in, and insight into, the economic conditions of life which underlie modern business, and all put languages, English and foreign, into too subordinate a position. In only one or two instances have schools approached this question of thorough business education for girls seriously and systematically.

A girl educated and trained on right lines should be able to hold her own in business, whatever branch be selected. There is the secretaryship to individuals, professional or political, with the special interest that each particular work brings. There are publishing houses and friendly and other societies, in whose offices women are often employed in good positions. In all these cases a University degree in suitable subjects is a great asset, and will probably, in time, be a frequent requirement. Life as a clerk or correspondent in a commercial house appeals strongly to some, and indeed the insight gained here into large commercial undertakings, or again into specialized trading, must attract all who have the business instinct or who can feel any of the romance of commerce. In banks, women have so far only been admitted to positions as shorthand-typists, except in a few cases where they have advanced by their own merits. The Government employs thousands of women, as stated above, in the Civil Service, but it must be borne in mind that, except in a few cases, they have hitherto been employed only in subordinate positions and in mechanical work.

Lastly, there is the question of independent business, one which has scarcely been taken up as much in this country as it might have been, though it is difficult to get statistics. Even in these days of vast "stores," there are numerous commodities, the supply of which requires special knowledge. For many of these, the special department of the large "store" is not always so satisfactory as the independent source of supply. It lacks the individuality and professional pride of the specialist dealer, who exists for one purpose only. Businesses like this are not on the decrease, and many branches are well worth women's attention. Moreover, as long as the British public retains its businesslike dislike for shopping by post, as well as the decentralization of its dwelling-places, there must continue to be large and numerous districts which the stores but inadequately reach, and certainly do not sap. Here are excellent opportunities in various lines for the woman as a trader, if she has energy and alertness and knows how to gauge the tastes, the demands and the purse of her public. To one who has gained experience of business, and who is prepared to make a success of it, this career—not invariably behind a counter—can offer many advantages. It is of dimensions which need frighten no woman with training and only moderate capital. While it can be exceedingly lucrative in response to talent, initiative, and industry, it should not be beyond the powers of any woman of experience and forethought to make it produce a comfortable living. To this may be added the charm, especially to one who has passed her first youth, of complete independence of an employer and security of tenure.

BATTLES OF BOYHOOD.

By F. SMITH.

THE little company of young boys playing at the street corner had given their games a more military colour of late, as was fitting for all healthy patriots and decent-minded Englishmen; but certain grave difficulties soon beset them. For the first few evenings all went well, and the new excitements gave a zest to life which subdued all the usual causes of dissension among them, so that the group became one in spirit and desire. They enlisted and drilled and marched with an energy that would have melted the heart of a recruiting officer. They made a night attack on the boys of a neighbouring street whom they accused of faint-heartedness in the national crisis; and their success encouraged them to besiege old Burgess's garden up the lane, where they scaled the defences and commandeered the apples with such thoroughness as to make Burgess call in the police to prevent a further attack.

But their real need was an enemy close at hand to represent the Germans, strong enough to give battle, but weak enough to give way under pressure. At first they were able to persuade the younger fry to assume this rôle, and they revelled in driving them nightly from their imagined Liège, and in re-

pulsing them with heavy losses from before Soissons. But, at last, resenting the severe drubbing they got in each rout, though afraid to confess the true reason, the youngsters revolted, and declared they would be Germans no longer: it was too much to expect of any self-respecting patriot. So the course of the war slackened in default of a real enemy, and, though their games retained a military atmosphere, there was no real warfare, and dissensions began to appear among them.

There came a night when the need to satisfy their martial longings was so great that fierce personal quarrels were inevitable. As is usual in such communities, the bad feeling turned mainly against the leader, who in normal times was a veritable tyrant, but whose rule was now threatening to collapse. They did not quail before him now, and answered his taunts and threats so spiritedly that perforce he turned to bragging.

"I'll bet yer my uncle'll mak' them Germans run," he said in a proud tone. "'E's t' best feighter I ever see'd, an' I see'd 'im knock a chap deawn i' Manchester once, when 'e took me for a trip."

His hearers were much impressed by the glory of so valiant a relative; but one of them, bolder than the rest, ventured to tone down the brilliancy of this amazing uncle.

"Ah! but 'e winna 'ave much chance o' knockin' Germans deawn. They donna get near to 'em—my faither tow'd me they just shoot at one another when they're a long way off."

The leader turned on the interrupter with scorn. "Tha fule; donna they mak' a rush at 'em when t' battle's nearly o'er, and start a proper feight? Tha knows a fat lot abeawt feightin', tha does, an' thy faither too!"

"'E knows as much as thy uncle," answered the youngster. "'E donna. 'Ow con 'e? My uncle's been a sojer a' 'is life, an' thy faither's nowt bu' a knocker-up."

"That's a' tha knows. 'E's been a sojer too!"

A further sensation followed this dazzling announcement, and the boys gathered closer. The leader hesitated a moment, for his case was growing desperate again, but he ventured on one further plunge.

"'E's only been in t' Terrers. 'E's never been in a proper battle," he said at last, in a tone that was meant to give the final quietus to the new claimant for military glory, but which really trembled before the prospect of new disclosures.

The answer crushed him: "'E's been a sojer all his life, an' 'e were nearly killt once. That's why 'e's only a knocker-up."

From that moment there was no longer the lack of an enemy. Many of the former tyrant's friends stuck to him, but the majority rallied to the new hero. There were rival camps in the street, and plans were discussed on both sides with unbounded enthusiasm. The real trouble now was to decide which were the Germans, for both sides refused the disgrace. The newer party sent a messenger carrying a white flag (one of them happened to have a handkerchief more or less of that colour) to parley with the enemy on the point, but when they heard his suggestion that they were to be Germans they ignored the flag and cuffed him soundly.

So the decision had to be put to the test of battle, and they went at it hotly. In tactics the bigger boys under the old leader had the advantage, for some of them got in behind the junior force and cut off a small remnant, but the remainder went at them tooth and nail and rescued their mates with an attack that drove the big ones back. It looked as though victory would be with the new group, when a diversion was created by the appearance of two excited mothers, one of them carrying a short brush and the other flourishing a massive umbrella. Into the mêlée they rushed, using their tongues, however, more vigorously than their weapons. The boys first gave way, then broke, and finally fled, pursued by ominous threats of the consequences that awaited them once they ventured home, and outraged mothers gathered together to comment on the original sin of small boys, especially those of other families. At times it was as noisy as the battle had been.

That night sundry small boys crept home in fear and trembling, trying to slink in unobserved, or at least to behave so decorously that the parental wrath should not be again disturbed. But in their hearts they cherished a grudge against feminine interference in men's affairs, and are determined that the next fight shall not be broken up by women, who know nothing of the glory of war or of the undying rivalry of opposing armies.

DANGERS OF THE KINEMA.

By J. C. WRIGHT, F.R.S.L.

It would not be incorrect to say that the most popular form of amusement to-day is the kinematograph, commonly called the "kinema." This amusement is more than a passing craze: it has entered the warp and woof of life and cannot be ignored. Nor is it confined to the working classes: all ranks of society are under its spell. The sense of sight is temporarily satisfied with a series of pictures that have the semblance of real life to the ordinary observer. "What is needed," says the Honorary Secretary of the Educational Kinematograph Association, "is an estimate of the present power of moving pictures, a critical analysis of the reasons of this tremendous power, and a thoughtful plan for guiding the future of this new force so that all is done in the best interests of the highest citizenship."

Here, then, we have an admission that this new force, or power, requires guiding. At the present time it is not guided in the direction tending to the betterment of life. Before, however, we come to consider its effects to-day, it may be well to observe the *raison d'être* of moving pictures. From a scientific standpoint they attract us with a marvellous fascination. Without cast or scenery, or proper stage, the semblance to real life is wonderful. There is no hitch, no mistake, such as you may have in a real theatre, for everything is done as mechanically as clockwork. And here we may ask: How is life represented? It is, in the first place, highly exaggerated. The reality of the stage with living actors does not exist. Feeling is impracticable, and vocal expression—that test of the true actor—is absent. If words are to be heard at all, they are extraneous to the pictures, and frequently incongruous and unintelligible. Humour is unknown, for how can a mechanically played picture have humour? Indeed, it may be said, without fear of contradiction that, from an artistic standpoint, the kinema is opposed to true art.

But it is not only the artistic side of the kinema to which objection may be taken. It is, rather, the educational side that we desire to consider. It is reported that at the dinner of the Kinematograph Association held some time ago, Dr. Jupp said that the kinematograph was "the cleanest, the most harmless, and in a broad sense the most educative form of popular amusement the world had ever known." Let us leave these statements for the moment to note the last statement that it is "the most educative form of popular amusement." Students of child life know that the mere massing of knowledge without its assimilation is not only useless but distinctly harmful to the child. The process of thought must proceed on natural and not artificial lines. Moving pictures arrest the attention, but are not provocative of thought. By one sense alone—that of sight—the mind is, for the time being, employed, and the process of thought is so rapid that the result is a confusion of ideas which is positively harmful and inimical to education. As every teacher knows, education can only be received in a limited quantity at one time, and by associating an object with something that is known. Now the mere gazing at an infinite number of pictures in rapid succession must produce perplexity. There cannot be any true assimilation of the food thus provided. The brain becomes unable to receive influences of a really educational nature, and, in fact, is entirely demoralized and unable to accomplish anything for some considerable time. If the same is repeated the consequences are serious, and the brain becomes permanently injured.

It has been assumed up to the present that these "pictures" are suitable in every respect for a child. But can this

assumption be entertained? Canon Rawnsley has told us that the film censor is not a free man. "He is the servant of a huge commercial undertaking, and how little he can effect is shown by the fact that last year out of 7,088 subjects, though he took exception to 166 films, only 22 subjects were definitely eliminated." The fact is that the business has grown to such gigantic proportions in a comparatively short period that adequate supervision has never been given. Because the films are prefaced by the statement that they are "approved" by the Board of Censors, it is assumed they are perfectly harmless. The contrary is, however, frequently the fact. In view of the Report of the Inspector of Education at Liverpool, of the Lancashire Education Committee, and also of the Education Committee of the London Teachers' Association, we are forced to the conclusion that the kinema is one of the gravest dangers in the educational world at the present time.

Reverting to the last named Committee, we may mention a few points. The report states "that nothing but ill, both moral and physical, can be the effect on young children attending such a place. . . The kinema entertainments are generally continuous shows, and consequently many of our children remain in the building to the end." The Members of the Committee are "strongly of the opinion that the attendance of children at the ordinary picture-palaces of to-day is a real danger to the health and morals of the youth of the metropolis, and one which calls for immediate action." We believe it to be unquestionable that the kinema has lowered the moral sense of children, and that lying, deception, and theft are not regarded with abhorrence as they were. Outwardly, also, evil influences can be observed in an increasing love of noise, and desire for change. Interest in school work is lessened, and, generally, there is a thirst for pleasure of a kind alien to the proper growth of children, either physical or moral.

An official observer who a year ago visited a considerable number of picture-houses at different hours of the day, had to report that "most of the films were sensational, and many of them horrible. Murder, burglary, abduction, or sudden death under a variety of revolting circumstances, were seldom absent from the program. Occasionally the effect was brightened by red tints and real smoke. Late at night, queues of children were to be seen waiting at the doors. During the show the children sit with straining eyes, and excited cries and ejaculations punctuate the story which quivers on the screen. Nervous, delicate, and excitable children suffer positive harm consequently. Night-screaming, fear of the dark, general nervous deterioration, and strained eyes are the commonest physical defects. Stealing teacher's watch, forcing father's cashbox, hunting Red Indians in the street with real pistols, are among the psychological effects."

The indirect influence of kinemas is far reaching. We may briefly refer to a few. It is unquestionable that home life has undergone a considerable change during the past few years. Children are allowed to stay out late at night, and, generally, to be free to do what they please. This tendency has been accentuated by the kinema. After being at school twice a day, children frequent these picture-palaces, where they spend their pennies as they please. And here may be mentioned a side effect which may appear of secondary importance, and yet it cannot, we think, be disregarded. It is now the custom to vary the entertainment by producing scenes from novels and plays. Some of these may be quite unobjectionable in themselves, but if such be the case the scenes are frequently exaggerated and made more presentable to a youthful audience, and consequently the impressions conveyed to the mind are not true to life. Besides, one may be inclined to ask: Can what is written for the adult be suitable for a child?

These matters are beyond the cognizance of the British Board of Film Censors, which is controlled by Mr. G. A. Redford, and it behoves all who have the welfare of the rising generation at heart to bring pressure on that body to raise the standard of their examination. But this is not sufficient. Action should be taken by educationists to show how utterly fallacious are the statements that the kinema can take the place of the schoolmaster. Knowledge is not the main desideratum for a child. Said a Roman teacher: "The child's mind is not a vessel to be filled, but a hearth to be kindled."

THE FOUNDATIONS OF CHRISTIAN EDUCATION.*

Translated by S. E. HOWE.

(Continued from page 534.)

LET us consider another example of modern one-sidedness—the movement towards physical culture. It is, undoubtedly, one of the great missions of education to direct the physical activity of adolescence into right channels. For physical training has not only hygienic but also moral value for the strengthening of will, and for the training in precision, &c. The teacher of physical training must always bear in mind that the whole physical development should be subject to an ethical and spiritual aim. Character consists of the convergence of all the tendencies towards the highest, and when actions or deeds are alienated from this aim, dissolution of character sets in. Unfortunately the manner in which physical culture is looked upon in wide circles clearly points to the fact that those concerned in this propaganda uphold only a one-sided ideal, and yet nothing is more harmful to character than that secondary values shall occupy the first position. *Unum est necessarium* is also true in this respect.

Wichern has pointed out rightly that unless these movements for physical development are ruled by the ideals of the Gospel, they must, however imposing their importance, become harmful to our youth. We are already in danger of a "knickerbocker and football" education assuming alarming proportions, and the Christian ideal of manhood is lost in a purely physical ideal of force. The development of the finer spiritual qualities is endangered by an unbearable snobbishness of muscle which lends a new impetus to all the natural desires by fostering self-assurance and conceit. Some people even go so far as to imagine that to camp out in the open is the foundation of all manly education. We must, however, bear in mind that outward heroism and physical hardening are no guarantee against moral cowardice and weakness of character. True manliness is developed by discipline, and the greatest discipline emanates from a tender conscience. Therefore the most solid foundation of all true culture of manliness is a conscience guided by the Spirit of God.

It is very desirable that youths should become physically hardened, but it should not be forgotten that character is the surest means of preserving the body in health. When conscience does not watch over the body the finest physique is sold for a "mess of pottage." For it is the spirit which upholds the body.

In spite of the variety of sciences taught, modern education lacks the science of the ideal, and suffers from tentativeness and want of a definite plan in its experiments. As an illustration of my point, I should like to instance the burning question of co-education of the sexes. Does it not bring out much vagueness and one-sidedness in conception of purpose? Many modern experimentalists declare that they have achieved splendid results with co-education. But we should like to know what the point of view is from which they consider the results as splendid and by what ideal they measure their success. Have they become satisfied with so little that they do not see what poverty of soul these methods lead to? Is it not possible that what seem to them good results may, if viewed from a different standpoint, appear most undesirable? In the *Atlantic Monthly* an American lady has recently described the type of woman resulting from co-education in the following words: "She is a mixture of an unmanly, boastful boy and of a spoilt and moody mondaine." I agree with Mr. Reddie's contention that it is of primary importance, for the discussion of this problem, to settle the question of principle. Are the psychological differences of sex to be levelled? Or is it the aim of education to accentuate these divergencies? But these questions take us on to another: What are the ideals of perfect manhood and womanhood? It is only after having answered this question that we shall be able to decide upon the methods to be employed, and have

* A lecture delivered by Prof. F. W. Förster, of Vienna, at the Eighteenth German Evangelical Educational Congress held at Cassel, 1913.

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a firm basis from which we can judge the results. It may be that we shall then recognize that he who always bears in mind the aim of all education will not need to make experiments, but will instinctively find the right methods which will lead him to the realization of his ideal.

What has Christianity to say concerning this question of principle? Christianity alone has shown us a way to counterbalance the peculiarities of sex, without abolishing the difference. It makes man more manly, and woman more womanly, and yet it has drawn the sexes spiritually nearer to each other. And how has Christianity achieved this? By having infused into the soul of man an element of womanly strength, not to weaken the manly will but to train the mere natural manliness to chivalry by the discipline of love. By having infused into the soul of woman an element of virile strength, not to make her mannish, but to give her courage to be quite different from man.

With love Christianity has blended heroism which, in olden days, showed itself only on the battlefield, and thereby heroic love is created. The Will which conquered the world is united with Love, thus begetting the world-conquering love.

A more effective complementing of the fundamental psychic elements of either sex should, then, in the case of that sex, be the aim of Christian education. The Christian woman has always impressed man because he has found in her a being different from himself and yet his equal in power and completeness.

The modern woman, having freed herself from Christianity, is conscious, nevertheless, of the fact that natural femininity and uncontrolled emotional and nervous life can only lead to destruction. She rightly feels that her nature requires a virile element of strength and severity to cope with the demands of life. But by error of judgment she has tried to secure this fortifying element by mere imitation of man's methods of self-assertion and by entering his professions. Co-education was intended to help towards this aim, by accustoming girls, at an early age, to take a bolder view of life. In reality, all that has been achieved is the production,

so to speak, of hybrid beings who possess neither the aggressive and defensive qualities of man nor the powers typical of womanliness. Woman, however, gains power and a beneficent influence over civilization only if she develops to the utmost her own higher nature in the light of the Gospel. To prove herself true to her own purest instincts she should be wise in her self-forgetfulness, heroic in love, logical in her pity, and should show the courage of Iphigenia when tempted to adopt manly methods. To-day, perhaps, more than ever, we need what Goethe calls "the hallowed restfulness of woman" to balance the feverish activity of man. In the place of the egoistic woman of the world we need the Christian woman—the type which Ruskin describes so well in his "Queens' Gardens." It is when womanhood is truest to its best ideals that it is most capable of directing civilization away from mere externalism back to inward culture. If we consider this point thoroughly we shall realize that this goal will never be reached through co-education.

Each sex must first find itself and become set before it can act as an educative power in the life of the other sex. Youths and young men whose manliness is not matured and balanced are hardly able to educate young girls. Through such teachers the girls will acquire only slang and roughness of manner, in fact, all the symptoms of undisciplined manliness which accentuate the slovenliness of their own nature. The common experience of co-education is that girls have no educative influence over boys; indeed, in order to be good comrades they relinquish much of what is peculiar to their nature. To bring out the very best in girls they should be trained by matured women, able to confirm and deepen them in true womanliness. Even this education must come under the influence of Christian truth. Christ, by ascribing to love the highest power, has thereby given it the victory over the difficulties of the inward and outward world. He alone is able to secure for the weaker sex a world-permeating influence, and He alone has procured for women the position of equality in the life of culture.

Selma Lagerlöf, the poetess of the North, in her recent lecture "Home and State," emphasizes the fact that hitherto it has been man who founded the State and woman the Home, but that to-day the problems of State have become so complicated that they call for the co-operation of the powers of love and personal care to solve them. The qualities which founded the Home are now needed also for the management of the State. The ethical gifts peculiar to woman are required to complement the organizing powers of man. But because woman is obliged to take her part in the struggle of life she must be grounded in Christ, so that the same spirit by means of which she was enabled to found the Home should now influence the larger sphere, and make her an effective and independent power.

II.

So far I have been concerned with only one of the two cardinal demands for effective education—namely, the necessity for a steadfast, definite, and universal aim. But in the introduction to my lecture I also spoke of the other fundamental condition—namely, the necessity for the educationist to know his material (human nature) thoroughly and to view it without illusions. Frederick the Great once said to an idealist who wished to act the part of a reformer: "Sulzer, you don't know this d— race!" To many a proposal made by modern educationists one feels tempted to say the same thing.

Modern man imagines that it is because of his realism that he is alienated from the truth of Christianity, but as a matter of fact, it is the lack of reality—ignorance of human nature and of self-knowledge—which has led to this estrangement. This alienation of man from himself, this ignorance of realities concerning his true self, has given rise to so many theories which would be confuted by real insight into his own heart. It is Ellen Key who has coined the phrase: "The Century of the Child." We may accept this definition, but to us it means that never has there been a century in which so many grown-up children have arisen to replace well proved truths by their own childishness. When once man has lost God, and no longer has that light to show him the abysmal depths of his own soul, to unveil without pity its state of neglect, and yet at the same time to point out a way of escape, then it is only natural for him to make divinities out for himself and his nearest and dearest. He no longer sees what a nest of adders the human heart is, and how much it is in need of pity, grace, and discipline for the higher life to have its full sway.

I should like to justify this criticism by two examples: take, first of all, the modern cult of personality, the teaching that to produce personality an untrammelled development of the "ego" is required. Such an education would produce awkward louts, but not personalities. Personality implies activity and man becomes truly active only when he lays the axe to the root of passivity, at the point where he is tempted to give way to the natural tendencies of his own nature. The more we give in to ourselves the more our body and the external world lord it over us. True education towards liberty consists in procuring for man an independent standpoint from which to view with impartiality his innate temperament, thus giving him power to resist his moods and passions.

Another instance of the ignorance of life mentioned before shows itself to a great extent in certain literature on sex education. The old superstition common to all educational optimists that demons can be exorcised by words is still believed in. Undoubtedly the movement of sex enlightenment has brought to the fore many indisputable facts worthy of consideration. But its adherents have over-reached their aim by forgetting that the whole problem is more a question of self-control than of knowledge. The Epistles of St. Paul contain the best confutation of this superstition as to the efficacy of merely intellectual instruction. Those who refuse to take advice from this source should take to heart the words of Ovid's "Medea": "Video meliora proboque, deteriora sequor."

Modern sex-education endeavours to enlighten from outside. Religion enlightens from within and above: it reminds

man of his high origin, offers the soul mystical food, puts him into living contact with the source of his strength; in a word, gives sanctification instead of physiology.

I do not wish to deprecate the importance of giving some explanation of the natural processes of life; but a twofold truth must be borne in mind by teachers if instruction is to be tactfully given at the right time and in right measure. The first truth is that it is well not to invite attention to, but to draw the thoughts away, from these facts. The second is that a healthy, general education is a far better preventive than a directly specializing treatment. He who has trained his pupils to resist actively the promptings of the body and of the external world will have succeeded in making them proof against the temptations of adolescence.

The optimism of will training according to modern methods also shows the lack of accuracy in judging human nature. For example, take the writings of Trine, Marden, Payot, and Levy. Trine says: "The Bible teaches that we have all fallen in Adam. Not a word of that is true. Heredity is a broken reed; everybody holds his own life in his hand and can make of it, for his character, whatever he likes." The instability of this optimistic point of view is apparent to anyone who watches himself or others after reading these books. To begin with, there may be great enthusiasm—then all remains as it was. "What is the cause of this impetus? These writers do not touch at all on psychical conditions. They ignore that fundamental duality which St. Augustine calls the sickness of the human will; that mysterious counter-will in us, that willing and yet not willing of which St. Paul speaks from personal experience, and to which Luther has given such impressive testimony. The optimists erroneously presuppose that the right will is there, and that all that is required is instruction how to use it. They deceive themselves. How very few really want the right! We are deeply in bondage to another kind of will from which we must first get thoroughly freed if our will is to gain the strength to uplift us.

It is at this point that Christian theology speaks to us of "the consequences of original sin." But modern man regards this fundamental doctrine as a ghost story having no real connexion with actual life. However, if he personally were only a little more in touch with the actualities of human nature, he would realize that the doctrine of original sin is the foundation of all wholesome education.

It is of the greatest importance that the teacher should know the seat, if I may so speak, of original sin in human nature. Modern antagonists declare that Christianity calls original sin what is really only the heritage of sensual desires. Even Schleiermacher has helped towards this misapprehension. In reality, original sin does not lie in our sensuous nature, but in the mysterious tendency of the will to fall away from God and to lose itself in the world of sense instead of imposing on the latter the law of the spirit. I will try to illustrate this psychological truth by a simple example. A man learning to ride attempts to make his horse clear a hurdle, but the horse remains standing. He remarks: "The horse does not want to jump." But his riding-master answers him: "The horse is quite ready to jump, but *you* do not want him to." "But I *do!* I have even used the spurs." "Yes, so you have, but unconsciously you have also checked him by pulling the reins. You wanted to jump, and at the same time you have not wanted to." Let this trivial illustration remind us that we often put down to the flesh what, in reality, proceeds from the soul. Nature, created by God, would willingly obey the spirit if the latter decided to obey God; it ceases to rebel once we are fully surrendered to God.

Mr. Linsay, an American Judge for juvenile criminals, in one of his discussions with boys, asked the following question: "When does a boy begin his downward career?" A variety of answers was given. Poverty, bad company, lack of wholesome pleasure were put forward as causes. One boy, however, answered with truth: "When he turns away from God to obey Satan." He rightly called the primary cause by its true name. It is in the attitude of the soul that the cause lies, and everything becomes an occasion for falling when the

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soul has lost its centre and clutches aimlessly at the tangible and visible. It is this primeval tendency to fall away against which we have to fight if we want to attack the root instead of only the symptoms of degeneration—this apostasy of the soul from eternal good to momentary good. The power of the visible can only be conquered when the higher, the invisible, is revealed to us as a glowing reality full of the suffering of life, and not as an abstraction. It is God alone who, by the Incarnate Word, calls the soul back to her eternal source—to Himself. "It is finished" is incomparably more than the mere "It is thought" with which ethics tries to satisfy us.
(To be continued.)

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on November 25. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Dr. Armitage-Smith, the Rev. J. O. Bevan, the Rev. J. B. Blomfield, Mr. Brown, Mr. Butler, Mr. F. Charles, Mr. R. F. Charles, Miss Dawes, Prof. Dixon, Mrs. Felkin, Mr. Hawe, the Rev. R. Lee, Mr. Millar Inglis, Mr. Pendlebury, Mr. Rawlinson, Mr. Rushbrooke, the Rev. C. J. Smith, Mr. Starbuck, the Rev. Canon Swallow, Mr. Thornton, and Mr. Wilson.

The Secretary announced the death of the Rev. Dr. Douglas Scott, one of the Vice-Presidents of the Council. The President reported that he had sent a letter to Mrs. Scott expressing the Council's deep regret and their sense of the distinguished services which Dr. Scott had rendered to the College.

Diplomas were granted to the following candidates, who had satisfied the prescribed conditions:—Licentiatehip—Mr. Edgar Warring, Mr. John Ellis Wright; Associateship—Miss Edith Janie Willcocks.

The Secretary reported that the Practical Examination for Certificates of Ability to Teach had been held on October 23 and 27, and that the total number of entries for the

Christmas Certificate and Lower Forms Examinations was 3,620.

The Council were informed that the late Miss Julietta Priscilla Mears, one of the College Examiners in Domestic Economy, had by her will bequeathed to the College the sum of £35 Great Western Railway Rent Charge Stock, the interest on which was to be applied to providing a prize for the best pupil in Domestic Economy at the examinations held in June and December in each year. It was resolved that the bequest be accepted, and that the Council record their grateful appreciation of Miss Mears's generosity.

On the recommendation of the Finance Committee, a grant of £20 from the College Benevolent Fund was made to a Life Member of the College.

Prof. John Adams was appointed to deliver the next course of twelve lectures on Psychology.

Mr. Brown and Mr. Hawe were appointed the representatives of the College on the Joint Scholarships Board for the year ending February 29, 1916.

Mr. Bayley, Mr. Holland, and Mr. Somerville were re-elected Members of the Council.

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

- By the AUTHOR.—Bevan's University Life in the Olden Time.
- By DR. ARMITAGE-SMITH.—Kirkaldy's British Shipping.
- By A. & C. BLACK.—Black's Travel Pictures (Europe).
- By MACMILLAN & CO.—Gandy's The Wanderings of Rama; Nesfield's Matriculation English Course; Siepmann's Histoire d'un Concert de 1813, and Word- and Phrase-Book; Rowe and Webb's Guide to the Study of English.
- By METHUEN & CO.—Lowson's Preparations and Exercises in Inorganic Chemistry; Sayer and Williamson's Junior Scripture Examination Papers (New Testament).
- By J. MURRAY.—Lodge's Modern Europe, 1815-1878; Wyld's Short History of English.
- By the OXFORD UNIVERSITY PRESS.—The Oxford Plain Text Shakespeare (Henry IV, Parts I and II, Henry V, Henry VIII, King John, Much Ado About Nothing); Patriotic Poems; Why We are at War; Wyld's Elementary Lessons in English Grammar.
- By the UNIVERSITY TUTORIAL PRESS.—London University Guide and University Correspondence College Calendar, 1915; Birchenough's History of Elementary Education; Haler and Stuart's First Course in Mathematics for Technical Students.
- Calendar of Armstrong College, Newcastle-on-Tyne.
- Calendar of King's College, London.
- Calendar of University College, Nottingham.
- Calendar of Victoria University of Manchester.

REVIEWS.

The Lighter Side of School Life. By Ian Hay.
(5s. net. T. N. Foulis.)

Mr. Hay cannot fail to capture the hearts of the readers of this journal by his dedication "To the members of the most responsible, the least advertised, the worst paid, and most richly rewarded profession in the world." The kindly smile raised by this appeal is of that sort that does not come off when the reader turns to the pages that follow. The Head Master, the House Master, and the Form Master get each a chapter to himself. Boys naturally have a long section all their own. The remaining four chapters deal respectively with The Pursuit of Knowledge, School Stories, My People, and The Father of the Man. Those who have read the articles as they appeared in *Blackwood* will welcome this handsome edition, the value of which is greatly enhanced by the dozen admirable illustrations supplied by Mr. Lewis Baumer. We can fancy Mr. Hay's delight when he first saw the drawings, and realized that he had found a kindred spirit: a man who, like himself, really knew his boy. It is a fine art in itself to draw types that have the precise amount of exaggeration necessary for effect, without tipping the balance towards the descent that leads to caricature. That Mr. Baumer has mastered this art is proved a dozen times over in these pages, though the crowning proof is perhaps to be found in "The Schoolgirl's Dream." Pen sketches of types are, perhaps, even more difficult; but Mr. Hay rises superior to all obstacles, except, perhaps, in the chapter on Boys. Here it is just possible for the reader to feel that typification has been carried a little too far. The attention becomes focused on the type as type, and this somewhat disturbs the effect of truth and naturalness that is so charming throughout the book.

Every lover of the public schools should read this book for the sheer joy of it, and every opponent of these schools should feel that common fairness demands that he should take the opportunity of seeing them in these pages at their best. Not that Mr. Hay is a partisan. His vision is too sure to permit faults to escape him, and his sense of fair play is too keen to allow him to pass them by. They all appear in his pages. He laughs at, as he laughs with, his fellow-masters, for no anonymity, however strict, can hide the fact that Mr. Hay is a schoolmaster. He cannot be said to have escaped from all the prejudices of his craft; the wonder is that he has escaped so many. He satirizes "these silent strong men," but he himself falls into that exaggerated view of the modesty of boys that reaches its high-water mark in Kipling's caricature of the blatant, flag-wagging school orator on patriotism. But we would not have Mr. Hay other than he is — cheerful, brilliant, sincere. We welcome his book and are proud to belong to the same profession with him. We are convinced that, when he reads this book, Mr. H. G. Wells himself will scarce forbear to cheer.

Bishop Gilbert Burnet as Educationist. By John Clarke.
(4s. net. Aberdeen: Wyllie.)

This may be regarded as the pious tribute of one Aberdeen University man to another. Just as not every Englishman realizes that Bishop Burnet was a Scotsman, so not every teacher is aware that Burnet wrote an educational treatise. It is called "Thoughts on Education," and resembles in substance as in title Locke's "Some Thoughts concerning Education." Burnet was first in the field, but his contribution is a slight affair, written when he was under twenty-five years of age, and covering in all only seventy-three well led pages of the present work. Mr. Clarke adds a forty-eight page "Life of the Author," in which he specializes on the educational aspects, and rightly leaves the reader to gather any further information he desires from Clarke and Foxcroft. Twenty-nine pages are next devoted to Burnet's "Educational Activities." A four-page note on "Burnet's Correspondent" accepts as highly probable the conjecture that the nobleman to whom the "Thoughts" are addressed is the Earl of Kincardine. All this is excellent, but we have grave doubts about the educational justification for the remaining seventy-two pages in smaller type. These consist of an analysis of the "Thoughts" and a set of notes on the text. It does not seem as if the straightforward text could bear the strain of

this double weight of comment. Occasionally Mr. Clarke gives us a note in which he is able to show us his quality as a critic of educational matters, but in most cases the reader cannot but feel that the author might well take a little more for granted. It is true that everything depends upon the kind of reader Mr. Clarke has in view. If the volume is written as a classbook for junior students, no great objection need be raised, though even then it has to be pointed out that the notes apply more to matters of English than of education. There does not seem to be much value in notes like the following:—"Terms of scolding, scolding terms, abusive language; singularly rare, quite exceptional; irritated, stirred up; beat down, metaphorical—subdue, overthrow; with open mouth, a proverbial expression." Fortunately the reader is not compelled to use the notes, and need not, because of them, be the less grateful to the author for the excellent matter to be found in the text and the various chapters.

"Home University Library."—*William Morris: His Work and Influence.* By A. Clutton-Brock. (1s. Williams & Norgate.)

This study of William Morris will rank with the best volumes in the Home University Library. Like them, it has the scholarly rightness of a monograph without its pedantry. Mr. Clutton-Brock also has a gift of telling phrase, which illuminates the whole book. When, for instance, he says that young Morris had a "scent for his own future," we are reminded of Maeterlinck's saying that events heavy with significance for our future come "du fond de notre vie."

As Mr. Clutton-Brock points out, the mark of Victorian England was an "immense complacency." For good and evil, the Puritan tradition dominated life. Sheer beauty was a thing suspect. It was dangerous; moreover, it did not count. Philanthropy did, so did politics, so did literature and the "Messiah," and a feeling for landscape and money-making; but a sure and uneasy instinct warned the Mid-Victorian that delight in beauty of form is a pagan thing. The economic system had all the sanction of dogma, and it was believed that increasing the wealth of individuals meant progress and wealth for the nation. Art was a "pleasant ornament of life" — at best it was vaguely credited with an "elevating" influence. Thus, Taine noticed that, while the cultivated Englishman never just enjoyed Beauty, he might be induced to advocate the opening of picture-galleries on Sunday in the hope of reducing Sunday drinking. Any serious consideration of aesthetic theory or any high conception of art as an organic element in human society was left to foreigners: to the French, who advocated an immoral theory, labelled "Art for Art's sake," and the Germans, whose ideas from Lessing to Hegel were all moonshine.

This scale of values could not endure, but the men to rouse England had to be prophets, and their appeal had to be mainly ethical. Ruskin came. He judged works of art by their "moral and intellectual qualities"—and "he turned away from his art to preach to men like a Hebrew prophet." William Morris had a moral dislike for bad art. And he turned Socialist. For the last twelve years of his life this great artist spent his Sunday afternoons like any obscure orator of the streets.

They were both men of the North. They shrank from the "arrogant and determined perfection of Renaissance Art." "Do you suppose," said William Morris, "that I should see anything in Rome that I can't see in Whitechapel?" He "recognized" the Church of Minster in Thanet, and his first sight of Rouen, in 1854, was the greatest pleasure he had ever known. It was Northern poetry he loved; it was the Medieval Guild that gave him his conception of the ideal workman.

Mr. Clutton-Brock gives a vivid picture of William Morris's astounding activities. He was himself a working printer, he designed wall-papers and furniture, stained-glass windows and tapestries; he rediscovered the old vegetable dyes. There was not an art or a craft, fading away before the advance of machinery, which he did not infuse with new life and significance. This was the true originality of this remarkable man. Mr. Clutton-Brock's claim for him and Ruskin that they first viewed art as the expression of society is too sweeping. Goethe and Schiller did this, and toiled in Weimar at "The Aesthetic Education of Mankind."

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Taine was writing his "History of English Literature" and "Philosophie de l'Art" at the very time that Morris was working in England. The truth is that Ruskin and Morris were the first Englishmen to preach that a civilization without art is lopsided. They were the first Europeans to realize the importance of the craftsman. Morris "judged the art of an age rather by its cottages and cups and saucers than by its great pictures." It was architecture, statues, pictures, literature, and the theatre that appealed most to Goethe and Schiller, and it was mainly by means of them that Taine reconstructed a civilization.

It is difficult to agree with Mr. Clutton-Brock's estimate of William Morris as a poet. His remarks about the technical merits of the poems are penetrating, but he, like most people, dubs them Romantic and claims for them the "music of folk-song enriched, but not robbed, of its freshness." A Romantic poet, he says, is one who draws his inspiration from the past, because the past is a refuge from the unpleasing present. That may be so, but the true Romantics invest the past with glamour and view it subjectively. Morris is an epic and the most objective of poets. Lyric poetry, the intimate expression of emotion, uses simple metres, quite close to the homeliness of folk-song.

The King sits in Dunfermline toun,
Drinking the blude-red wine.

That is Folk. And Keats begins a great romantic poem quite as simply:

O what can ail thee, Knight-at-Arms?

That has not the momentum of Morris's long line.

We are not such Philistines as we were. Our social conscience is more sensitive. Our fathers were afraid plastic art was "wrong"; we know it is "right." So Ruskin and Morris did their work well. Without their influence we should not now mourn Reims so bitterly nor dread so deeply a like fate for Rouen and Bruges. Amid the shriek of shrapnel and the hatreds of war, William Morris's belief in the People is perhaps his greatest gift to us. In moments of despondency we have feared that democracy meant the triumph of the mediocre and the apotheosis of the demagogue. William

Morris knew better. He believed society could be made "fair and orderly," the expression of free workmen with living art as the symptom of their happiness. "More and more I feel how right the flattest democracy is." was his deepest conviction. His strong and valiant soul would have been with us in our sore conflict of to-day.

British Shipping: its History, Organization, and Importance.
By A. W. Kirkaldy, M.A., B.Litt., M.Com. (Kegan Paul.)

The title of this book may suggest a somewhat dry, technical, and specialized treatise. The work is, however, full of interest and highly instructive for all who care to know something of one of the greatest sources of the wealth, comfort, prosperity, and influence of Great Britain. Prof. Kirkaldy has the advantage of being a trained economist. He is Professor of Commerce at Birmingham, and is peculiarly qualified for his task by wide study and by a lifelong familiarity with shipping and seafaring matters. His knowledge is full and first hand, his descriptions are vivid and sympathetic, and the work is written in a bright and vigorous style. He carries us over the evolution of shipping almost from its origin to its highest modern developments, touching, with obvious affection, on those episodes in British history which established Great Britain's position as a predominant sea power, which gave the impetus to her colonization and determined her influence as the greatest commercial nation of modern times.

One-third of the book is thus historical and also descriptive of the various advances in shipbuilding. It is also highly instructive on the numerous trades directly and indirectly connected with this valuable industry which is so vital to the pre-eminence of Great Britain. The second division gives a lucid exposition of the growth of the commercial side of shipping from small private ownership to the vast federations and organization of shipping companies. Their numerous and intricate relations, their methodical arrangements, the details of their consolidation, and the principles which govern their success as a complex system

of transport are clearly explained. We have then a full description of "Lloyd's" from its inception to its highly organized system of registry and information on all matters relating to shipping. A chapter on Marine Insurance gives an insight into the risks attendant on shipping and the careful schemes by which these are covered.

A business comprising so many interests especially relating to labour inevitably called for regulation by the State. Of the many forms of interference we have a full account, from the early "Navigation Acts" to the present elaborate Board of Trade regulations in the interests of the travelling and commercial public, and also of those affecting the various employees—sailors, engineers, &c. The recital of these Acts, their aims and methods proves that the nation has travelled very far from the *laissez faire* epoch in matters touching the interests of the working classes. The grounds and character of each mode of interference are discussed with clearness and judgment.

The section on Trade Routes treats of another aspect of the problem: geographical discovery, the enterprise of navigators, the advances in the science of navigation and in the arts of construction led to new routes and fresh fields for commerce; hence a growing extension of trade, which in turn stimulated to further improvements in shipping. The story of this expansion and the gradual organization of routes is an effective commentary on the forces which have made for England's supremacy at sea, and provides instructive lessons in commercial geography. The detailed history of the formation of the Suez Canal, its results on the diversion of trade, its economies and political consequences, are well told, and afford graphic details for a valuable lecture on the economies consequent upon improvements in communication. Not less striking, and even more interesting, is the account of the formation of the Panama Canal, with the estimate of its probable results upon the commerce of the world. This is one of the most instructive analyses that has been made of the political results of this vast scientific and commercial undertaking. The writer has made a very able study of the project and the new situation which it has created by both the trading and political possibilities which it opens up. He gives a reasoned estimate of the probable effects upon the mercantile relations of the world, the modifications in trade routes, in supplies, and conveniences.

A description of the ports of the United Kingdom, with statistics of their trade and tables of shipping routes, complete a volume which is packed with information, and which will be a mine of material for class lectures on geography, trade, and commerce. It is lucid in style and admirably constructed. To a maritime and commercial people, dependent by its insular position upon foreign commerce and colonial possessions, this book renders excellent service. It is a storehouse of valuable materials, comprehensive in grasp, and effectively arranged.

OVERSEAS.

One of the best of the American magazines dealing with education is *The English Journal*. It is the organ of the teachers of English in the schools of the States, and it does its work admirably. In the November number there is a useful article by Clem Irwin Orr, of Washington, D.C., entitled "A Revolt and its Consequences," in which he gives an account of the result of a sudden resolve to be no longer the mere hod labourer that the marker of English papers too commonly is. His plan is that which Prof. Adams has so frequently expounded at the College of Preceptors and elsewhere—the throwing of the responsibility upon the pupils. The teacher indicates that there is an error. It is the pupil's part to find out the error and to correct it. Mr. Orr concludes his article by pointing out that he is now saving himself a great deal of unnecessary labour. With the pupils it is different. "The pupils are working. Do not lose sight of that big fact. They are really working. I know by results." In the same number is a little article that should be attractive to our readers who take any interest in our competitions, for it deals with "Devices for Review." It applies geometrical diagrams to illustrate the correlation of the various plots and sub-plots in plays and novels. Naturally "The Merchant of

Venice" is selected as being particularly suited to this treatment; but the method is of more general application, as is shown by the case of "Ivanhoe." Shakespeare is treated by quadrature while Scott has to be content with triangulation. So long as teachers do not take this sort of thing too seriously it cannot but be of value in stimulating and directing attention.

In the November number of *Education* (Boston) we are told that "The Superintendent of Schools in one of our large eastern cities instructed the teachers at the opening of the schools in September to avoid discussions of the European War and its horrors during school hours and in the classroom. We have reason to believe that many other school officials in various parts of the United States took the same view of the proprieties, and promulgated similar instructions." This has apparently led to remonstrances. To begin with, there is surely a distinction between treating of the war and treating of its horrors. In any case a distinguished professor of psychology and pedagogy has come forward with a protest. He maintains that the best training for pacifism is a demonstration of the horrors of war. He asks with some vehemence about the prohibition: "Was there ever such an anti-pedagogic attempt to build a watertight compartment between the school and life? Or a greater sin against the Holy Ghost of education?" Whether they will or no, the Americans are involved in the present troubles, and it is childish to try to hide from the wideawake American youngsters what is thrust before their eyes by super-scarelines every day in the newspapers.

A new official has made her appearance. The Harrisburg (Pa.) School Board has arranged to appoint a competent female teacher adviser, whose business is to look after the interests of high-school girls out of school hours. She is to have a general oversight of the girls, to hold conferences with mothers in the homes, to find out causes of failure in study, to recommend proper careers, and to confer with employers. She is to be a general helper and adviser on all matters concerning the educational and personal welfare of this type of girl. If there is to be only one of these foster mothers, we wonder how far she will go round. Harrisburg (Pa.) is what its citizens would call "some place."

The American *Journal of Educational Psychology* is interested in the complaint that graduate and professional education tends to delay the marriage of superior men, and that this occasions serious loss to the race. "It has been urged that we ought not to prolong education past the early twenties, and that the intellectual men should be encouraged to reproduce at the rate of four generations per century instead of three as at present." It is doubted, however, whether this increased rate of production is desirable, and Mr. Casper L. Redfield, of Chicago, challenges contradiction by offering to "donate one hundred dollars to the treasury of the American Genetic Association if it can be shown that any superior individual has his date of birth within a hundred years after the average date of birth of his sixteen great-great-grandparents." What a stirring this should cause among the leaves of the genealogical trees of superior Americans! Another disquieting announcement in the same magazine is that an examination is to be held to fill the position of specialist in industrial education in the Bureau of Education at Washington. It is true that certain chairs in the Faculty of Divinity in Scottish Universities are attainable only *via* the examination hall, but this American precedent brings the horror very close home. We wonder what Dr. Hayward thinks of it.

Teachers are being more and more worked into the ordinary scheme of civic life. In Wisconsin teachers are to be employment agents; for it has been decided that school principals are to be paid secretaries and managers of the employment bureaux that are being established in the public school-houses.

America sees in the present War, if we are to believe Commissioner P. P. Claxton, an opportunity for stealing a march upon the other civilized nations in matters educational. As reported in the *School Review* (Chicago), he argues that "America should assume the intellectual leadership of the

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world." The same magazine for November contains a very sensible set of suggestions on how to study, to be put into the hands of pupils. Some teachers may regard them as too detailed, while others will complain that they are more exhortations than directions: but in any case they are meant to be put into the hands of pupils, and have thus the merit of supplying a somewhat glaring defect in our educational literature for the benefit of pupils under regular instruction in school or college. The private student is of course better catered for in this particular. We fear, however, that the DeKalb (Illinois) Township High School, that has originated these directions, will not win the approval of Miss Katharine Kingsley Crosby, for the pupil is directed to "talk over your school work at home," while Miss K. K. C. is violently opposed to educational shop in any form. We ourselves do not quite like the DeKalb plan when it proceeds to "super-vise the leisure time" of the pupils. Time that is subject to such supervision has a strong tendency to cease to be leisure. The *Review* further tells us of an interesting development at Austin where Bible instruction is in future to obtain credit towards graduation. The religious difficulty is apparently solved by the simple expedient of having the Bible instruction given in the city churches. Our politicians might do worse than keep an eye on Austin.

GENERAL NOTICES.**MATHEMATICS.**

Elementary Theory of Equations. By L. E. Dickson, Ph.D., Professor of Mathematics in the University of Chicago. (1 dol. 75 c. Chapman & Hall.)

A useful and carefully written book that may be read with advantage by both practical and theoretical students who prefer the subject in a volume by itself. The treatment is thorough, certain of the more difficult sections being marked for possible omission on a first reading. Considerable attention is paid to the numerical solution of equations, and Newton's method, discussed from both the graphical and an analytical standpoint, is given a prominent place. Determinants

and eliminants are dealt with in two final chapters. There are plenty of well selected examples and exercises.

Constructive Textbook of Practical Mathematics. Vol. II: Technical Algebra, Part I. Vol. IV: Technical Trigonometry. By H. W. Marsh, Head of Department of Mathematics, School of Science and Technology, Pratt Institute. (Vol. II, Part I, 8s. 6d. net; Vol. IV, 6s. 6d. net. Chapman & Hall.)

The author outlines a system of training in practical mathematics which has, he tells us, proved successful in his classes at the Pratt Institute. It aims, as all training in practical mathematics should, at the acquirement of a thorough working knowledge of mathematics rather than a mere facility in juggling with symbols and figures. Much of the usual conventional work is dispensed with. In algebra the practical essentials of the subject are carried up to the binomial theorem, a somewhat isolated chapter on Resolution and Composition of Forces introducing the idea of a trigonometrical ratio. Logarithms and a well illustrated chapter on the Slide Rule occupy 128 pages, or nearly one-third of the book. Plenty of exercise work is provided, including a large number of examples on transformation of formulae. In the "Trigonometry" the opening chapter on Logarithms is practically a reproduction of the one in the other book. Then follow a large number of useful problems which enable a thorough drilling to be obtained in the use of trigonometrical ratios and in solution of equations. In a chapter on Multiple Angles an unfortunate error, repeated twice, gives

$$\sin 2a = 2 \sin a - \cos a.$$

The slide rule is also briefly described. The books are suitable for use in classes where there is good supervision, but the price asked is excessive for this country.

A First Numerical Trigonometry. By W. G. Borchardt, M.A., B.Sc., and the Rev. A. D. Perrott, M.A. (2s. 6d. Bell.)

A little book which is capable of providing a valuable groundwork in the subject. The aim of the authors has been to put into the hands of teachers in secondary schools a work suitable for use with their lowest classes. In its preparation, those who have used the writers' "New Trigonometry for Schools" will see that application has been made in the newer work of a portion of what already existed in the earlier one. There is satisfaction in noting the adoption of a principle so often advocated in these columns—namely, that of tacitly, at least, attending to the *sine* of lines in the case of acute-angled trigonometry and not ignoring the property until the introduction of angles greater than right angles makes its consideration a necessity.

Marsh's Mathematics Work-Book. Designed by Horace Wilmer Marsh. (3s. net. Chapman & Hall.)

A student's notebook and his daily register of work accomplished are here found in combination. Designed primarily for use in connexion with mathematical studies, the daily record sheets may nevertheless be employed as general time sheets. The advantage of such a book as Mr. Marsh has arranged will make itself most appreciated where students are working in large classes. Moreover, neatness and methodical work must result if the spirit of the compiler's instructions is assimilated. On the other hand, a rigid system may have its drawbacks if carried to excess.

Exercises in Mathematics. By David Beveridge Mair. (4s. 6d. Macmillan.)

Teachers of mathematics will do well to consider closely Mr. Mair's large and carefully selected series of exercises dealing with the various subjects entering into a complete school course of mathematics, and affording ample scope for selection, rather than exhaustion, on the part of the individual teacher in catering for his pupils. The author, in his able preface, quotes from Dr. Percy Nunn the various motives which stimulate mental activity in a mathematical direction, and, whilst we are in agreement that the "utility motive" must exercise the greatest influence on the construction of a truly effective school course, we should like to see a larger sphere assigned to the development of the "wonder motive." The volume is supplied with the necessary complement of well executed diagrams, and answers which have, we are told, been carefully verified, are furnished to all the questions. Further, a selection of typical examination papers due to various public examining Boards closes the text of the work.

A School Course in Geometry. By W. J. Dobbs, M.A. (3s. 6d. Longmans.)

Not a large, but a very interesting and valuable, volume, in which the author develops elementary geometry on lines modern and unusual, although the writer is not alone in having adopted some of his leading methods. He bases much of his treatment of the theory with which Euclid has made us familiar on the principles underlying the geometry of motion—on those, in other words, of translation and rotation, whether of one plane or another or of plane figures about a fixed axis. The principles of symmetry are applied with great advantage. Mr. Dobbs frees himself entirely from the bonds formerly created by teaching each subject of pure mathematics without reference to its natural relations with any other; hence the introduction into this treatise of some of the important groundwork of trigonometry, analytical geometry, and the differential and integral calculus.

Arithmetic. By N. J. Chignell, B.A., Assistant Master at Charterhouse, and W. E. Paterson, M.A., B.Sc., Assistant Master at Mercers' School. (Part I, 2s. 6d.; Part II, 2s. 6d. Clarendon Press.)

Part I deals with general principles, and introduces decimals at an early stage; Part II is devoted to the application of methods, and is divided into three sections: (a) Logarithms, (b) Mensuration, and (c) Commercial Arithmetic. Great stress is laid upon ratio methods, the authors being of the opinion that the use of the operator ratio is the very foundation of sound mathematics. A bad misprint occurs at the top of page 345, and we notice that density is spoken of as "weight" per unit volume. Both parts contain a large number of very neatly and accurately worked out model examples, there is plenty of oral work, and the exercises are, on the whole, really useful and practical; but we pity the fireman on the locomotive (Question 17, page 285) which burns coal at the rate of 32 tons per hour. A very well arranged and satisfactory course. The especially clear print is an excellent feature.

Practical Mathematics for Technical Students. Part I. By T. S. Usherwood, B.Sc., A.M.I.M.E., Head of the Manual Training Department, Christ's Hospital, and C. J. A. Trimble, B.A., Mathematical Master at Christ's Hospital. (3s. 6d. Macmillan.)

Covers the syllabus prescribed for the Board of Education Lower Examination in Practical Mathematics. The treatment is clear and the subject-matter generally is well chosen and arranged. The practical use of the slide rule is explained with the help of several good diagrams; there is plenty of excellent squared paper work, and a final chapter deals briefly with vectors, trigonometry, and solid geometry. Plenty of worked examples and exercises of a practical character are provided. A thoroughly useful and satisfactory little book from beginning to end.

Dynamics. By Horace Lamb, Sc.D., LL.D., F.R.S., Professor of Mathematics in the Victoria University of Manchester. (10s. 6d. net. Cambridge University Press.)

This forms a companion volume to the author's "Statics." The subject-matter falls roughly into the following order:—Kinematics, Dynamics of a Particle and of a Rigid Body, Law of Gravitation, Central Forces, Dissipative Forces, and finally, Systems of Two Degrees of Freedom. The fundamental principles of Dynamics are

set out and explained in an especially clear and thorough manner, the method of treatment following that adopted by Maxwell in his "Matter and Motion." A brief account of the more abstract way of looking at dynamical problems is, however, added as an appendix. There are plenty of very satisfactory examples and exercises. A capital book for advanced work in secondary schools and for University purposes generally.

John Napier and the Invention of Logarithms. 1614. A Lecture by E. W. Hobson, Sc.D., LL.D., F.R.S. Sadleirian Professor of Pure Mathematics, Cambridge. (1s. 6d. net. Cambridge University Press.)

The publication of this lecture in book form will be welcomed by all those who want a short and accurate account of the invention and its discoverer. The author gives an interesting summary of the life of Napier; describes the contents of both the "Descriptio" and the "Constructio," and explains clearly the successive steps in the evolution and further development of this remarkable system of computation. There are two illustrations, one of Napier and the other of a page from the "Descriptio."

A Book of Elementary Mechanics. By C. S. Jackson, M.A., and W. M. Roberts, M.A., Instructors in Mathematics at the Royal Military Academy, Woolwich. (3s. 6d. Dent.)

A useful beginners' course in statics and dynamics. The treatment follows simple analytical and graphical lines with easy experimental work to demonstrate main principles. The Statics section is sufficiently complete for its purpose. In Dynamics, motion in a circle is omitted, on the ground that it is too hard a topic for the beginner to fully appreciate. The weight of a pound is used throughout as the unit of force, and no mention is made of the poundal; but the idea of an absolute unit (the dyne) is referred to in a final chapter on Mass. There are plenty of exercises.

An Introduction to the Infinitesimal Calculus. With Applications to Mechanics and Physics. By G. W. Caunt, M.A., M.Sc., Lecturer in Mathematics at Armstrong College. (12s. Clarendon Press.)

This is just the book for engineering and science students who require a good working knowledge of the calculus. The sequence of work is roughly as follows:—Functions and Graphs, Simple Differentiation, Maxima and Minima, Simple Integration, Harder Differentiation, Mean-value Theorem, Methods of Integration, Differential Equations, Taylor's Theorem, and Partial Differentiation. Each section is very fully considered, rigorous treatment being, however, avoided and geometrical proofs inserted where practicable. The applications of the calculus to geometry, mechanics, and physics are discussed in special chapters. The size of the book—there are over five hundred pages—is partly due to the large number of useful numerical examples, in addition to which plenty of good exercise work is provided. The first nine chapters, up to and including simple integration, are suitable for advanced secondary-school work.

GERMAN.

A "Middle Method" German Course. By F. W. M. Draper. (2s. 6d. Murray.)

The book consists of lessons, each on a double page, containing narrative, word groups (i.e. a vocabulary arranged on a novel plan), and oral questions. A grammar section, retranslation exercises, and a vocabulary follow. Mr. Draper will awaken an echo in many hearts by his insistence that the Direct Method, excellent though he finds it, is not sufficient, and must be supplemented by exercises in retranslation. Hence the term "Middle Method."

Schiller and his Poetry. By William Henry Hudson. (1s. Harrap.)

It is not clear whether this little book should be noticed under the heading "German" or "Literature." As some twenty poems are quoted and printed in German characters, we have decided upon the former classification. But in reality the book is prompted by a desire to enable students of literature (rather than of language) to find additional meaning in the poet's songs by a knowledge of the circumstances of his life. The idea is good, and the execution is good. Those who are fond of Schiller, and can read him in the original, will find much to help and interest them in this volume.

Dietrich von Bern. By A. E. Wilson. (1s. 6d. Oxford University Press.)

This is a good adaptation of the legend, and would make an interesting story for pupils in their second year of German. The book is well printed in large type. In addition to three pages of notes, which do not seem to be of any great value, there are a satisfactory *questionnaire* (why not *Fragen?*) and sentences for translation based on the text.

Deutsches Heft. By W. E. Weber. (1s. 6d. Cambridge University Press.)

A notebook with well-thought-out and suggestive headings, under which experience gained in the course of reading is to be recorded by the young student. The book deserves to be as well received as the *Cahier Français*, which has preceded it, and if the records are well

kept the habit of notebook keeping thus formed will be valuable to the student when he is doing more advanced work.

Siepmann's Advanced German Series.—(1) *Die Erhebung Preussens gegen Napoleon im Jahre 1813* (Gustav Freytag). Edited by O. Siepmann. (2s. 6d.) (2) Key to Appendixes of "Die Erhebung." (2s. 6d.) (3) Word- and Phrase-book for "Die Erhebung." (6d.) (Macmillan.)

In "Die Erhebung Preussens" Mr. Siepmann has applied, in the most practical fashion, the principle of the correlation of history with modern language teaching, and has chosen a period of history which shows the power of education in the making of a nation. Freytag's account of the eventful years after Jena is supplemented by "a selection of original documents and poems of the time." These poems, and the literary introduction of this volume, are especially interesting. All the wanted features of the editor's work (in the way of notes and appendixes) are there, and the series is evidently losing nothing of its reputation for scholarship and thoroughness. If the appendixes seem to some teachers too elaborate they need not be used. The "Key" will help those who are studying German by themselves; it can hardly be supposed that a teacher of an "advanced" class would need such help.

SCIENCE.

Practical Applied Physics. By H. Stanley, B.Sc., F.I.C., Lecturer in the Merchant Venturers' Technical College, Bristol. (2s. Methuen.)

Gives a number of standard experiments of a more advanced character on heat, mechanics, and electricity and magnetism. An introduction deals with graphs, and briefly reviews some important methods of the calculus required in the course of the work. Much of the mathematical theory on which the experimental work is based is explained in concise terms, and little difficulty should be experienced in following the methods of procedure and obtaining results of a satisfactory nature. Various physical constants are appended. A book suitable for use by advanced science and engineering students.

Slide-Rule Notes. By Colonel H. C. Dunlop and C. S. Jackson, M.A. (2s. 6d. net. Longmans.)

A useful little volume, based on an earlier treatise by the same authors, the latter being now out of print. The newer publication deals briefly with the first principles, and more fully with the applications of the slide rule. Illustrations of the use of the instrument are contained in worked examples, whilst a considerable number of exercises will give the student facilities for obtaining proficiency in its employment. Numerous clearly drawn diagrams help to explain the text, and in every respect the production of the work is satisfactory.

The Call of the Stars. A Popular Introduction to a Knowledge of the Starry Skies. By John R. Kippax, M.D., LL.B. (10s. 6d. net. Putnam.)

An attractive account of the legends and myths associated with the story of the stars, combined with a good non-technical description of the less fanciful, but equally fascinating, discoveries of more recent times. The illustrations are excellent. A highly interesting volume, and a possible source of much pleasure.

Photo-Electricity. By A. L. Hughes, D.Sc., B.A., Assistant Professor of Physics in the Rice Institute, Houston, Texas. (6s. net. Cambridge University Press.)

The author gives a good account of the progress made during the past few years in the subject of ionization by light in solids, liquids, and gases. The results of all recent research work of importance are discussed, the sources from which information has been derived being given in foot-notes.

LAW.

"Home University Library of Modern Knowledge."—*Common Sense in Law.* By Paul Vinogradoff, D.C.L., LL.D., D.Hist., Dr.Jur., F.B.A., Corpus Professor of Jurisprudence in the University of Oxford. (1s. net. Williams & Norgate.)

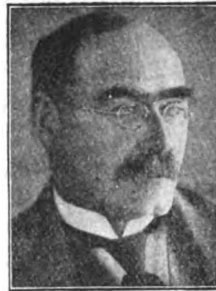
It is a not uncommon opinion, even among people that might be expected to know better, that common sense in law is very much like the snakes in Iceland. A perusal of Prof. Vinogradoff's little book will do much to enlighten them. It presents very interesting and instructive illustrations of the nature and applications of legal rules: for popular purposes it matters little for precise definitions, though we may observe that the author ranges himself against Austin's definition of a law, and we only wish we could read Austin's criticism of the definition offered by him. Otherwise the exposition is excellent.

HYGIENE.

London County Council.—*Report of the Education Committee on the Teaching of Sex Hygiene.* (6d. P. S. King.)

The teaching of sex hygiene is in its very early and crudely experimental stages, and all genuine experience, or conviction based on experience, must be welcomed as contributions towards our store of knowledge. A précis of the evidence on the subject given before the Elementary Education Sub-Committee of the L.C.C. appears in this

(Continued on page 34.)



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Sir John McClure, LL.D., Head Master of Mill Hill School, says: "I have been greatly moved by its perusal, and I trust the book will have a large circulation. It certainly deserves to be widely known."

The Rt. Hon. G. W. E. Russell says: "The notes are a capital feature of the book, and I have already set a little schoolboy on the enjoyable task of learning English History through the medium of verse. A great many of the selected poems are old favourites of mine."

Mr. Alfred H. Angus, B.Sc., Principal of Tettenhall College, Staffordshire, says: "I am very pleased with it. It is beautifully printed, beautifully and strikingly got up, it is a good sound collection—strong and yet restrained—and the introductory notes with portraits are an excellent interest-stimulant. I am so pleased with the book that I am introducing it next term in one form at least, probably in more."

Lady Baden-Powell says: "I do think your choice of 'The Torch of Life' and 'From the Sea' were an excellent plan—and I hope that you will have success with the book."



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pamphlet. Very different conclusions have been reached by the different witnesses, but the chief impression produced is that very few people know what is in the mind of the child on this matter. Some of us are confident that all is well, while others think that difficulty and danger beset his path. Probably the child is much more simple and direct than most of his teachers imagine, and sees facts simply as facts. This evidence tempts one to believe that convictions should be preceded by a closer study of individual children's beliefs and practices, that we should try humbly to find out what this boy or that girl knows and does before we decide what treatment is appropriate for whole classes.

"Home University Library."—*Sex*. By Patrick Geddes and J. Arthur Thomson. (1s. net. Williams & Norgate.)

Whatever parents and teachers ultimately decide to do in reference to the difficult subject of sex teaching, they cannot fail to be in a stronger position with regard to it after having read this book. It gives just that mixture of criticism and enthusiasm which students expect to receive from these two authors. All the pros and cons are put fairly and temperately, and no judgment is forced upon the reader. The book really stimulates thought and creates a desire for fuller scientific knowledge. A full bibliography is given, but in it works of very unequal merit are mentioned. Unfortunately for our profession, many of the less good ones appear under the heading "Educational." Prof. Galloway's "Biology of Sex," recently reviewed in the *Educational Times*, might be added to this section by the reader for himself. We venture to believe the authors would have accepted it for this purpose had it appeared before their work was written. There is probably no other book of the same size and price as this one of Profs. Thomson and Geddes which is nearly so good. It is full of human interest.

How to Keep Fit. A Series of Special Lectures to Young Men delivered at the Central Y.M.C.A., London. (1s. net. Jarrold.)
A good deal of useful advice is given in an interesting way in these lectures. They were given by highly qualified men whose opinions should command respect, and they go as deeply into the matters dealt with as could be expected under the circumstances.

RELIGION.

"English Literature for Schools."—*Bible Stories (Old Testament)*.

Edited by Arthur Burrell. (6d. Dent.)

These selections from the Old Testament are given without inter-linking passages and without comment, and are intended as a reading book for children. The selection is, on the whole, well made in the interests of young people, the Joseph story being given nearly entire, and such stories as the Garden of Eden and Noah's Flood altogether excluded. It seems to us that the extracts headed "The Condemnation of Saul" and "The Death of Joab" might well have been omitted, and such passages as the chivalrous episode of the well of Bethlehem (of II Samuel, xxiii, 12-17), or some of Jeremiah's adventures in prison put in their place. We might wish also that Mr. Burrell had seen his way to including one or two of the heroic episodes of the Maccabees. Nevertheless, to those who prefer children to have a short selection of stories rather than the Bible entire this book will be very acceptable.

The Gospel according to St. Matthew. Edited by Rev. T. Walker, M.A. (University Tutorial Press.)

This text, with introduction, notes, and maps, is intended for pupils of eleven to fourteen years of age, and especially for those taking Scripture in the Oxford and Cambridge Local Examinations.

The Poem of Job. By Edward G. King, D.D. (Cambridge University Press.)

The attempt which Dr. King makes in his earlier little book, "Early Poetry of the Hebrews," to reproduce the metre of the original poetry in translation is repeated here in connexion with "The Book of Job." Even those to whom the ordinary version is endeared by familiarity will appreciate the tramp which the more regular metre gives to such famous passages as the description of the war-horse in Job xxxix, 19. The fact that much of the Old Testament is poetry can never be forgotten by one who has read aloud this translation.

Our Schools and the Bible. By the Hon. Henry Coke. (1s. net. A. L. Humphreys.)

This is an earnest plea on the part of one who believes that the Bible, especially the Old Testament, as now taught, does more harm than good to the child's religious sense, and often produces disastrous contradictions later. He advocates a more discerning selection of material, involving the omission of such stories as the Fall, the Flood, &c.

The Second Book of Kings. By G. H. Box, M.A. (1s. 6d. Cambridge University Press.)

This is one of the "Revised Version for Schools" series. Each page contains revised text and simple notes. There is a short, clear general introduction, and a sufficient index.

The Tree of Knowledge. By Sybil Smith.

(3s. 6d. Oxford University Press.)

This purports to be a series of lessons for children on the first half of the Book of Genesis. The centralizing of the lessons round these early stories seems to us artificial and fantastic, the text often being a very slender peg on which to hang the thought or story. Yet many of the suggestions for topics are admirable, though some are altogether too advanced for young children. Indeed, the whole book suggests students rather than children.

BOOKS FOR YOUNG READERS.

We have heard it urged that children should be denied their usual Christmas presents, in order that they may remember the War and realize its seriousness. Such an attitude recalls the former flogging of schoolboys at the parish boundaries, and expresses a point of view not to be admired. The children must have their Christmas gifts. A number of books that would well serve for presents at this time of the year came just too late to be mentioned in our December issue: but there are birthdays and other excuses for making presents. For boys up to the age of fourteen (and, indeed, for their elders, too), *The Complete Scout*, by Morley Adams (HENRY FROWDE and HODDER & STROUGHTON, 2s. 6d.), can be safely recommended. It contains just what a boy wants to know, from camp-cooking to signalling, and is written in a fresh and convincing style.—Mr. Herbert Strang has lost no time in dealing with the present War, and his book, *A Hero of Liège* (HENRY FROWDE and HODDER & STROUGHTON, 3s. 6d.) tells us how Belgium met the German invasion. The same Publishers have issued reprints at 6d. each of Susan Coolidge's well known stories, *What Katy Did at School* and *What Katy Did Next*.—Herbert Strang's *Book of Adventure Stories* is a large, well printed, and well illustrated volume of attractive tales for 5s.

Far from Home (JARROLD, 3s. 6d.) is a new story, by Robert Overton, dealing with the fights and adventures of a runaway. The illustrations are by Enoch Ward.

At this time of the year we always expect from MESSRS. MACMILLAN books of stories charmingly illustrated, and well printed on excellent paper. *Deccan Nursery Tales* (4s. 6d. net) contains fairy tales from the South, told by C. A. Kincaid, of the Indian Civil Service. The beautiful coloured pictures are done by M. V. Dhurandhar.—*The Indian Story Book* (7s. 6d. net) is produced with equal charm. The sixteen coloured plates and line illustrations are from drawings by Frank C. Papé. The book contains tales from the Ramayana, the Mahabharata, and other early sources, retold by Richard Wilson.

Last month we noted several stories issued by MESSRS. BLACKIE. Two more have reached us.—(1) *A Mysterious Inheritance*, by Bessie Marchant (5s.). It is a story of adventure in British Columbia, in which four sisters from Quebec decide to camp out in the forest district north of Vancouver city.—(2) *A Chinese Command* (5s.) is a story of adventure in Eastern Seas by Harry Collingwood. The tale deals with the exploits of an Englishman in the Chinese Navy.

Kate Mitchell, by Myrtle B. S. Jackson (THE MERRYTHOUGHT PRESS, 17 Lancaster Street, Hyde Park, W., 3s. 6d. net; by post, 3s. 10d.), is the story of the life of a woman who enters upon the scene as a mistress of a high school and later becomes Mistress of Girton. The book deals with the difficulties that a woman teacher has to encounter, and shows how these are overcome by a loving heart, a well balanced mind, and a strong character.

FOR VERY YOUNG READERS.

The books in this paragraph are all published by MESSRS. BLACKIE. *The Frank Adams Book of Nursery Rhymes* (1s.), with eight coloured plates.—*Off We Go: By Land, Sea, and Air* (1s.), a story and picture book of trains, motor cars, ships and aeroplanes.—*A Boy's Book of Battleships* (1s.), by Gordon Stables, tells of means of navigation from Homer to the present moment.—*Animal Stories for Little Folk* (1s. 6d.) contains humorous tales and pictures of familiar animals.—*Two Jolly Mariners* (2s.) consists of humorous verses pictured by Stewart Orr.—*Maxims for Mice and Others* (1s. 6d.) contains amusing pictures for the nursery, with brief letterpress in large type.—*More New Testament Stories* (1s. 6d.) gives stories from the Acts of the Apostles, told simply by Theodora Wilson Wilson, and illustrated by Arthur A. Dixon.—In *Table Talks and Table Travels*, by Mabel Bloomer (1s. 6d. net), the young reader is invited to linger over the breakfast table and talk about the romance of the edibles they have just devoured.

In "The Children's Hour Series," edited by Herbert Strang (FROWDE, 1s. each), there are two new volumes: (1) *The Boy who Would Not Learn*, by the Editor of the Series, and (2) *The Golden Gate*, a book of simple verse, prettily illustrated. In "The Little Stories of Great Lives Series" there are also two new volumes (by the same editor and publisher, and at the same price, 1s. each), (1) *Napoleon*, (2) *Joan of Arc*.

PUBLICATIONS RECEIVED.

EDUCATION.

- The Lighter Side of School Life. By Ian Hay, illustrated by Lewis Baumer. Foulis (Edinburgh), 5s. net.
- Thoughts on the Training of Children. By Margaret A. Wroe. National Society, 1s. 6d.
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MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17769. (C. E. HILLYER, M.A.)—(i) A, B, C are three points on a conic, and T is any point in the plane. TA, TB, TC meet the curve again in a, b, c respectively. Any transversal through T meets BC in P, CA in Q, and AB in R. Prove that Pa, Qb, Rc meet in a point U on the curve. (ii) A conic is inscribed in a triangle ABC. Through any point T in the plane a transversal is drawn meeting BC, CA, AB in P, Q, R respectively. If AT meet the second tangent to the conic from P in a point D, and E, F be similarly constructed, prove that D, E, F lie on a straight line which also touches the conic. Point out the connexion of the above with Pascal's and Brianchon's theorems. Also examine particular cases, e.g., in (ii) when the conic is a circle and T is at the orthocentre of ABC, and the transversal PQR also passes through the in-centre, then DEF touches the nine-point circle.

Solution by A. M. NESBITT, M.A. [of Parts (i) and (ii) only].

(i) If $lx + my + nz = 0$ be the conic, and $x/\lambda + y/\mu + z/\nu = 0$ be the line TPQR; then the co-ordinates of T (p, q, r) must make

$$\Sigma p/\lambda = 0 \dots\dots\dots (1).$$

Now $q/y = r/z$ meets the conic in A and a , so that the co-ordinates of a are $[-lqr, q(mr + nq), r(mr + nq)]$. Since the co-ordinates of P are $(0, \mu, -\nu)$, Pa has for equation—by virtue of (1)—

$$(m q + n r) p x / \lambda = y / \mu + z / \nu,$$

and this passes through the point $(l\lambda/p, m\mu/q, n\nu/r)$. By symmetry this point lies also on Qb and Rc, while—again by virtue of (1)—it likewise lies on the conic.

(ii) This may be proved by interpreting the above tangentially. The equation to point T being $\Sigma x/\lambda = 0$, the co-ordinates of the line TPQR (p, q, r) make $\Sigma p/\lambda = 0$. The equation of point P is $q y = r/z$, and the co-ordinates of the second tangent from P are those given above as co-ordinates of point a . The co-ordinates of TA being $(0, \mu, -\nu)$, the equation of the intersection of AT with this second tangent comes out to be

$$(m/q + n/r) p x / \lambda = y / \mu + z / \nu,$$

which lies on the symmetrical straight line $(l\lambda/p, m\mu/q, n\nu/r)$; and this line touches the conic, whose tangential equation is

$$l/x + m/y + n/z = 0.$$

Addendum.—Since aP, bQ, cR are concurrent, the following are Brianchon "hexagons":— $abcPQR, bcaQRP, cabRPQ$. Taking the last we see that, if a conic be described touching PQR, ab, ac, bR, cQ , it will touch QR at P. So, too, the six lines BA, AC, ba, ac, Bc, bC touch a conic; changes may, of course, be rung on these letters. I have not pointed out the obvious correlative properties for the reciprocal figure, as I am far from sure that this is the kind of thing intended by the Proposer.

Remarks by the PROPOSER.

Since T is an arbitrary point, a, A, C, B, b may be any five points, T being the intersection of aA and bB . Again, since PT is an arbitrary transversal through T, U, the second point of intersection of Pa with the conic through a, A, C, B, b , may be any point on the curve. Now, if Ub meets AC in Q, it follows, as a converse of (i), that P, T, Q are collinear (Pascal's Theorem); and further, if TC meets the curve again in c , and cU meets AB in R, then R also lies on the straight line PTQ. In fact, the three hexagons $UaACb, UbBACc, UcCBAa$, the vertices being taken in the order given, have the same Pascal line.

A similar extension of Brianchon's Theorem follows from (ii). An interesting particular case of (i) is obtained by taking T at infinity. Then Aa, Bb, Cc are all parallel to PQR, and (the conic being a circle) the point U becomes what I propose to call the "parallel chord point" of PQR with respect to the triangle ABC. It is the focus of the parabola which touches the sides of the triangle ABC and the transversal PQR.

17808. (T. MUIR, LL.D.)—Show that the Pfaffian

$$\begin{vmatrix} a-b & c & d & e \\ -c & b & e & -d \\ & a & -f & g \\ & & g & f \\ & & & a \end{vmatrix}$$

and the sum of the squares of its principal minors have a common factor.

Solution by the PROPOSER.

By evaluation in the ordinary way, the Pfaffian is found equal to $a(a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2)$;

and by actual squaring of

$$\begin{vmatrix} a & -f & g \\ g & -f & a \end{vmatrix}, \begin{vmatrix} b & e & -d \\ g & -f & a \end{vmatrix}, \dots$$

and adding, we obtain

$$(a^2 - f^2 + g^2)^2 + (ab + ef - dg)^2 + \dots$$

which is readily shown to be equal to

$$(3a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2)(a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2).$$

The common factor is thus evident.

17223. (Professor SANJANA, M.A.)—Prove that, when $m < n$ and $na < \pi$,

$$\int_0^{\infty} \frac{x^{n+m-1}}{x^{2n} + 2x^n \cos na + 1} = \frac{\pi}{n \sin m\pi/n} \cdot \frac{\sin ma}{\sin na}.$$

Solution by W. N. BAILEY.

This Question is a transformation of Euler's integral

$$\int_0^{\pi} \frac{y^{-p} dy}{1 + 2y \cos \lambda + y^2} = \frac{\pi}{\sin p\pi} \cdot \frac{\sin p\lambda}{\sin \lambda},$$

with the conditions $-1 < p < 1$ and $-\pi < \lambda < \pi$, which can be proved by means of contour integration.

Now put $y = x^n$, $-np = m$, $\lambda = na$, and we have

$$\int_0^{\infty} \frac{x^{n+m-1} dx}{x^{2n} + 2x^n \cos na + 1} = \frac{\pi}{n \sin m\pi/n} \cdot \frac{\sin ma}{\sin na},$$

provided that $-1 < m/n < 1$ and $-\pi < na < \pi$.

Geometrical Illustration of a Trigonometrical Formula.

By R. F. DAVIS, M.A.

Let ABC be an acute-angled triangle, AX, BY, CZ its countersecting perpendiculars. Then AZXC, AYXB are cyclic quadrilaterals, so that BZ.BA = BX.BC and CY.CA = CX.CB.

Therefore

$$\begin{aligned} AB^2 + AC^2 - BC^2 &= AZ.AB + BZ.BA + AY.AC + CY.CA - BX.BC - CX.CB \\ &= AZ.AB + AY.AC = 2AB.AC \cos BAC. \end{aligned}$$

17780. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—If

$$N_1 = r^{r+1} - 2r^r + 1, \quad N_2 = 2r^{r-2} - r^{r-3} - 1, \quad N_3 = r^{r-1} - 2r + 1, \\ N_4 = r^{r-2} + r - 2,$$

prove that N_1, N_2, N_3, N_4 are all divisible by $(r-1)^2$, and that N_1 and N_2 are divisible by $(r-1)^3$ when r is even. *Ex.*—Taking $r = 10$, factorize N_1, N_2, N_3, N_4 into prime factors.

Solution by the PROPOSER.

Writing $r = (1 + \rho)$, and expressing N_1, N_2, N_3, N_4 in terms of ρ , and expanding by the Binomial Theorem the terms not containing ρ , and those containing only ρ (not ρ^2) will be found to vanish in all four cases, and those involving ρ^2 (not ρ^3) will be found to vanish in the cases of N_1 and N_2 when (and only when) ρ is odd. This proves the theorems.

$$\begin{aligned} \text{Thus } N_1 &= (1 + \rho)^{\rho+2} - 2(1 + \rho)^{\rho+1} + 1 \\ &= \left\{ 1 + (\rho + 2)\rho + \frac{(\rho + 2)(\rho + 1)}{1.2} \rho^2 + R\rho^3 \right\} \\ &\quad - 2 \left\{ (\rho + 1)\rho + \frac{(\rho + 1)\rho}{1.2} \rho^2 + R'\rho^3 \right\} + 1, \end{aligned}$$

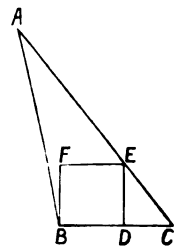
wherein R, R' are integer functions of ρ . Hence

$$\begin{aligned} N_1 &= \left\{ \rho^2 + \frac{1}{2}(\rho^3 + 3\rho + 2)\rho^2 \right\} - 2 \left\{ \rho^2 + \frac{1}{2}(\rho^2 + \rho)\rho^2 \right\} + (R - R')\rho^3 \\ &= \left\{ \frac{1}{2}(-\rho + 1) + R - R' \right\} \rho^3, \end{aligned}$$

and $N_1 = 0 \pmod{\rho^3}$ when ρ is odd, i.e., is divisible by $(r-1)^3$ when, and only when, r is even. A precisely similar proof applies to N_2 with same result; and also to N_3, N_4 , except that in these two cases the terms containing ρ^2 do not vanish.

Ex.—Taking $r = 10$, the quotients $\frac{1}{3}N_1, \frac{1}{81}N_1, \frac{1}{729}N_1$ are worth showing, as they are of interesting forms.

$$\begin{aligned} N_1 &= 80,000,000,001, \quad \frac{1}{3}N_1 = 8,888,888,889. \\ \frac{1}{81}N_1 &= 987,654,321, \quad \frac{1}{729}N_1 = 109,739,369 = 17.17.379721. \\ N_2 &= 189,999,999, \quad \frac{1}{3}N_2 = 21,111,111. \\ \frac{1}{81}N_2 &= 2,345,679, \quad \frac{1}{729}N_2 = 260,631, \quad \frac{1}{6561}N_2 = 23959. \\ N_3 &= 99,999,999,981, \quad \frac{1}{3}N_3 = 11,111,111,109. \\ \frac{1}{81}N_3 &= 1,234,567,901 = 7.31.613.9281. \\ N_4 &= 100,000,008, \quad \frac{1}{3}N_4 = 11,111,112. \\ \frac{1}{81}N_4 &= 1,234,568 = 8.154,321. \end{aligned}$$



17762. (A. F. JONES.)—In the triangle ABC, the angle ABC = 104°, the side of the square BDEF = 6 ft., the side AC = 29 ft. Find the length of AB. (No graphs acceptable.)

Solution by W. J. ASHDOWNS and others.

Draw, parallel to AB, EH to BC.

$$\begin{aligned} \text{Let } DC &= x, \\ DEH &= 14^\circ, \\ DH &= 6 \tan 14^\circ, \\ 29 : 6 + x &= EC : x - DH \\ &= \sqrt{x^2 + 36} : x \\ &\quad - 6 \tan 14^\circ, \end{aligned}$$

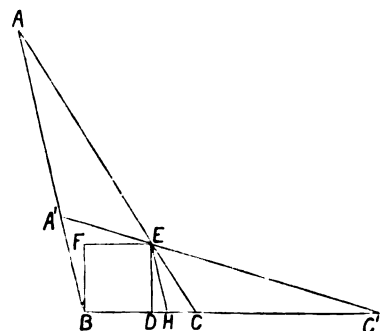
$$\begin{aligned} 29(x - 6 \tan 14^\circ) &= (6 + x)\sqrt{x^2 + 36}. \end{aligned}$$

From which can be obtained

$$x^4 + 12x^3 - 769x^2 + 2948.272 \dots x - 586.158 \dots = 0,$$

with four real solutions, two of which are excluded by the conditions of the problem, the others being $x = 3.961$ and $x = 19.619$ (approx.).

$$\begin{aligned} AB : EH = 29 : EC, \quad AB &= 29 \times 6 \sec 14^\circ \div \sqrt{x^2 + 36}, \\ AB &= 24.942 \dots \text{ or } 8.7397 \dots \end{aligned}$$



17813. (W. N. BAILEY.)—From any point P on the circle of similitude of two circles X, Y, tangents are drawn touching X at A, B, and Y at C, D. PA and PB are such that they move continuously with P, and coincide when P is at either centre of similitude. Find the envelopes of AB and CD.

Solution by the PROPOSER.

The tangents from P should touch X at A, C and Y at B, D, and not as stated in the Question.

Let X, Y be the centres of the circles (radii r and R), and N the foot of the perpendicular from P on the line of centres. Join PX, PY, AN, NB.

$$\text{Then } PX/PY = r/R, \text{ so that } PN/r = PY/R.$$

Therefore $\angle XPA = \angle YPB$, from which $\angle XNA = \angle YNB$.

Therefore AB passes through N (see Question 17483, solved by Mr. NESBITT).

Let O be the centre of the circle of similitude. Then, if

$$\tan XNA = \tan XPA = m, \quad PA = r/m.$$

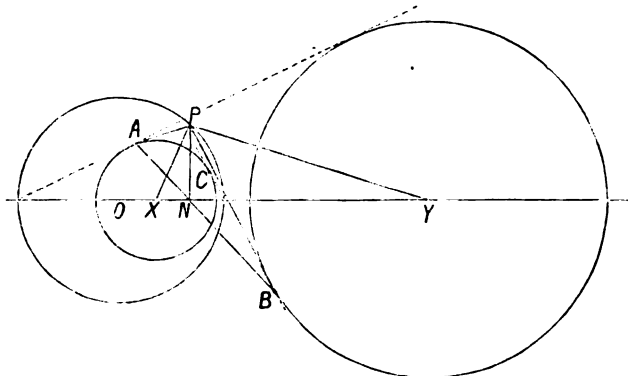
$$\text{Therefore } OX^2 + OP^2 - 2OX.ON = PX^2 = r^2/m^2 + r^2,$$

$$\text{so that } ON = b - a/m^2 \text{ (say).}$$

Hence, if O is taken as origin and OX as the axis of X, the

equation of ANB is

$$y = -m(x-b+a/m^2) \text{ or } y = -m(x-b)-a/m.$$



Therefore the envelope of AB is a parabola with XY as axis. Since PXNC are cyclic,

$$\angle CNY = \angle CPX = \angle APX = \angle ANX;$$

therefore CD is the image of AB in XY, and CD envelopes the same parabola as does AB.

17811. (C. M. ROSS, M.A.)—(a) Eliminate x, y, z from the three equations $(x+y)(x+z) = bcyz, \dots$

(b) Eliminate x, y, z from $\Sigma x = 0, \Sigma x^2/a = 0, \Sigma ayz = 0.$

Solution by H. R. WALES.

$$(1) \quad (x+y)(z+x) = bcyz, \quad (x+y)(y+z) = cazx \dots\dots (i, ii), \\ (z+x)(y+z) = abxy \dots\dots\dots (iii).$$

Multiply; therefore

$$(x+y)(y+z)(z+x) = \pm abcxzy \dots\dots\dots (iv).$$

Divide (i) by (iv); therefore

$$ax/(y+z) = \pm 1.$$

Therefore $y+z = \pm ax, z+x = \pm by, x+y = \pm cz \dots (v, vi, vii).$

Therefore, eliminating z , we have

$$x-y = \pm by \mp ax \text{ and } x+y = \pm c(ax-y);$$

or, rearranging,

$$x(1 \pm a) = y(1 \pm b), \quad x \pm (ac-1) = y(1 \pm c).$$

$$\text{Therefore } (1+a)(1 \pm c) = (\pm ac-1)(1 \pm b).$$

$$\text{Therefore } a+b+c \pm 2 = abc.$$

(2) There is probably some mistake here, since $\Sigma x = 0$ is the eliminant when a, b, c are eliminated.

If x, y, z are to be eliminated, the method is as follows:—

$$x+y+z = 0, \quad x^2/a + y^2/b + z^2/c = 0 \dots\dots\dots (i, ii), \\ ayz + bzx + cxy = 0 \dots\dots\dots (iii).$$

If we eliminate z from (ii) and (iii) by means of (i), we have $b(a+c)x^2 + 2abxy + a(b+c)y^2 = 0, \quad bx^2 + (a+b-c)xy + ay^2 = 0.$

$$\text{Therefore } \frac{x^2}{2a^2b - a(b+c)(a+b-c)} = \frac{xy}{ab(b+c) - ab(c+a)} \\ = \frac{y^2}{b(a+c)(a+b-c) - 2ab^2}$$

$$\text{i.e., } \frac{x^2}{a(b-c)(b+c-a)} = \frac{xy}{ab(a-b)} = \frac{y^2}{b(c-a)(a-b+c)}.$$

Therefore, eliminating x and y , we have

$$ab(a-b)^2 = (b-c)(c-a)(-a+b+c)(a-b+c).$$

This may be rewritten as

$$\Sigma a^2b - \Sigma a^3 - 3abc = 0$$

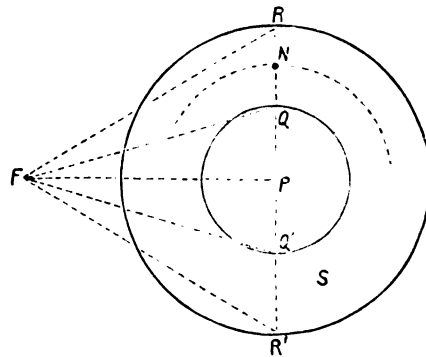
$$\text{or } (-a+b+c)(a-b+c)(a+b-c) = abc.$$

QUESTIONS FOR SOLUTION.

17803. (ALAN BREBNER.)—In the annexed figure the dotted lines FP, FQ, FR, PR are the same as FP, FQ, FR, and PR in the plane figure of Question 17768.

Let QR revolve once round FP as axis so as to generate the flat annular surface or ring S shown in front elevation in full lines. The dotted lines now represent a vertical section through the ring S and the axis of rotation FP, lying therefore in a plane bisecting S at right angles. As before,

$$FP = 10'', \\ PFQ = 25^\circ 30', \\ PFR = 32^\circ 40', \\ FPR = 90^\circ.$$



Supposing the plane of the paper to coincide with the annular surface S, then F would in reality stand directly over P, but 10'' above this plane. Required to find by the calculus the point N in QR such that FN is the mean distance between F and all points in the annular flat surface S. If round point P a circle be drawn to radius PN, then N would describe on S the circular locus containing all positions N, of the mean distance FN between F and ring S.

17904. (T. MUIR, LL.D.)—Prove that

$$\begin{vmatrix} a & b & c \\ a & 2d & d+e & d+f \\ b & d+e & 2e & e+f \\ c & d+f & e+f & 2f \end{vmatrix} = \begin{vmatrix} d & e & f \\ d & 2a & a+b & a+c \\ e & a+b & 2b & b+c \\ f & a+c & b+c & 2c \end{vmatrix}$$

and give another pair of similar determinants having the same value as these.

17905 (C. M. ROSS, M.A.)—Show, without using contour integration, if possible, that

$$\int_0^\pi \frac{\sin ax}{x(1+x^2)^2} = \frac{1}{4}\pi [2 - (a+2)e^{-a}].$$

17906. (W. J. MARTYN.)—If $a_2b_3 + a_3b_2 = a_3b_1 + a_1b_3 = a_1b_2 + a_2b_1$, the determinant $\begin{vmatrix} a_1^2 + b_1^2 & a_1 & b_1 \\ a_2^2 + b_2^2 & a_2 & b_2 \\ a_3^2 + b_3^2 & a_3 & b_3 \end{vmatrix}$ vanishes.

17907. (E. G. HOGG, M.A.)—Prove that

$$\iint px^2 dS = a^2V, \quad \iint py^2 dS = b^2V, \quad \iint pz^2 dS = c^2V,$$

when the integrals are taken over the surface of the ellipsoid

$$x^2/a^2 + y^2/b^2 + z^2/c^2 = 1,$$

p is the central perpendicular to the tangent plane at xyz , and V is the volume of the ellipsoid.

17908. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Factorize completely (into prime factors) $N = 50^{30} + 1$.

17909. (J. Y. HART, B.Sc.)—The sum of £A is borrowed on condition that it is repaid in t equal instalments (consisting of principal and interest) of £B at intervals of $1/n$ -th of a year. What is the equivalent rate of interest R (simple)?

17910. (A. A. KRISHNASWAMI AIYANGAR, B.A.)—A caliph distributes a certain number of fruits among his n wives and $\frac{1}{2}[n(n+1)]$ children in the following way:—first wife's n children, each one fruit and the wife $1/n$ of the rest; second wife's $n-1$ children, each one fruit and the wife $1/n$ of the rest; so among all his wives who have respectively $n, n-1, n-2, \dots, 3, 2, 1$ children; and lastly, what remains is divided equally among all the n wives. Prove that the number of fruits must be of the form $n^{n-1}p - 2n^2 + 2n$, where p is any positive integer, and the r -th wife's share is $p(n-1)^{r-2} \{ (n-1)^{n-r+1} + n^{n-r+1} \} - 2(n-1)$, where $r \leq 3$.

17911. (Prof. K. J. SANJANA, M.A. Suggested by Prof. ESCOTT'S Question 16885.)—Prove that the surd $\{a-r(a^2-k^2)\} \div k$ may be transformed into the infinite continued fraction

$$\frac{k}{2a-k^2} - \frac{2ak^2}{4a_1-k^4} + \frac{4a_1k^4}{16a_2-k^8} - \frac{16a_2k^8}{256a_3-k^{16}} + \dots$$

where $a_1 = a^2 - \frac{1}{2}k^2, a_2 = a_1^2 - \frac{1}{8}k^4, a_3 = a_2^2 - \frac{1}{128}k^8, \dots$, and find the corresponding infinite series.

17912. (W. E. H. BERWICK.)—Find three positive rational numbers, each of which is greater than $1\frac{1}{2}$, and such that the sum of their squares is 10.

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17918. (Prof. E. J. NANSON.)—If σ_p is the mean value of the p -th powers of n positive quantities which are not all equal, and ω_p is the mean value of their products p together, then

$$\sigma^p > \omega^q \omega^r,$$

where q, r are the quotient and remainder obtained by dividing p by n .

17914. (J. J. BARNVILLE, B.A.)—If

$$u_n + u_{n+1} = u_{n+2}, \text{ and } v_n + v_{n+1} = v_{n+2},$$

prove that the scale of $(uv)_n$ may be written

$$(1 - 1 - 2 + 0 + 1)(1 + 0 + 1 + 1 - 1 + 0 - 1) = 0;$$

e.g., making $u = v$, we have

$$u_0^2 - u_1^2 - u_2^2 - 3u_4^2 - u_5^2 + 2u_6^2 + 2u_7^2 + u_8^2 = u_{10}^2.$$

17915. (C. M. ROSS, M.A.)—Solve the equations

$$(xy + xz - 2yz)x/a = (yz + yx - 2zx)y/b = (zx + xy - 2xy)z/c = k^3.$$

17916. (S. KRISHNASWAMI AIYANGAR.)—Two radii vectors of the curve $r = a \cos^2(\frac{1}{2}\pi + \frac{1}{2}\theta)$ are drawn equally inclined to the initial line. Prove that, if S is the length of the arc intercepted, the area included between the curve and the radii vectors is

$$\frac{5aS}{8} - \frac{9a^2}{16} \sin 3a.$$

17917. (C. E. YOUNGMAN, M.A.)—Construct the tricusp (hypocycloid) which touches four given straight lines, and find what conditions the lines must satisfy to make their points of contact collinear.

17918. (Prof. K. J. SANJANA, M.A.)—Tangents are drawn from the point (x_1, y_1) to the conic

$$f(x, y) \equiv ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0,$$

meeting it at P and Q , and O is the centre of the conic; prove that, with the usual notation, the area of the triangle OPQ is

$$\frac{(-\Delta^3)^{\frac{1}{2}}}{C} \frac{[f(x_1, y_1)]^{\frac{1}{2}}}{Cf(x_1, y_1) - \Delta}.$$

17919. (W. F. BEARD, M.A.)—The tangents from any point on the directrix of an ellipse meet the auxiliary circle in four points, two of which are the ends of a diameter of the circle.

17920. (A. M. NESBITT, M.A. Suggested by Question 17779.)— ABC is a triangle, and radii $AS (= AB)$, $AH (= AC)$ revolve in opposite directions at the same angular rate about A . Prove that a conic having S, H for foci can be described to touch AB, AC ; and that its major or transverse axis is equal to BC .

17921. (Prof. J. C. SWAMINARAYAN, M.A.)—Prove the following construction for determining the magnitude and position of the axes of the maximum inscribed ellipse of the triangle ABC . G is the centroid of the triangle ABC and D is the middle point of BC . In BD and DC , B_1 and C_1 are taken such that $B_1D = \frac{1}{3}BD$ and $DC_1 = \frac{1}{3}DC$. On B_1C_1 as base, equilateral triangles B_1PC_1 and B_1QC_1 are described. Show that the bisectors of the angle PGQ are the axes of the maximum inscribed ellipse of the triangle ABC , and the length of the major axis is equal to $(GP + GQ)$, and that of the minor axis is equal to $(GP - GQ)$.

17922. (R. F. DAVIS, M.A.)—Let TOT' be a fixed circum-diameter of the triangle ABC ; and AE, EQ chords of the circum-circle perpendicular to TOT' , BC respectively. Prove that the pedal circles of all points of TOT' conintersect in the middle point of the join of the orthocentre H to Q . [Cf. Gallatly, *The Modern Geometry of the Triangle*.]

17923. (N. SANKARA AIYAR, M.A.)—If P be the centre, and ρ the radius of the polar circle, show that $2R\rho^2 = AP \cdot BP \cdot CP$.

17924. (V. V. SATYANARAYAN.)—Given a straight line and a parallelogram on paper, trisect the straight line, using only an un-graduated straight edge.

17925. (F. G. W. BROWN, B.Sc., L.C.P.)— I_1, I_2, I_3 are the ex-centres of a triangle ABC whose semi-perimeter is s , and whose circum-, in- and cosine radii are R, r , and ρ respectively; show that, if ρ_1 is the cosine radius of the triangle $I_1I_2I_3$, then

$$1/\rho_1 = s/2Rr - 1/\rho.$$

Hence show that $r(\cot \omega_1 + 2 \cot \omega) = s$,

where ω, ω_1 are the Brocard angles of the triangles $ABC, I_1I_2I_3$ respectively.

17926. (N. W. M'LACHLAN, B.Sc. Eng., A.M.I.E.E.)—A circle is inscribed in a sector of a circle whose angle is 2θ ($\theta > \frac{1}{2}\pi$). Prove that the ratio of the area of the sector to that of the circle is

$$(1 + \operatorname{cosec} \theta)^2 \theta/\pi.$$

Find the value of the expression when $\theta = 0$.

17927. (R. GOORMAGHTIGH.)—The Wallace line of a triangle for a moving point of the circum-circle cuts this circle in two points. Find the locus of the intersection of the Wallace lines for those two points.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, December 10, 1914.—Prof. Sir Joseph Larmor, M.P., F.R.S. (President), in the Chair.

Mr. R. H. Fowler, Fellow of Trinity College, Cambridge, was elected a member.

Mr. E. H. Neville read a paper, "On Simultaneous Equations, Linear or Functional." The method of the paper lends itself to the solution of numerical equations, by successive approximations. This method was devised originally to solve the geometrical problem of completely covering a circle by five smaller (equal) circles; and the method is used to prove that the ratio of the radii must not be less than a certain limit, slightly greater than 3:5. In a more concrete form this geometrical problem is often to be seen as a side-show in gipsy tents at fairs; the small circles being metal discs which are to be used to cover completely a larger circle painted on a table. In the actual apparatus used by the gipsies (a specimen of which was exhibited at the meeting) the ratio of the radii is very near to the limit assigned by the mathematical theory.

Mr. G. H. Hardy gave an account of a paper by Mr. S. Ramanujan "On Highly Composite Numbers," which had been formally communicated at the November meeting.

The following papers were then communicated, by title, from the Chair:—

"On Cyclotomic Quinisection": Prof. W. Burnside.

"Oscillations near the Isosceles Triangle-Solution of the Three Body Problem": Prof. D. Buchanan.

"On Lamé's Differential Equation and Ellipsoidal Harmonics": Prof. E. T. Whittaker.

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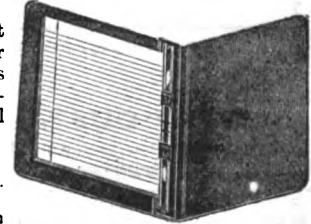
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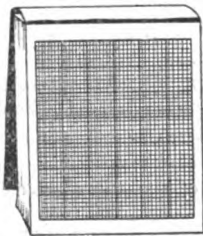
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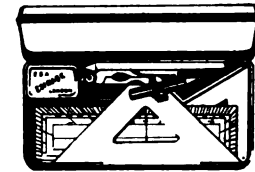


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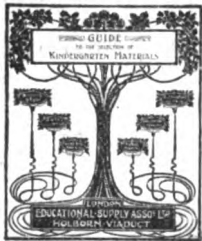
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II. (Feb. 18.) *Experimental Methods.*—Value of the different kinds of psychology (a) old-fashioned descriptive, (b) empirical, (c) rational, (d) genetic: introspection: need for an objective standard: statistical method: correlation: different kinds of development of psychology in the school, the study, and the laboratory: use of apparatus: combination of rational and experimental psychology: various kinds of experiments: danger and difficulties of experimenting by teachers: need for "controls" of experiments: what the teacher may legitimately demand from the psychologist.

III. (Feb. 25.) *Sensation and Perception.*—Both sensation and perception are direct and deal with stimuli here and now present: limitations of pure sensation: the threshold of sensation: the introduction of meaning marks the emergence of perception: the so-called *training of the senses*: the theory of the fixed coefficient: prodigality of sense stimuli and the need for selection: "the preferred sense": common misunderstanding of the term: substitution of one sense for another: interpretation.

IV. (March 4.) *Ideas.*—The passage from perception to apperception: ordinary psychological meaning of *conception*: resulting abstraction: the "faculty psychology": ideas as modes of being conscious: idea as specialized faculty: presented content and presentative activity: interaction of ideas: fusion, complication, and arrest: place and function of each of these in the teaching process: the dynamic and the static threshold: the conscious, the unconscious, and the subconscious in relation to ideas: apperception masses and soul building.

V. (March 11.) *Memory.*—Retention and recall: mediate and immediate recall: association, convergent and divergent: use of suggestion: native powers of retention and recall: "brute" memory: possibility of "improving the memory": purposive element in memory: need for selection of material to be memorized: mnemonics and the educational applications: learning "by rote": attempted distinction from learning "by heart": verbal, pictorial, and rational memory: memory by categories: personal identity and memory: connexion between memory and reality.

VI. (March 18.) *Imagination.*—Interpenetration of memory and imagination: literal meaning of imagination: the series—*percept, image, generalized image, concept*: manipulation of images: unintelligent limitation of the term *imagination* to the aesthetic aspect: suspicions of serious-minded persons: the use of the imagination in science: its place in the formation of hypotheses: clearly imaged ends: imagination as an aid and also as a hindrance to thinking: imagination should not be limited to the pictorial: nature of ideals: the case for day-dreaming.

VII. (March 25.) *Instincts and Habits.*—Nature of instinct: prevailing misconceptions: order of development of the human instincts: atrophy of

instincts: basis of habit: association as a general principle of organic development: relation of habit to instinct: racial and individual habit: formation of habits: the elimination of consciousness: turning the conscious into the unconscious: the upper and the lower brain: the breaking of habits: the possibility of habit forming being abused apart from the quality of the habits formed: accommodation and co-ordination: the growing point.

VIII. (April 29.) *Attention.*—The manipulation of consciousness: the prehensile attitude: state of preparedness for any one of a limited number of contingencies: the mechanism of attention: the vaso-motor, respiratory, and muscular elements: the span of attention: field of attention: distinction between area and intensity of attention: physiological rhythm of attention: psychological rhythm—alternation of concentration and diffusion beats: unsatisfactory classification of the kinds of attention: passing from the voluntary to the non-voluntary form: interaction between interest and attention: absorption.

IX. (May 6.) *Judgment and Reasoning.*—The narrower and wider meaning of *judgment*: distinction between understanding and reason: logical aspects of judgment: connotation and denotation: the laws of Thought as Thought: the syllogism: meaning of reasoning: relation between form and matter in thinking: the need for internal harmony: exact nature of thinking: the purposive element: fitting means to ends by the use of ideas: the two recognized logical methods—deductive and inductive: their interrelations: their special uses in teaching: analogy.

X. (May 13.) *The Emotions.*—Various theories of the nature of the emotions: evil reputation of the emotions among the philosophers: relation of the emotions to the intellect: Macdougall's theory of the relation between the instincts and the emotions: Shand's theory of the relation between the emotions and the sentiments: educational importance of this theory: Lange-James theory of the relation between the emotions and their expression: the mechanism of the emotions: the vascular theory and the nerve theory: manipulation of this mechanism by the educator.

XI. (May 20.) *The Will.*—Fallacy of the popular demonic view: unity of the ego and the will: unsatisfactory nature of the view that the will is "the choice between alternatives": nature of motives: fallacy of the popular view of "the strongest motive": relation between desire and will: the evolution of the will: relation of the will to the circle of thought: possibility of training the will of another: explanation of the phenomena of indecision: psychological meaning of the freedom of the will: the meaning of *aboulia*: fallacy of "breaking the will."

XII. (May 27.) *Character and Conduct.*—"Conduct is character in action. character is the accumulated capital of conduct": man's whole spiritual nature is involved in character: distinction among the terms *character, personality, individuality*: temperament and its relation to character: types of character: various classifications of characters by the French psychologists: mutability of character: views of Schopenhauer and others: examples of modification of character under external pressure: the sanction for such pressure: the conditions under which the educator may conscientiously seek to modify the character of the educand.

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The Educational Times.

SCHOOLS AND MILITARY TRAINING.

THE English people are not, and never have been, organized as a military nation. In the present War we are fighting the spirit of militarism, which seeks to impose obedience to the State as the one law of life. But the War has shaken us out of the confident sense of security which we have enjoyed for many years. It has aroused the feeling that we must be prepared at all times to defend our civilization from attack. Everyone must be trained and ready to defend his country. There is a choice between two ways—either compulsory military service during manhood or compulsory training during boyhood and adolescence. The former method is alien to the national feeling; the second is the method by which the country can be made ready for defence without putting itself under the yoke of militarism. Schoolmasters are called upon to decide. Only by training boys in military service during the school age can we forestall the demand for conscription. The decision is a momentous one. The Associations of Head Masters and of Assistant Masters have passed resolutions at their January meetings in favour of military training in secondary schools for boys.

The two resolutions are as follows:—That of the Head Masters—"That, in the opinion of this Association, instruction in all the military drill and the use of the rifle should form part of the education of all boys in secondary schools"; that of the Assistant Masters—"That this Association supports the policy of universal military training in all schools, while safeguarding the interests of conscientious objectors." Conscientious objectors must, as the Assistant Masters advise, be respected. We are no believers in compulsion. We have now in schools what are called compulsory games; but that does not mean that every boy, fit or unfit, willing or unwilling, is forced on to the playing field. Where conscription is

the law, it is doubtful whether the State claims more than half the manhood of the country. For one reason or another, some 50 per cent. are rejected or not called upon. In schools the percentage relieved from drill would certainly be much smaller.

To many people the word "military" has a sinister sound; but circumstances change, and, properly handled, the word loses much of its dreaded significance. It may be pointed out that, although the movement for military training has come upon us now with especial force, it is in reality no new thing. Since the Boer War we have had the Boy Scouts, whose founder has more than once been called the greatest educator of this age; we have the Officers' Training Corps established in almost in every large secondary school; we have Cadet Corps, Boys' Brigade, Church Lads' Brigade, and other associations of similar import. Gradually, almost without our being aware of the fact, boys have been, during the last ten years or so, acquiring the foundations of military training. It is this which has made it possible to turn them into soldiers with brief delay. We have preferred, in the schools, to speak of physical training rather than of military training, but the actuality has been much the same.

If the schools had been unwise enough to say that scouting was outside their purview, that they were engaged with things of the intellect alone; if they had declined to give time for physical exercises and had refused to organize Officers' Training Corps—then we should, undoubtedly, have seen a very strong, and probably irresistible, movement for conscription in this country. As we are opposed to conscription, we rejoice that the schools have saved the situation, for it cannot be doubted that the Head Masters' Association and the Assistant Masters' Association together represent a very large body of opinion among teachers in secondary schools.

A further word must be said to explain the use of the word "military" and to justify such training as part of the life of a secondary school. Military training does not consist only of parade-ground work, of forming fours,

wheeling, and shouldering a rifle. It consists in training and practising qualities that are moral and intellectual no less than physical. Obedience, alertness, endurance, observation, and initiative are amongst these. Scientists tell us now that qualities gained in one sphere of work are not necessarily carried into another. Observation practised in the laboratory need not extend to the field; ingenuity in Latin verse does not necessarily imply a similar power of taking cover under rifle fire; obedience in the form room does not prepare for a ready response to the word of command given by an officer. Military virtues must be practised in the field of military operations. The powers that are needed by soldiers must be acquired with soldiering in view.

On the other hand, it must not be supposed that, in using the word "military," we are advocating that boys of twelve should be made into little soldiers. In every profession there is preparation. Scales are practised on the piano before compositions are played; the multiplication table is learnt before problems are solved. For boys up to the age of thirteen or fourteen the training given in the Scouts is admirable. It is suited to the age and development of the boys. It brings out the qualities that lie at the root of good soldiering no less than at the root of good citizenship. It is liked enthusiastically by the boys themselves, to whom at this period formal military drill is unattractive. At the age of fourteen, or thereabouts, the boy is ready to join a Cadet Corps and learn how to handle a rifle. Later, perhaps at the age of seventeen or eighteen, he can, with profit, give a considerable slice of his time to a more definite military training.

In these columns we deal especially with secondary schools, but we may just say in passing that, as far as concerns the elementary schools, the same plan would be effective. Scouting to the age of fourteen, and then an extra year at school devoted largely to physical training, or else a certain period in each of the three years that follow. The arguments in favour of this proposal are mainly these: intellectual pressure in the later years of secondary-school life has become so great as to be a danger to health. It would be well to lighten this pressure by assigning a considerable portion of time to physical exercise. Boys of seventeen and eighteen, accustomed to school discipline, would find the military drill less irksome than they would do at a later age. The period of compulsory military service usually comes when the career is chosen and the young man's mind set upon success in that career. He grudges the interruption in what he has chosen as his life's work. If the training were taken during the school period, this feeling, if present at all, would have less force.

Gradually, during the last ten years, physical exercises, combined in many cases with rifle shooting and military drill, have won a secure place in our secondary schools. The idea that school was a place for the exercise of the intellect alone has given way to the wider view that school concerns the whole life of the boy.

Organizations such as the Boys Scouts and the O.T.C. have brought preparation for military training into the schools even while the name was denied. The feeling is now generally insistent that every man, who is physically fit and whose conscientious adherence is assured, should be trained so as to be able to defend his country by force of arms whenever necessity shall arise. This feeling can be, in our opinion, better satisfied by giving at school the training needed than by compulsory military service to follow the school period. We are sure that the masters in the secondary schools have made a right decision.

NOTES.

The sight of academic speakers wearing khaki, and ladies in the audience busy with knitting needles, was sufficient to indicate that this year's meeting of teachers at the London University was held under exceptional conditions. The War insinuated itself as persistently into the speeches as King Charles's head into Mr. Dick's memorial: contrasts between English and German theories of education pervaded the whole. Nothing else could have been expected. Bishop Welldon opened the proceedings with an address in which he compared Culture and Kultur. He thought modern Germany had rightly seen that the true test of education or culture was citizenship, but she had been altogether wrong in her estimate of citizenship. True citizenship was the end of education, and when this was more fully realized in England we should be less eager to get results tested by crude methods of examination at an early age. Examination, he said, demanded an accuracy of judgment not always found in examiners, and fostered in children the spirit of competition.

It was an excellent idea on the part of the Chairman of the Teachers' Registration Council to invite representatives of the Educational Press to be present at a discussion on the examination proposals put forward by the Board of Education. We have previously expressed the view that the Registration Council shrouded their deliberations in an impolitic veil. The Council are the body representative of teachers, and the more they take the teachers into their confidence the stronger will be their position and the more valuable their work. That so many teachers have held aloof and omitted to seek registration may be accounted for partly by the general ignorance of what the Council are doing. We do not ask, nor do we think it desirable, that the Press should be admitted to all the meetings, but we do claim, in the interests of the teaching profession no less than of the Council themselves, that a full report of the proceedings should be issued from time to time. If the Council are to represent teachers, it is essential that we should know what they are thinking, saying, and doing.

MR. ACLAND made a short statement concerning the

*The Work of
the T.R.C.*

origin and constitution of the Council, and then called upon the chairmen of the various committees to report progress in the light of the meetings that had been held during the month. The general view expressed was that the period of hesitation had passed, and that in the immediate future there would be a large addition to the number of applicants for registration. This is good hearing. Mr. Acland pointed out that, now the Council had settled the conditions of entry to the Register, they were free to consider other matters, and as an earnest of their intention to deal with points of interest to teachers they had invited the press to be present at a discussion on the Board's examination proposals. We consider this announcement to be of very great importance. It gives a clear indication that the Council will not limit their deliberations to questions concerning Registration, but that they look upon themselves as entrusted with the welfare of the teachers, and are prepared to act as their leaders on all professional matters.

THE discussion was opened by Mr. Somerville, who especially emphasized the wisdom of the Board's proposal that external examinations in secondary schools should be taken

*The Board's
Proposals.*

only by pupils of the age of sixteen or over. Miss Gadesden supported this view. Theoretically they are right. If secondary education is to be defined as a course of education ending not earlier than the age of sixteen, and if the wisdom of external examinations is granted, then it is reasonable to argue that no pupil should be submitted to the test of an external examination below that age. But, while looking forward to an ideal state of affairs, it is necessary to keep in sight existing conditions. Mr. Somerville and Miss Gadesden spoke of types of schools with which they are familiar. There are other schools, more numerous, in which a large number of pupils leave before the age of sixteen. Parents demand that these should gain some sort of certificate as a visible stamp to attest the education they have received. The age of leaving a secondary school is rising, and we hope it may rise further; but at present it is not possible to exclude candidates under sixteen from entrance to external examinations.

MORE than one speaker was inclined to doubt if the Universities were the best bodies to conduct examinations in secondary schools. It was urged that the University don was removed from sympathy and understanding of the problems of teaching in the schools, and that, while the subjects of study in these schools were becoming wider and more practical, the Universities remained literary and academic. We have no doubts upon the subject. The proper people to control examinations in schools are the teachers. In other professions it is the rule that candidates are tested by members of the profession. In Universities this is the case. When the governing body of Balliol require to elect a Fellow they

*The Examining
Bodies.*

do not call in the services of an outside and unsympathetic body to draw up a list of candidates in order of merit. Teachers should control school examinations through their representative body, i.e. the Registration Council. We sincerely hope that the Council will consider this view, and offer to relieve the Board of Education of a responsibility that is clearly outside their scope as an administrative body.

MR. ACLAND made some general remarks upon the inadequacy of external examinations in testing the progress of young pupils, thereby supporting the views recently expressed by Bishop Welldon. Mr. Acland pointed out that, in the times of Queen Elizabeth and of Napoleon, there were great men whose powers were not tested by examinations and who received no "distinctions" in school subjects. Written examinations are, it is admitted, a limited and partial test of education, but they have a value when their limitations are remembered and they are not taken as the one and only test of qualifications. We felt extremes of heat and cold just as much before thermometers were invented as we do now when we can measure them accurately. The thermometer does not make us less or more cold or hot; examinations do not make the pupil less or more learned. In both cases there is a certain convenience in the accurate measurement of certain qualities. In both cases there are other things to be considered. The thermometer measures the temperature, but our feeling of warmth depends partly upon other things. The examination tests certain qualities and leaves others untouched. Our final estimate of the pupil is aided by, but not solely founded upon, examination tests.

*Laboratory
Equipment.*

NO sooner were the schools opened in September last than it was brought home to everyone how greatly we had depended upon German manufacturers for our supply of school material. The art room and the laboratory were especially affected. English firms, in consultation with the science teachers of this country, are taking steps to make good the deficiency; but time will elapse before supplies can be ready for use. The Board of Education have issued a circular in reference to glassware used in laboratories, calling upon all teachers to take the greatest possible care of the stock they have, to avoid breakages so far as possible, and not to give orders for fresh equipment at present, until manufacturers have had time to complete their arrangements. Messrs. H. Reeve Angel & Co., of 15 New Bridge Street, E.C., have sent us specimens of filter papers for use in laboratories. These papers are made by the manufacturers of the Whatman drawing paper, and will be known at the Whatman Filter Papers.

*Inhabited House
Duty.*

THE inhabited house duty is a hardship that always presses upon the proprietor of a school that is not absolutely disconnected from the boarding house. The tax has to be

paid on the schoolrooms if they are connected structurally with the dwelling house or boarding house. We learn from the *Preparatory Schools Review* that the governing body of Westminster School have emerged victorious from their long fight with the Board of Inland Revenue on the subject of inhabited house duty. They will not in future have to pay this tax on the schoolrooms. But the *Review* points out that the Westminster Authorities "were fortunate in having a better case than any of our members could present, for the Attorney-General was forced to admit that the buildings in question had no structural connexion with the college boarding house. . . . It is to be feared that nothing short of action by the Treasury will ever free preparatory-school masters from the heavy burden of paying the full inhabited house duty for their school premises."

SEVERAL education committees have made regulations concerning the attendance of children of school age at cinema entertainments. Licences have been granted subject to certain conditions relating to the admission of children. Mr. W. M. Geldart writes to the newspapers to point out that, by a judgment of the majority of the King's Bench Division, delivered on December 16, these conditions have been held to be invalid as being unreasonable and *ultra vires*. "The result is," says Mr. Geldart, "that proprietors of cinematograph theatres who have accepted their licences subject to these or similar conditions will be entitled to violate the conditions with impunity, and it will be impossible for the licensing authorities to impose such conditions in the future." The cinematograph theatre is perhaps the greatest educational agency of the day. That it may not become an adverse influence on the education of the young a certain control by the education authority is imperative. Mr. Geldart urges that a short Act of Parliament is urgently required.

MR. FRANK ROSCOE addressed the Association of Head Masters on the subject of "Registration." He spoke to a body that is officially pledged to support registration, although some members have delayed in sending in their applications. A strong resolution was carried unanimously stating that it was of the highest importance that all secondary-school teachers should register without delay. Mr. Roscoe referred to possible developments in the work of the Council. As we have often urged in these columns, he pointed out that the Register was the foundation of all future work. When the Council represent all efficient teachers, they can act as the mouthpiece and means of expression of the teaching profession. They can exclude unworthy people from the profession; they can reform examinations; and they can secure the due recognition of teaching and teachers. The Council should also undertake systematic and skilled inquiry into educational problems; they should take steps for the improvement of the conditions of teaching, and ensure the maintenance of a high standard of professional conduct.

THE action of some school authorities in allowing employers to take children of twelve away from school to work in the fields, and also, it is stated, in factories, should be watched with jealousy. Parliament is not sitting, and so it is not possible to get exact information from the Minister of Education. The Education Acts permit the release of children from school attendance even as young as eleven, under certain circumstances, and if they are to be "beneficially employed": for whose benefit the clause does not state. It may be necessary, if the War continues, for boys and girls, old men and women, to help in the necessary work. But the shortage of labour has not yet reached that pitch. It is said that in a number of counties the school attendance officer is turning a blind eye to absent scholars. The disastrous death rate on the battlefield makes it urgent to do our utmost that the next generation shall be strong and healthy, physically and intellectually. Child labour is universally condemned except by backward employers who "can see no good in education."

DURING the past month the death has been announced of two men who have contributed very greatly to the educational progress of the last fifty years. Mr. Henry John Roby was a classical scholar, whose "Latin Grammar" has been the guide of many students. He was a reformer from the start—at Cambridge and at Dulwich. He was Secretary of the Public Schools Commission in 1864, and became one of the Endowed Schools Commissioners in 1872. He was Professor of Jurisprudence at University College, London. He helped to found the Manchester High School for Girls. A mere list of his activities would fill a page, and to all his work he brought a breadth of view and a soundness of thought that were of the highest value. Sir Owen Roberts was Clerk of the Clothworkers' Company, served on the London Technical Education Board, was Chairman of the London Polytechnic Council, and member of a Royal Commission on the University of London. The Yorkshire College (forerunner of the Leeds University), the City and Guilds of London Institute, University College (Bristol), and Somerville College (Oxford) recognize him as benefactor. He showed the Company of Clothworkers, and through them other City Companies, the opportunities and responsibilities they had towards technical education.

AT the meeting of the Teachers' Guild Mr. Sharwood Smith uttered some severe criticisms of the Board of Education's Circular on Examinations. He said that one result of the proposed regulations would be that no pupil would be placed in a form to be examined unless he had a first-rate chance of passing. He thought the Board begged the whole question: they assumed that an external written examination was a necessity, and they directed all their efforts to devising suitable machinery for making

it as efficient as possible. But, in Mr. Sharwood Smith's opinion, the Board might do irreparable damage to education by concentrating the whole energies of the school upon examinations. Mr. J. S. Thornton asked if the Universities were the right bodies to conduct school examinations. Much as he revered the don in his right place, he was not the man to interfere in school matters. At the Head Masters' meeting the objection was raised that, unless Universities and professional bodies accepted the new examinations proposed by the Board, the work of the schools would not be lightened.

At the meeting of the Private Schools Association Dr.

*National
Ideals.*

Arthur Sibly, who was elected President, delivered an eloquent address on national ideals, warning his audience against the dangers of following the German model. For years past we have been told by one speaker after another to look to Germany, to watch her splendid organization in all departments of life. We have been blamed in England for our want of science and for our perverse habit of "muddling on." We need the reminder that Dr. Sibly gives us. We quote a spirited passage which gives the key-note to Dr. Sibly's speech:—

Nothing can compensate a nation for the loss of freedom. Industrial organization may add immensely to the wealth-producing power of a nation, educational organization may greatly increase the intellectual output of schools, social organization may diminish poverty and force men to discharge their obvious duties: but wealth is not necessarily a blessing, intellectual attainment is no guarantee of happiness or of social service, and the gross material aims which for the most part dominate so-called social reformers are apt to blight the very life which they seek to benefit. Wealth and intellectual attainment divorced from spiritual ideals may prove curses alike to their owner and to those about him.

A NOTE of warning somewhat similar to that uttered by

*Government by
Officials.*

Dr. Sibly was sounded by Mr. J. L. Holland, speaking on educational administration to the Society of Education. It is true that, as the work of Education Committees grows more complex, details of management are more and more left to the permanent officials. But so long as Education Committees meet and do their duty, there is some check upon bureaucratic administration. The capable tyrant is always a better administrator than a deliberative assembly; but the English system of leaving matters for final decision in the hands of non-experts, after considering the advice of experts, has distinct advantages. The German educational machine may be more efficient than ours in performing certain work, but we believe it to be disastrous in its effects on the individual. Mr. Holland said that if we handed over, on any mistaken plea of efficiency, the control of education in this country to officials, and encouraged the plain man in the idea—to which he was too prone even now—that he had no interest in education and that it did not concern him, then we should indeed copy Germany; we should pay a terrible price and fail to attain our object.

SOME of our readers may be disappointed at not finding

*Reports of
Meetings.*

a full report of the particular meeting in which they are interested. It may be pointed out that, if we attempted to give even the barest outline of all the meetings held by some twenty or thirty associations during the month of January, many of them lasting over two or three days, and to indicate in the briefest possible manner the subject of the many hundred speeches that were delivered, we should entirely fill our pages, and the whole would be very dull. The daily papers and the educational weeklies have in most cases provided satisfactory accounts.

SUMMARY OF THE MONTH.

THE CULTIVATED PERSON.

Culture, said Bishop Welldon, in opening the "Education Week," connoted certain definite qualities of human nature. Apart, however, from manners, the cultivated person found his pleasures not only in material objects, but in art, science, and poetry. Another element of culture was freedom, and yet another, sympathy. It would not be denied that Germans of the highest intellectual and spiritual calibre, such as Goethe and Kant, had in their lives exhibited these qualities. But the word "kultur" had practically, if not always theoretically, possessed a different meaning. It was a word of comparatively late origin. Experience showed that when it was used by Germans of late years, from 1870 onwards, it had not meant learning, scholarship, art, or literature, or had meant them in quite a secondary degree. Rather had it meant energy or efficiency, and that efficiency not so much individual as national. The German kultur meant organized efficiency on the largest scale. From this definition flowed certain results. One was the worship of the State, for the State was the organ of national efficiency. If ever, for instance, the interest of the State came into conflict with the law of Jesus Christ, it was Jesus Christ who must give way and not the State. The citizen could do no wrong if he served the State. The State could do no wrong if it sought its own interest.

ANALYTICAL TEACHING.

I know, said Mr. J. V. Saunders, retiring President of the Incorporated Association of Assistant Masters, that at once there will be a cry for freedom, an outcry against a stereotyped form. But is not the real danger at present the chaos of half-taught subjects? I am not myself a believer in congenital disability to do natural science or mathematics or Latin. Where such disability is pleaded, it generally turns out to be a case of disinclination to take pains or, quite as often, bad elementary teaching, or discontinuity between the courses and methods of one school and another. I believe, however, that there are a certain number of boys—more than, perhaps, most of us are aware of—for whom almost all our subjects and methods are taught too analytically. I have in mind boys who do not do even passable Latin exercises as long as they are in the sentence stage, but who are quite clever at translating Horace, and later write passable, sometimes good, continuous prose; or again, boys who have a real liking for, and appreciation of, English literature out of school, but are always near the bottom in the term's marks for English. I forbear to develop this point, because I feel sure that my own mind is lopsided. That kind of boy gets at his ideas in a way I do not understand; but of late years I have become more and more aware that he does get at ideas, though he seldom gets marks, and often fails miserably in easy examinations. Probably this "poetic" temperament is getting a better chance of education under the newer methods of teaching languages, and I have a suspicion that assistant mistresses could teach assistant masters a good deal on this point.

FREEDOM IN EDUCATION.

Prof. Findlay, speaking at a meeting of the Teachers' Guild, declared that the more he saw of the Boy Scouts the more he believed that Baden-Powell was the greatest educator of the present day. He believed that after this War we should see the linking up of purely educational forces under a wholesome compulsion such as youth itself welcomed, together with a larger acceptance for the responsibility of the nation with reference to the requirements of home defence and the defence of the Empire. It was necessary and right that teachers should use their powers over children to help them to care for their country. It would not be fair, however, not to acknowledge what England had done. We had neglected the emotional element, but the Germans themselves envied us our practically free organization and the active social life of our schools. It was not too much to say that the whole world had been astonished at the initiative, energy, and the inexhaustible resource that England had shown in this crisis, and that was due, he believed, to the fact that our educational system had not been bound by formulas.

THE DRILL SERGEANT.

Mr. S. Maxwell, speaking at the meeting of the Private Schools Association, said that they, at least, in that Association, had not bowed the knee to the ideal of Germany in education. They had always felt that if education was to be worthy of the name freedom must always be there, and they stood, more than anything else, for freedom in education. There were two forms of discipline: the discipline of the drill sergeant, as they had it in Germany, the discipline of repression; but there was a much higher and nobler discipline, the discipline of self-control, which English education tried to produce. The one kind of discipline produced serfs, the second men, and that was one of the lessons history would teach when the War was over.

GERMAN UNIVERSITIES.

For those who wish to know what the German Universities are doing now, Prof. Geiger's account of the past term at Berlin University will be of interest. Lectures numbered 270, as compared with 330 in the corresponding period last year. The number of women students shows a slight increase. But, whereas there were 8,713 men students last winter, this winter there were only 5,558. However, the Professor considers this very satisfactory under the circumstances. Frankfurt University, he says, has opened with under 400 students, and, though he has no precise statistics, he is inclined to think that in the smaller Universities things are much worse, for where a well known teacher has gone to the front the whole Faculty is often upset.—*Manchester Guardian*.

THE ASSOCIATION OF ASSISTANT MISTRESSES AND THE EXAMINATION CIRCULAR.

The two following resolutions were proposed by Miss Laurie, seconded by Miss Lees, and passed by the meeting *nem. con.*: (a) "That this meeting heartily approves of the simplification of examinations proposed by the Board of Examination in secondary schools. It also approves of the annual examination of a grant-earning school by one of the University examining bodies recognized by the Board of Education, and of the first examination being arranged for pupils whose average age is sixteen to sixteen years eight months; but it considers that the second examination proposed at the age of eighteen should not in all cases be compulsory." (b) "That this meeting approves of the principle of teachers being in touch with the examining bodies by representation on the Board of Examiners, by consultation with examiners as to the progress of pupils and in any other way that seems advisable, provided that teachers do not examine their own pupils."

SCRIPTURE TEACHING IN SECONDARY SCHOOLS.

The Conference on the above subject, provisionally arranged for Easter, 1915, has been postponed. It was felt that it would be impossible to secure this year a representative gathering of teachers, owing to the many additional claims on schoolmasters' time in consequence of the War. Work must be carried on as usual, but this is hardly the time for reorganization or reconsideration of methods in any particular branch of

study. There are many such tasks before us to which the nation will address itself when peace is re-established. Meanwhile individual teachers who are making a study of this subject will find useful material and advice in the Reports of the Conference of 1912 and 1913, held at Cambridge and Oxford respectively, published by the Cambridge University Press (each volume 1s. 6d.). The second volume contains a most useful and practical bibliography, which will guide teachers to the right books for their class work. Among the contributors to the papers and addresses in the two volumes are Dr. Swete, Dr. Burkitt, Dr. Foakes-Jackson, Canon Kennett, and Canon Masterman, of Cambridge; Dr. Scott Holland, Dr. Arthur Headlam, Dr. Selbie, and Dr. Peake, of Oxford; together with many schoolmasters engaged in the work of teaching. Though the Conference is postponed, it is hoped that it is only adjourned to Easter, 1916. The Secretary of the Conference is Mr. N. P. Wood, of Bishop's Stortford College, by whom suggestions for the next Conference will at any time be received.

REGISTRATION CERTIFICATE.

[The previous certificate measured ten inches by nine; the present one nine inches by ten.]

For nine long weary years it hung,

Unread, upon the wall;

Its length was ten, its width was nine,

It cost a guinea in its prime,

Its birth, with loudest praises rung;

Unwept, its mighty fall.

For nine long weary years to hang,

Unread upon the wall?

Its length is nine, its width is ten;

It costs a guinea, just to pen;

Its birth with loudest praises rang,

Forfend a future fall!

For long and weary years we've pined

For some official scrawl;

Its form is fixed, though twisted round;

No finer product for a pound

Could spring from hide-bound office mind,

So, "Get it; One and All"!

W. D. ROBERTS.

THE WAR SPIRIT AT ETON.

I believe, says the Head Master of Eton in the *School Guardian*, that there are still people—wholly ignorant of what is true, but not on the surface—who believe that the sons of the well-to-do are soft and effeminate. The fact is, that directly war was declared they telegraphed from all parts of the country for leave to rush off and face the Germans. Cricket weeks were dropped, yachting was taboo, and the grouse were left to batten among the sunlit burns of Yorkshire. That was in the holidays. When they came back from school, brandishing for signature the blue papers of the temporary commissions, they found a large and motley force of residents being drilled by the masters, and known as "Somerville's Light Infantry." The Timbralls continue to echo to the words of command far after the twilight hour, and we are waiting instructions from headquarters about organizing ourselves as a local *Landwehr* or town guard, catching something of the civic spirit of order and zeal from our neighbour, Lord Desborough.

SCIENTIFIC TALENT IN ENGLAND.

The fact that we are not as well off to-day as we might have been in our state of preparation for the War is not due, as suggested, to any absence of seriousness on our part "in regard to education," but to other causes, to which I will not here refer. Lord Haldane, unfortunately, never loses an opportunity of contrasting unfavourably our scientific education with that of other countries, particularly of Germany. There is no lack of men in this country, trained at our Universities and technical schools, who are capable of applying the most recent results of scientific research to industrial problems, including the manufacture of implements of war and artificial dye-stuffs. For the economic success of their efforts the encouragement of the State was alone needed. The public will recognize, however, with satisfaction, after all that has been

said as to the general inferiority of English to German education, Lord Haldane's admission that "a great volume of talent has been lent in turning out the things we needed," and his assurance "that the progress is now remarkable." The talent, I may point out, was previously available, and if it had been utilized the progress would have been no less remarkable.—Sir Philip Magnus in the *Morning Post*.

SIMPLIFIED SPELLING SOCIETY.

In the unavoidable absence of Prof. Gilbert Murray, the chair was taken by Mr. William Archer, who outlined the rapid progress of the Society since the inception of its active propaganda two and a-half years ago. The schools had been attacked by means of lectures and distribution of literature, and it had been found that teachers in elementary schools were almost unanimously in favour of the reform, and its opponents rarely appeared to have had any practical experience of the difficulties and disadvantages of the teaching of English spelling. At present the Society is engaged in promoting a petition to be presented, when the War is over, to the Prime Minister, asking for the appointment of a Royal Commission on the whole question of spelling reform. The petition states that the irregularities and inconsistencies of English spelling involve a deplorable waste of time and mental energy in education without any compensating gain; that no philologist or student of language of any eminence is opposed to the more or less complete removal of its anomalies, while many are strongly in favour of reform; and that the adoption of a rational spelling would, by the removal of a serious hindrance to the spread of the English language, be productive of great intellectual and commercial advantage.

APPOINTMENTS.

Mr. Charles Harold Bicknell, Senior Master of St. Paul's School, has been appointed Head Master of Mercers' School, in succession to Dr. Douglas Lee Scott, deceased.

THE REGISTRATION COUNCIL AND CIRCULAR 849.

THE Chairman of the Teachers' Registration Council (the Hon. A. H. Dyke Acland) invited "the leaders of educational journalism" to be present on January 15 at a meeting of the Council to hear a discussion by members of the Council on the Circular issued by the Board of Education in reference to examinations in secondary schools. Mr. Acland welcomed the visitors, and gave a short account of the formation and constitution of the Teachers' Registration Council. He then called upon the chairmen of the various sectional committees to report progress. The general opinion expressed was that there would be a large influx of names during the present year. Mr. A. A. Somerville then delivered an address dealing with the Circular, and gave special prominence to the value of the proposed regulation that pupils in secondary schools should not sit for external examinations until they had reached the age of sixteen years. Other speakers followed, and various views were expressed. But no resolution setting forth the opinion of the Council was passed while the representatives of the press remained in the room. It will be satisfactory for teachers to learn that the Council, having finished the preliminary work of settling the conditions of entrance to the Register, are now turning their attention to problems that concern the internal administration of schools. The proposals of the Board of Education which were under discussion are given below.

BOARD OF EDUCATION.

EXAMINATIONS IN SECONDARY SCHOOLS.

In December, 1911, the Board published the Report of their Consultative Committee on Examinations in Secondary Schools, and in 1912 they addressed to each of the English Universities a letter in which they invited those bodies, in accordance with the recommendation of the Committee, to confer with them on the subject. This letter contained the outline of a scheme prepared by the Board as a basis for discussion and in its main features framed upon the principles laid down in the Committee's Report.

The invitation was cordially accepted, and during the year 1913

the Board have conferred on the subject with all the English Universities or the examining bodies representing them. They have, further, explained the general nature of their proposals to representatives of associations representing the Local Education Authorities and secondary-school teachers.

These conferences have resulted in an amount of agreement sufficient to satisfy the Board that the time has now come to give publicity to their proposals and to invite criticism and suggestions upon them from Local Education Authorities and other bodies and persons responsible for the management of secondary schools, or interested from various points of view in the question of school examinations. It is the desire of the Board to give full opportunity for the consideration and discussion of these proposals before any step is taken to bring them into operation in those schools over which the Board exercises control by their grants or otherwise; but, in view of the time required to work out the details of so large a scheme, they will be glad to receive suggestions at an early date.

The proposals of the Board are as follows:—

Annual Examination of Grant-earning Schools.

(i) After August 1, 19—, the governing body of every school recognized for grants under the Secondary School Regulations will be required to submit for the approval of the Board proposals for the annual examination of the school by one of the University governing bodies recognized by the Board for the purpose. It is not necessary that all the schools on one foundation or under one Authority should have the same examining body, and in some schools it may even be desirable to have different examining bodies for different "sides" or portions of the school.

The examinations to be taken by the schools recognized for grants will be open on the same terms and conditions to all those schools which, after inspection, are placed on the Board's list of efficient secondary schools. The conditions on which pupils not in any recognized efficient secondary school will be admitted to the examinations are explained below (Sections viii and xiv).

Provision of Two Examinations.

(ii) The examinations to be conducted by the recognized University examining bodies with the approval of the Board will be of two grades. The first will be suitable for Forms in which the average age of the pupils ranges from about sixteen years to, say, sixteen years eight months. This will be a Fifth Form examination. The second will be a Sixth Form examination, designed for those who have continued their studies for about two years after the stage marked by the first examination. In the case of girls, the age limit may be liberally extended, but in all other respects the Board's proposals for the examinations apply to girls and boys equally.

The First Examination.

(iii) The first examination will be designed to test the results of the course of general education before the pupil begins such a degree of specialization as is suitable for secondary schools. It will correspond very closely in its scope to the present School Certificate examinations of the English Universities, and will be based on the general conception of the secondary-school course up to this stage which underlies the Board's regulations and is set out in their recent Memorandum on Curricula of Secondary Schools. That is to say, the subjects for examination will be treated as falling into three main groups. (a) English subjects, (b) languages, (c) science and mathematics; and the candidate will be expected to show a reasonable amount of attainment in each of these groups, and will be judged by this test rather than by his power to pass in a prescribed number of specified subjects.

(iv) The standard for a pass will be such as may be expected of pupils of reasonable industry and ordinary intelligence in an efficient secondary school. The form and not the pupil will be the unit for examination, and it is contemplated that a large proportion of the pupils in the form should be able to satisfy the test. It is therefore proposed that, as is the case in most of the existing examinations, the conditions for attaining a simple pass shall be somewhat easier than those required of candidates in order that the certificate shall be accepted for the purpose of matriculation.

(v) If the examination is conducted on the principle of easy papers and a high standard of marking, the difference between the standard for a simple pass and that required for matriculation purposes will not be so great as to prevent the same examination being made to serve, as the present school examinations do, both purposes; and with this object a mark of credit will be assigned to those candidates who, in any specific subject or subjects, attain a standard which would be appreciably higher than that required for a simple pass. The Board hope that the reorganization of the school examinations will facilitate the organization of the conditions of admission to the Universities and the professions. But it is no part of their plan to lay down conditions of such admission, and it will be for the Universities and the pro-

fessions, on a consideration of the new examination, to say on what terms they will accept the passing of the examination as exempting the pupils from their ordinary tests for admission.

(vi) In addition to the three main groups of subjects which form the general course in secondary schools, there is a fourth group, including Music, Drawing, Manual Work, and House-craft. These subjects are not, in the same way as the others, capable of being tested by a written examination. It is not, therefore, proposed to require that candidates shall be tested in this group, but every facility will be given to examining bodies to offer examination in any subject in this category, and it is contemplated that special examining bodies may be approved for the purpose. Success in any such examinations might be endorsed on any certificate awarded to those who are successful in the main examination. These subjects in all schools connected with the Board are receiving an increasing amount of attention by means of inspection, and, as several of them have only recently been taken up seriously in secondary schools, it seems undesirable to make any more definite provision for examination in them until more experience has been gained.

All schools which claim to be recognized as efficient secondary schools should be able to present a whole form for the first examination.

The Second Examination.

(vii) The second examination will be based on the view that the school course should, in these two years, provide for more concentrated study of a connected group of subjects combined with the study of one or more subsidiary subjects from outside the group. The main groups, as suggested in the Board's recent Memorandum on Curricula of Secondary Schools, will probably be (a) Classics and Ancient History; (b) Modern Humanistic Studies; (c) Science and Mathematics.

This classification is capable of considerable variation, but every candidate will be required to offer one group as a whole, and at least one subsidiary subject. As it is intended that the study of a subsidiary subject shall be pursued with a view to obtaining a "working knowledge" of it, so the character of the papers set and the standard of the examination in it will be less severe than that for the same subject when taken as part of a group.

Only those schools will be able to take the second examination which retain some of their pupils long enough to take an organized course extending over about two years beyond the stage marked by the first examination.

Examination open to all Candidates under Nineteen.

(viii) The two examinations referred to are designed for the use of schools which reach the standard of efficiency required by the Board for admission to their list of Efficient Secondary Schools, but they will be accessible to all candidates under nineteen years of age, whatever their previous education may have been.

Teachers and the Examinations.

(ix) It is proposed to bring teachers into touch with the examining bodies in the following ways:—(a) Either by representation on the Examining Body, or by some regular system of consultation. (b) By giving them the right to submit their own syllabuses for examination. This provision is suggested mainly for the benefit of schools with rather special aims or doing work of an experimental character; but it should also be useful when the syllabus of examination includes special books or periods. (c) By requiring head masters and head mistresses to submit, together with the list of candidates from their school, an estimate of the relative merits of those candidates in each of the subjects offered by them for examination. The estimate will be taken into account by the examining body in doubtful cases for the purpose of the award of certificates.

Co-ordinating Authority.

(x) The large number of the proposed examining bodies makes it necessary to provide a co-ordinating authority to determine the minimum standard for a "pass" in each examination, and to secure that the standards adopted by the various examining bodies are substantially equivalent. The Board's plan, as has already been stated, does not interfere with the power of the Universities or professions to prescribe their own conditions for admission; but it is essential that these bodies, if they are willing to adopt the scheme at all, should agree to accept as final the verdict of any approved examining body that a definite standard has been attained. Among its further functions, the co-ordinating authority will see that the charges for examination are kept fairly even; it will discuss special difficulties with particular examining bodies, and promote conferences of the examining bodies as occasion arises; it will hear complaints with regard to the standards of examination; and it will negotiate with Universities and professional bodies with regard to the conditions on which certificates can be accepted for various purposes.

(xi) It is proposed that the Board of Education shall undertake these functions and responsibilities after report from, and with the assistance of, an Advisory Committee composed of a representative of each approved examining body and of Local Education Authorities and the Teachers' Registration Council.

Certificates.

(xii) A successful candidate, who (a) is a pupil of a school on the Board's list of Efficient Secondary Schools, and (b) has, either before or after the examination, completed a course of three years in one of those schools (or the equivalent in more than one such school), and (c) has remained at school up to the age of sixteen at least, will receive a certificate stating that he has satisfied the examiners, and naming the subjects in which he has passed with credit. The certificate will also show the name of the school from which the candidate was presented, the length of his school life, and the general character of the course he has followed, and, further, that he was submitted for examination from a school found to be efficient on an inspection by the Board embracing all its activities, and that the examination taken was specially approved by the Board as suitable for that particular school. The examining body may also arrange to include in this certificate evidence of proficiency in parts of the school course not submitted for examination, e.g. Music, Manual Work.

(xiii) A successful candidate who is a pupil of a school on the Board's list of Efficient Secondary Schools, but has not completed a course of three years in one of the schools or the equivalent in more than one school, or has not remained at school up to the age of sixteen at least, will receive a certificate stating that he has satisfied the examiners, and naming the subjects in which he has passed with credit.

(xiv) A successful candidate who is not a pupil of a school on the Board's list of Efficient Secondary Schools will receive a certificate stating that he has satisfied the examiners, and naming the subjects in which he has passed with credit.

(xv) A certificate of success in the examinations will not be issued in any case before the candidate attains the age of sixteen years. In the case of a pupil of a school on the Board's list of Efficient Secondary Schools, moreover, the certificate will not be issued until the pupil leaves school.

Other Examinations and Grant-earning Schools.

(xvi) After August 1, 19—, no school recognized for grants under the Board's Regulations for Secondary Schools will be allowed to take the Preliminary Examination of the Oxford Local Examination Delegacy and Cambridge Local Examination Syndicate. From the same date the Board will reserve the right to prohibit any such school from taking the Junior Examination of those bodies or the Junior Certificate Examination of any other University examining body.

(xvii) Subject as above, no school recognized for grants will be allowed to modify its organization or curriculum, or that of any particular form, for the purpose of preparing any pupils or form for any examination which is not approved by the Board.

Inspectors and Examining Bodies.

(xviii) Arrangements will be made for the closest co-operation between H.M. Inspectors and both the examining bodies and the Advisory Committee for Co-ordination. The reports of inspection will always be available for the information of the Committee, and each examining body will receive as a matter of course the inspection reports of the schools for which its examination has been approved.

Finance.

The requirement that a school recognized for grants under the Regulations for Secondary Schools shall arrange for the annual examination of a portion of its pupils involves additional expenditure, and this aspect of the Board's proposals is receiving consideration. If these proposals are agreed to in their main features, financial aid will be forthcoming, but the exact extent of the aid and the conditions on which it will be given cannot be determined until the scheme has been more fully matured.

L. A. SELBY-BIGGE.

THE statistics of the receipts and expenditure of Local Education Authorities in respect of elementary education in the year 1913-14 have been issued by the Board of Education as a White paper [Cd. 7764]. The total expenditure on elementary education by 818 Local Education Authorities in England and Wales during the financial year 1913-14 was £25,314,096. Of this sum, £25,095,062 was spent on the normal service of public elementary schools, one of the principal items being £16,415,827 for the salaries of teachers. In addition, £1,219,036 was spent on special services, including £471,000 for special schools, £318,242 for medical inspection and treatment, and £150,122 for the provision of meals. The sum spent per child was 9s., and the receipts from the rates to meet the expenditure amounted to 5s. 1d. per child.

FURTHER EXPERIMENTS IN PARTNERSHIP TEACHING.

By NORMAN MAC MUNN.

THE present article is not intended to offer any further theoretical justification of teaching children through partnerships. Beyond reminding the reader that my principal motive for experimenting in this direction was to secure more activity on the part of the pupil than can easily be ensured in a collectively taught class, I shall avoid all abstractions and plunge at once into certain practical applications of the method which I have made since the publication of my "Path to Freedom in the School."

RECIPROCAL QUESTIONS.

I wonder whether it has occurred to other teachers that most questions can be framed so as to be answers and that most answers can be regarded as questions? Think of the point-box, and your imagination may very well tell you the rest. But an example will, perhaps, not be quite superfluous. Suppose the subject is mental arithmetic. Each boy has a manuscript book before him with a scheme of colours at the top of each page. Red in the one book may mean that any figures in that colour are to have four added to them. In the other book the four has been already added, and the red means *minus* four. Blue in the one book may mean "half it" and in the other book "double it." Thus every word or figure is at once a problem and a key, and the work is carried out with the greatest activity and without the sacrifice of even the time necessary to the framing of a question. I have applied this method, to the visible pleasure of my pupils, to French grammar and English vocabulary. If in the one book a word in violet is to be changed to the feminine, or the plural or the subjunctive or to its opposite, in the other the problem is to change the violet feminine or singular or conditional back to the forms possessed by the partner. For revision work before the inextinguishable examination, I know of nothing that is either quicker, more varied, or more amusing in its working.

NEW USES OF THE MISSING WORD.

Everybody has used the missing word as an educational instrument. We grown-ups use it in daily life as a quick means of asking a question. But I doubt whether many have realized the full value of obscuring certain words throughout a lengthy text, and leaving the pupil to supply them as he reads. I prepared many books, both in English and French, in this way. Then, half in jest, I tried leaving the obscuring to chance. That is to say, I drew a rather wide black line down the page in the one book, while the corresponding page in the other book was left clear. The practical problems were nearly as numerous, and some of them had a peculiar value due to their very origin—such as the partial obscuring of the ending of one word and the beginning of the next. The boys are almost unanimous in declaring for chance as against deliberate blacking-out. This led to my "obscuring irons"—frames of zinc so made as to be attachable to any book, and blotting out a certain portion of each line on the page. The number of synonyms a boy will often find before hitting on the word in the text, the amount of ingenuity displayed by the boy who holds the key in keeping his partner to the right track, and the amount of general knowledge that is unconsciously absorbed in this way, are matters to me of never-ceasing wonder. In French, of course, we have *accidence*, *syntax*, and *vocabulaire* taught simultaneously.

OTHER PROVISIONS FOR FRENCH GRAMMAR.

Much of French grammar, if not most, is learned by rhythm. All the regular and most of the irregular verbs are certainly remembered by their harmonious progression; therefore, the natural thing is to cover much of the ground on a basis of rhythmic principle. In the books devoted to this idea I say nothing about what the tense is; I simply provide the forms in their rhythmic sequence. The type example is set out at the top of the page—e.g. *je parle, je parlais, je parlerai*. When the words are in green, the boy listens and corrects, when the opening word is in red he supplies the remainder of the rhythm, to be corrected in turn by his partner.

In my reciprocal translation book the one boy translates the English into French, while his partner reverses the process. Needless to say, the sentences are so arranged that neither boy is occupied with translating into the one language. Space forbids my entering into the sentence-building game, consisting of piecing together phrases in every imaginable way, and several other similar devices in language-teaching.

ARITHMETICAL MACHINES.

I have always felt a deep personal sympathy with the poor mathematician, and some envy for the proficient. And I have always sought new means of getting the non-mathematical or anti-mathematical child, caught young, to show more interest in, and understanding of, numerical values. After some study of the question, some observation of young children, and some pondering on my own experience at school, I have come to this conclusion: the reason why some of us have kept such a deficient sense of numerical relations is that nobody ever sought to bridge for us an undoubted gulf existing in the teaching of arithmetic between the so-called concrete and the so-called abstract varieties. As soon as we have learned what nine is and what five is, people try abruptly to teach us that nine and five make fourteen. That, I am convinced, is an entirely wrong method. And that is why I have devised a piece of apparatus in which nine and five, and all the other units, each has its value expressed in length. The numbers are cut in zinc, and are placed with the left-hand end against numbers painted above the grooves in which they are moved to and fro. The boy then discovers his results, while his partner writes them down. I have similar machines proceeding by tens, and apparatus for the addition of fractions and of money. I dare not yet describe the effect of these machines upon a boy who, although aged thirteen, could not even add three to any number with certainty, because the change in him was so startling that I have not recovered from it yet; and one wants to be scientific, and not rhapsodic.

These devices do not by any means exhaust the suggestions I could make. The field of partnership work is vast and almost unexplored; it is also so deeply fascinating that one feels that to recommend others to experiment on these lines is to invite them, if to increased labour, to an experience that they can never regret. I would not if I could maintain any right in any part of my work. By adroit and contextless quotation, a certain educational review affected to think otherwise. If the writer had known anything at all about me or my work, he would have known that not only the profits from my books, but all other money I can come by, is employed in my experiments. If I say that endless printed material is wanted, I am no more asking that people should use my books than that they should publish their own for the benefit of other experimenters, including myself.

THE LEAGUE OF THE EMPIRE.

By WINIFRED FELKIN.

In the middle of last July, the second Annual Meeting of the Imperial Union of Teachers, convened by the League of the Empire, was held in London. The resolution, proposed by the Chairman of the Council, Sir Philip Hutchins, representative of the Education Department in Burma, put into memorable words the work of the League—"its endeavour to draw yet closer all peoples of His Majesty's dominions in the bonds of brotherhood and learning." To further the unity of the Empire, the League was founded in 1901. During the twelve years of its existence, its activities, of which the Imperial Union of Teachers is one result, have expanded in many directions.

Imperial unity, founded on co-operation with the mother country, has always been considered by England as a necessity of efficient colonization. As early as 1527, American fisheries were a recognized English industry, and Raleigh wrote, at the end of the century, when they were employing over a thousand men and boys, "If these should be lost, it would be the greatest blow given to England." England has profited by the lesson learnt from Spain, which, starting with equal advantages, failed to keep her vast possessions in Spanish America because she vested huge tracts of land in individuals (thus preventing their development), discouraged education, and branded any trade or industry as a social degradation. By doing so she

destroyed one of the chief reasons for contact between her colonies and herself.

Contact between England and her colonies has always been fostered, but, during the last fifty years, the desirability of still closer union between the scattered portions of the British Empire would be admitted by many responsible statesmen. It is well known that Mr. Chamberlain, in 1902, went so far as to consider political federation "within the limits of possibility." It is necessitated by the acquisition of new territory and by the rapid growth of population, trade, and capital—interests which will become separate from those of the mother country unless they become identified with each other.

The League of the Empire recognized that mutual knowledge, brought about by interchange of ideas, either by correspondence or personally, is one of the best ways of identifying scattered interests and thereby establishing an Imperial tradition. Therefore one of its first works of importance was to establish correspondence between children throughout the Empire (1901); then it affiliated schools (1903), convened an Education Conference between the Education Departments of the Empire (1907), established a scheme for the migration of teachers, a lace and needlework industry on the Island of St. Helena, and a non-resident club for members of the League in London. A monthly federal magazine gives full reports of its activities. It also felt that those responsible for the training of future generations should be drawn together, and therefore it inaugurated the Imperial Union of Teachers in 1913. In 1914 the first Annual Meeting brought together four hundred representatives from the teachers' associations and educational institutions throughout the Empire under the presidency of Lord Meath. The appreciation and success of the work of the League was shown by the invitation of the Government of Ontario to the Conference to hold its next meeting in Toronto—a practical illustration of the words of the Head Master of Winchester "that the League has acted rightly in taking education as the basis of a satisfactory interchange of thought and sympathy between the various nations of the Empire, for it is the vital bond of education that would bind these nations together." During the Conference, discussing the common interest Britain and her colonies felt in what is eminently a pursuit of peace—education—there was little thought that both were so soon to be united in the defence against a common enemy. Yet the representative of New South Wales spoke of the Australian army "which was intended not only to defend its own shores, but to help the mother country any time it was needed." This note was re-echoed by other representatives.

Since these words were spoken, the unity of the Empire has been put to a greater test than ever before in history, and the high confidence which Britain placed in her colonies has been justified. In bringing this about, the work of the League has done its part. The late Field-Marshal Earl Roberts, a kind and interested friend of the League, was brought into touch with it by the work of his last years—a plea for the adequate military defence of the realm—for the relation of Britain to her colonies is closely connected with the question of Imperial defence. After the War broke out he sent the following letter to the October number of the *Federal Magazine*, his message to the children of the Empire, written for them on his eighty-second birthday:—

"CHILDREN OF THE EMPIRE,—

"You have all heard of the War; you have all heard of the fighting forces sent from every part of the Empire to help the mother country. Why are we fighting? Because the British Empire does not break its promises, nor will it allow small nations to be bullied.

"Now, the British Government promised, with all the great Powers of Europe, including Germany, that no army should set foot in the territory of the little nation of Belgium without her leave; in other words, she 'guaranteed the neutrality of Belgium.'

"Germany, however, was bent on War and on dominating other nations. Britain did her best to keep the peace, but Germany, breaking her word, marched her armies into Belgium to try to conquer France.

"Children of the Empire, this is why we are at War—to keep our promise, to help our friends, and to keep the Flag of Liberty flying, not only over our own Empire, but over the whole world."

The value of his message for us, equally children of the Empire, though of an older growth, is twofold. It is the considered opinion of a man whose military achievements have been of large historical importance to Britain, and the fact of his writing it represents his attitude to the question of Imperial unity, in the desirability of which he believed. That it had to be manifested in the interests of War rather than of peace, he would have been one of the first to deplore. We may, indeed, hope that the time may not be far distant when the friendship between Great Britain and her colonies, as well as that between nations now so disastrously at War, may, in the words of Lord Acton, "contribute to the treasure of civilization by taking into partnership in the enjoyment of its rewards those who are far off as well as those who are below."

TO FRANCE.

[Suggested by the President's Address at the Reopening of the Sorbonne.]

THEY are worth while:

These sufferings of yours—are worth the pain
That ye endured: an ancient people ye,
Who from the ashes of the funeral pile
Of Rome's great Empire raised your heads again,
The first to seek and find new destiny.

Ye who have striven

With hands and minds in innate energy,
Ye have your faults, ay, and your hearts are riven
By memories of more than one great crime
That mars your history's page: yet said your say
And done your deed have ye, both yesterday
And now, attaining sometimes the sublime:
Ye who are artists, sculptors, poets—those
Who give expressions to the mind within:
Logicians, scholars, fountains whence there flows
Philosophy's clear stream as origin:
Lo, every pathway, gateway or approach
Ye have unlocked to modern science.

And what is there

To which ye have not bid defiance
Of all convention's forms? How rich and rare
The splendour of your kings and consorts fair,
Magnificent as Cinderella's coach!
Republics next ye tried; and then ye gave
The people power: 'tis ye have taught mankind
(So that none henceforth e'er can be a slave)
The worth and dignity of human mind.

By you the nations all,

Both mighty ones and small,

Are estimated worthy your respect:

'Twas ye, who with your arms and intellect
Unravelled in the past the German tangle:
Brought order into things political,
Determined the antique Teutonic wrangle
By pulling down their thrones: ye did reject
Hundreds of petty princes, disaffect
Their subjects: puppets they of your great king—
The Fourteenth Louis: who to-day would bow
Respectful knees to Germany, would bring
Their fawning homage to the Kaiser now
If ye had not the world's foundations shaken,
Its whole regeneration undertaken.

Ye helped unfurl the Stars and Stripes—to free

The modern Greece from her bonds;

At Belgium's bid for liberty

Ye played your part, for France responds

To every call that comes from the oppressed;

The Balkan States ye helped; and Italy;

When they were struggling to their birth: all eyes

Have turned towards you as if to manifest

Their faith in you as saviours: and shall ye

Be cast down from your old estate, despise

Your former dignity, reduced, descend

In your turn to the level of the slave?

If so, ye live no longer; 'tis the end

Of France, and freedom here has found its grave.

LILIAN FAIBROTHER RAMSEY.

A VISION OF VENGEANCE.

Though the welter of War linger on as before, though our
ears may be deaf with the din,
Though our Kitchener say that in April or May is the
struggle "about to begin";
Though the newsmongers bawl of disasters appalling (that
sell the "6.30" or "Home")
There are tidings of joyance for one and for all from our dear
Copenhagen and Rome.

For the story is told that the gentle and bold, if a trifle
ingenuous, Boche
Is leaving the speech of superlative Nietzsche, and treating
Bernhardi as tosh;

Our mellifluous friend, having brought to an end our commerce, our Army and Fleet,
To attacking our language will now condescend, that the downfall be duly complete.

O my Muse, let us run, let us fly to the fun, when the corpulent Teutons shall quake,
As they splutter and sweat through the mazes of *get*, through the columns and columns of *take*;
Let us spread in the way of their footsteps to-day our *do's* and our *did's* for the foe,
And shriek with delight as we hear what they say of our *cough* and our *plough* and our *though*.

Let us cunningly weave, with intent to deceive, a net of our *out's* and our *in's*,
Let us gloat on their screams when they tackle our Wemyss, when Cholmondeley requiteth their sins;
Let us mock them with "Pish!" and with "Tush!" as we dish up a twister or two, as may be,
Where rollicks our insular *r* with initial *th*, or with *f* and with *v*.

A. C. BRAY.

CORRESPONDENCE.

VENTILATION.

To the Editor of "The Educational Times."

Sir,—I am glad to see that at last we are beginning to wake up to the evil effect of draughts. Certainly the ventilation in schools leaves very much to be desired on the score of the great discomfort, if not actual danger to health, which it inflicts on defenceless children in cold weather. I have given some amount of attention to the subject, and my conclusion is that one or two simple expedients combined with a little common sense should be sufficient to solve the problem in the majority of cases.

In the first place, we must remember that it is possible to have "draughts" without any window being open, owing to the fact that a large thin sheet of glass exposed to the cold atmosphere outside chills the air in the room in contact with it and sets up a cold (but not fresh) current, which may be easily mistaken for a true "draught." Also the cold glass will abstract the heat from one's body by radiation, and so cause the feeling of a draught. One remedy sometimes adopted is to place hot-water pipes under the window, but the heat so supplied to the glass must be of considerable amount, since most of it is passed on to the air outside, a somewhat wasteful proceeding. The proper remedy is the well tried and economical device of the *double window*.

So much for *insulating* a room and preventing the heat applied to it from being unduly dissipated. Now for *ventilation*. Here, again, a little common sense is required rather than any elaborate installation. In fact, the less elaboration and doctoring of the air, the better. An occasional opening of doors and windows is, after all, the best system of ventilation that has ever been devised, and, if the crude process is a little troublesome in practice, we may preserve the principle and dignify it by the name of "intermittent scavenging." Let inlets for air be provided either in the windows or in the walls, and let these be opened automatically for a short interval at regular and adjustable periods. Nothing more will be required, for, as soon as the room becomes too warm and oppressive, an inlet will open at the prearranged moment and a stream of cold, fresh air will flow in, being felt as a wholesome and invigorating breeze for the limited period of its action, and being automatically shut off before it has had time to lower the temperature of the room unduly or to be felt as a chilling draught. The warm air in the room will itself provide the necessary tempering in cold weather.

The conclusions, then, at which we have arrived are—(1) have thick walls and double windows if you wish to economize fuel; (2) provide some automatic method of periodically opening windows or special air-inlets, and let the amount or duration of opening be capable of adjustment; (3) do not,

in this country at least, doctor the incoming air in any way.—I am, Sir, your obedient servant,
London Institution, IMMO S. ALLEN.
Finsbury Circus, E.C.

IS OUR ENGLISH PRONUNCIATION "CARELESS, SLOVENLY, AND SLIPSHOD"?

To the Editor of "The Educational Times."

SIR,—I had not the advantage of hearing Mr. Caldwell Cook's paper on "The Teaching of the Pronunciation of English" read at the last Annual General Meeting of the English Association, but the newspaper reports seem to show that the value of his contribution was not sufficiently appreciated, and that the criticisms were too severe. Shortly, Mr. Caldwell Cook's contention was that English pronunciation had become "careless, slovenly, and slipshod," and that "the remedy was to pronounce the vowels in the unaccented syllables."

The chief critic, Prof. Wyld, of Liverpool University, "disagreed with every word of the lecture, and had never dreamed of hearing so preposterous and absurd a case put forward so unblushingly." Yet, without pretending to agree with Mr. Caldwell Cook, I cannot help feeling grateful to him for raising a subject of no small importance, and I venture to suggest that many Englishmen who think they speak well and correctly would be horrified on seeing an exact phonetic transcript of their speech. They would, I think, at once make up their minds to see what they could do to improve their pronunciation and make it more exact.

A very superficial examination would show that most people have, in many instances, two different ways of pronouncing the same word. One (correct) way they would give in answer to the question "How do you pronounce this word?" and another (incorrect) way they would use in ordinary conversation. The word "was," the varying spoken forms of which often puzzle foreigners, gives an illustration familiar to students of phonetics.

The most feasible reform seems to lie in an effort to bring the pronunciation of the words used in sentences into greater agreement with the same words used alone, and this view appears to be supported by Prof. Rippmann's statement that "clearer and better speech is a matter of articulation."

Foreigners, who depend too much upon phonetics for their pronunciation, often speak in a stilted and artificial style, but there is no reason why every educated Englishman should not contribute to the improvement of spoken English by rejecting many accepted, but "careless and slovenly," forms of pronunciation, and yet give not the slightest sign of pedantry or affectation.

I do not see why the *r* should be entirely absent from "wo(r)d" or "remembe(r)," why the *h* should be missing in "w(h)ich" and "w(h)at," and I heartily object to "thum" (or even "um") for "them."

May I, by your courtesy, ask some of your readers to give their views on this subject?—I am, yours faithfully,

A. MILLAR INGLIS.

CURRENT EVENTS.

BEGINNING on February 3, Canon Nairne will give a course of University Extension Lectures arranged by the Association for the Teachers' Study of the Bible. Information from Miss Graveson, Goldsmiths' College, New Cross, S.E.

THE Cheshire Education Committee have decided to pay the travelling expenses to secondary schools of several Belgian refugee children. The view was strongly expressed that the education of Belgian refugee children should not be neglected, and that those who had been accustomed to attend secondary schools in Belgium should be sent to such schools here.

THERE is to be no Boat Race this year—after an unbroken series

since 1856. There is nothing surprising in this:

“For this is scarcely odd, because
They’ve vanished, every one.”

In other words, the rowing men have “vanished”—to the Front. The Blues have joined the Colours.—*Westminster Gazette*.

SIR ROBERT BLAIR advises that, in case of Zeppelin attack, children should continue their work, avoid the windows, and be kept at school until the danger is over.

THE Head Masters’ Conference expressed the opinion that it was desirable that facilities in the way of reduced fees should be offered by the public schools to sons of those killed in the War. It was resolved to appoint a Committee to take action in the matter. The Committee of the Conference was empowered to vote a sum of money from the Conference Funds to one or more of the War Relief Funds.

THERE are two ladies, says the *University Correspondent*, on the list of London University professors and five on the list of readers, and in the schools of the University there are fifty-four recognized teachers in Arts and twenty-five in Science. In the other modern English Universities there are only twenty-three women teaching in Arts and fifteen in Science. The Federation of University Women publishes the above information in a report, which also hints regret at the slow increase of the number of women lecturers at Newnham and Girton.

THE *Technical Journal* for January gives a detailed account of the magnificent Institute of Technology for Massachusetts. The article is illustrated with architects’ drawings, which show buildings of great dignity and beauty.

THE Vice-Chancellor of the University of Cambridge has received a letter from Count Lalaing, the Belgian Ambassador, in which he expresses his thanks to the Senate of the University for the generous hospitality they have extended to Professors of Louvain, Liege, and Gand, and a number of young men who are not of an age or are otherwise unfit to enter the army. The constant manifestations of sympathy, he says, have produced a profound impression on the Belgian professors and students at Cambridge, as well as on the Belgian Government.

THE absence of students at Cambridge, and the preoccupation with drill of those who remain, is indicated by the fact that no essays were sent in for the Thirlwall Prize and the Hulsean Prize.

MR. CLOUDESLEY BRERETON was invited by the University of Paris to give, on January 31, one of a series of eight lectures dealing with the War. His subject was “An English View of the War.”

THE Galton Dinner and Lecture, which were instituted last year by the Eugenics Education Society in memory of Sir Francis Galton, will be held on the anniversary of his birth, Tuesday, February 16, at the Hotel Cecil, at 7 p.m. Prof. J. A. Thomson will deliver a lecture on “Eugenics and the War.”

SIR HENRY MIERS has tendered his resignation as Principal of the University of London, and has accepted the position of Vice-Chancellor of Manchester University.

OWING to the difficulty in getting junior assistant masters for lower forms, many schools are appointing assistant mistresses on the staff.

“Is it true,” asks a correspondent in the *Oxford Magazine*, “that the University loses about £1,800 a year by refusing to take degree fees from women, and that it could obtain many thousands of pounds at once by taking them from women who have qualified for the degree in past years? If so, it seems difficult to imagine any reasonable person having the least sympathy with its alleged financial difficulties.”

THE TEACHERS’ REGISTER.

At the January meeting the Council was engaged for some time in the discussion of questions raised by the Board of Education’s Circular on Examinations in Secondary Schools. It is expected that the discussion will extend over several future meetings, and that the final opinion of the Council will have a special weight as coming from a body representing all types of teachers.

In view of the early publication of the first Official List of Registered Teachers, on which it is desirable that the names of all qualified teachers should appear, special efforts are being made to secure early applications from those who are not already registered. The officers of the various associations are taking steps to bring before their members the importance of registering at once, and local meetings of the National Union of Teachers are giving attention to the movement.

The result of these efforts is seen in an increase in the weekly average of applications which have been received since the beginning of the year. Among those who have applied may be mentioned Dr. Hastings Rashdall, of New College, Oxford; Prof. Karl Breul, of Cambridge; Canon Swallow, late Head Master of Chigwell School; Mr. W. A. Newsome, editor of the *A.M.A.*, Senior Master and Acting Head Master of the Stationers’ Company’s School; Mr. E. H. Carter, H.M. Inspector of Schools; Miss K. M. Buck, late of the Northern Polytechnic; Mr. W. S. Carrack, President of the Worcestershire Teachers’ Association; Miss Davies, of the University Training College, Liverpool; Mr. G. H. Powell, Vice-Chairman of the Parliamentary Committee of the N.U.T.; and Mr. J. W. Jacob, late President of the Head Teachers’ Association.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year’s free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE JANUARY COMPETITION.

The best brief statement of the merits and defects of any textbook at present in use in schools.

Publishers should be relieved to learn that the great lack in this competition has been adverse criticism of the textbooks selected. A sense of gratitude seems to have impelled a great many teachers to write pleasant things about the books they are using. It is true that in most cases the competitor appears to have remembered towards the end of his disquisition that defects as well as merits were called for. But the blemishes indicated were in most cases trivial, and had all the air of being added to meet the conditions of the competition—mere critical make-weights. On the whole, the following is the best managed and most balanced of the estimates sent in:

Scott and Jones—“First Latin Course.” (Blackie.)

This book combines most happily the newer method of Latin teaching with the older, and is found a most satisfactory beginners’ course, even by teachers who do not to any great extent adopt the conversational method.

The special merit of the book, compared with certain other courses in the market, is its methodical thoroughness. Not too many rules are introduced, and the beginner may thus be

drilled to habits of accuracy in such essentials as the concords. *Repetitio mater studiorum.*

The vocabularies are excellent and easily learned. The classification of words *ad sensum* is a great aid to revision and appeals to the children's play instinct. The frequent occurrence of certain important little words (interrogatives, &c.) in the conversational and other exercises proves most useful. The selection of third declension nouns is very good.

The "Proverbia" are an outstanding feature, and can hardly fail to interest and instruct even the less alert pupils. They are intrinsically worth knowing (*e.g. vae victis, si vis pacem bellum para*), and, if they are well learned by heart, many useful words are fixed in the mind.

A short outline of grammar is given at the end. I venture to suggest that it would be improved if the English meaning of each case and person were given. I have in practice found pupils voice this desire. In some schools it is necessary to make this book serve during the first year of Latin without the use of a separate grammar book (whether that of Messrs. Scott and Jones or any other).

The grammar given might with advantage be more fully incorporated in the later exercises. Towards the end of the book the fourth and fifth declensions might be occasionally introduced, and it seems a pity that throughout we are practically confined to the present tense of the verb.

The earlier Latin-English exercises are, perhaps, in a few instances monotonous, especially if our girl beginners of about thirteen are considered—and the book is in the hands of many such. Some of the later translation exercises, introducing the tales of early Roman history—*e.g.* the Scaevola incident—are very skilfully contrived from the grammatical material at command.

A very capable estimate of D. E. Jones's "Lessons in Heat and Light" is submitted by a competitor, who praises the manipulation of the "wonder motive" and the skilful use the author makes of mathematics without demanding from his pupils too much technical knowledge in that testing subject. The only complaint is that Mr. Jones does not make sufficient use of "graphical representation."

Quite a literary estimate of "the historical anthology called 'Lyra Historica'" is submitted by "Adeimantus." Unfortunately, he (or is it she?) takes too big a canvas and rules himself out of the competition by treating of the teaching of history in general. Many of his remarks show genuine insight, and he takes pride in pointing out that from such a textbook "the children would discover such striking quotations as the at present specially appropriate 'king-deluded Germany.'" "Adeimantus" shows distinct literary flair. We hope to hear from him again. The other papers in History are certainly much too lenient with the textbooks they treat.

Another competitor, who deals very cleverly with classical textbooks, is disqualified because she treats of the subject in general and illustrates her thesis by referring to two books by way of an interesting, but for our purposes irrelevant, parallel. She tells us that W. Gunion Rutherford's "First Greek Grammar" is admirable, but that it seems to be written on the assumption that the pupils will master the whole book before proceeding to the translation of even the simplest sentences. As this does not please her, she gives an account of Dr. William Smith's "First Greek Course," and suggests that the pupils should use both books, each to supplement the other.

The Geography contributions are weak, none of the more recent scientific books being treated. One textbook is highly praised on the singular ground of the great number of different kinds of type used. No competitor deals with Modern Languages, and English has not a very good showing. One of the few books that have received a really adverse notice is a work on English Grammar, the complaint being that it is worked out "in ridiculous and pedantic detail."

Our spirits rose when we found a criticism of Euclid. We knew he had many merits and some faults, but, in a competition, we expected a cheerful treatment. Nor were we disappointed in the matter of gaiety. The fooling was fair; but, if one fools with Euclid, one should fool excellently, and our competitor fell just short of success. A very little more and he would have scored a hit.

A half-guinea prize is awarded to "Grammaticus," who will please send his or her name and address for publication in our next number.

The winners in the December Competition were Mr. W. D. Roberts, 16 Cheriton Gardens, Folkestone, and Mr. J. Hardman, Church Road, Thornton, Preston.

SUBJECT FOR FEBRUARY.

The most appropriate quotation from any well known author as applied to the title of any book mentioned in this (the February) number of THE EDUCATIONAL TIMES, whether in the text or in the advertisements.

SIR HENRY MIERS.

At the meeting of the Senate of the London University, says the *Manchester Guardian*, Sir Henry Miers tendered his resignation as Principal of the University, and the resignation, with marked regret, was accepted. It was understood that the resignation did not arise out of any circumstances connected with his present position or out of any desire to sever his connexion with University work. On the contrary, his great ability and experience are likely shortly to find another and even more important sphere of labour, as he will be nominated to succeed Sir Alfred Hopkinson as the Vice-Chancellor of the Manchester University. If the appointment should be made, it will be one on which the University of Manchester may be warmly congratulated. Sir Henry has been Principal of the London University since 1908.

Sir Henry Miers has gained distinction both as a scientist and as an administrator. He was born in Rio de Janeiro in May, 1858, the son of Mr. Francis C. Miers, C.E., and was educated at Eton and Trinity College, Oxford. From 1882 to 1895 he acted as Assistant in the British Museum, and then from 1895 to 1908 was Waynflete Professor of Mineralogy at Oxford. As a scientist, he has been best known for his researches in crystallography, and for a period of ten years he was instructor in crystallography at the Central Technical College, South Kensington. His abilities as an organizer were made clear in the work he did as a member of the Hebdomadal Council at Oxford, and it was largely owing to the reputation he gained in that position that he was chosen as Principal of the London University. He is known as a man of great learning and wide interests—interests not at all confined to scientific detail—and also as one of marked administrative ability. His experience in Oxford and in London has made him familiar with the needs alike of an ancient University and of the modern Universities. He has travelled a great deal, and his publications include "A Visit to the Yukon Gold Fields," issued in 1901.

Among the many positions Sir Henry has held are those of a Fellow of Eton College, Secretary to the Delegates of the University Museum, Delegate of the University Press, Vice-President of the Chemical Society, Vice-President of the Geological Society, President of the Mineralogical Society, President of the Geological Section of the British Association in 1905, and of the Educational Section in 1910. He is a Trustee of the Beit Memorial Scholarships.

The London correspondent of the *Manchester Guardian*, writing on the same subject, says:—"The departure from London of Sir Henry Miers will cause widespread regret, as the University holds a near place in the affections of many thousands of Londoners. His period of office has not been an easy one, but he has succeeded in steering a middle course between the rival groups which the controversies of recent years have created. It is early to say who the new Principal is likely to be, but the name of Mr. H. A. L. Fisher, the Vice-Chancellor of Sheffield University, is being mentioned. This would be an excellent choice, as in this trying stage of her history London University needs a head who is a democrat as well as a scholar, and Mr. Fisher is in high repute as both."

The Athenæum and Co-operation.

WE ANNOUNCED IN OUR LEADING ARTICLE OF JANUARY 2 THAT WE WISHED TO ESTABLISH *THE ATHENÆUM* UPON A BASIS OF CO-OPERATION; WE SHALL BE GLAD TO ADD TO THE LARGE LIST WE ALREADY HAVE OF ENQUIRERS THE NAME OF ANY READER OF "THE EDUCATIONAL TIMES" WHO IS INTERESTED IN THIS IDEA.

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THE FOUNDATIONS OF CHRISTIAN EDUCATION.*

Translated by S. E. Howe.

(Concluded from page 27.)

THE weakness and one-sidedness of modern education is due to the mistaken method of treating only what is on the surface—individual faults are attacked and particular virtues fostered. Christianity, however, goes to the root of the evil and makes its appeal to the very centre of the soul; it does not prescribe special treatment or gymnastics for the will, but, through the Redeemer, delivers the will from the supremacy of the visible and the temporal in the soul.

What good is mere ethical instruction which can only produce a kind of mosaic of virtues—character formed of patch-work! Christ, on the other hand, gathers together all that would otherwise be scattered and draws upwards with irresistible strength all the higher powers of the soul... Morality tells man of the laws of human society, whilst the Christian religion speaks to him of himself, of the misery of vice, of his own deep hidden longing for deliverance and of his eternal destiny; it alone stirs in him those powers which stretch out towards the transcendental; it begets that which morality has to presuppose before it can become effective.

But in order to be able to influence disintegrated characters alienated from themselves and from the reality of life, Christian education always acts in a manner consistently true to its spirit. We may well ask, What is the essence of this Christian education? It is expressed in the words of St. Paul against the bondage of the law; instead of attacking man from without, it gets hold of his inward disposition for freedom.

On the canvas of the old Masters all creation is depicted as rejoicing at the birth of Christ. This is only a symbol of the fact that deep down in man's heart there is something which rejoices when the highest truth enters life in its full majesty. It is this very response of the soul which the educationist ought to make use of to a much greater extent. Unfortun-

* A lecture delivered by Prof. F. W. Förster, of Vienna, at the Eighteenth German Evangelical Educational Congress held at Cassel, 1913.

ately there are still amongst Christian teachers some who do not feel constrained to draw educational conclusions from St. Paul's Epistles, but rather follow the Pentateuch. Consequently, they act from without instead of appealing to the soul which reaches out towards God.

At the beginning of my lecture I discountenanced an undue emphasis being placed on the sense of honour in youth. I do not mean to imply by this that we should not respect this feeling, and I would even give a special warning against the repressing and depressing methods still so prevalent in our German schools. "A little boy ran weeping to his mother, and in answer to her question as to his woe, he replied: 'Mother, I had such bad luck to-day. The teacher said that there are 1,500,000,000 people in the world and that I am the most stupid of them all.'" This is only one example of the insulting methods persisted in by many teachers towards their pupils. They do not consider how, by just such treatment, the best character-forces of their pupils are paralysed.

The uniqueness of the influence of Christianity on the human soul is that, though it humbles us into deep contrition, at the same time it stoops down with love to raise up the crushed sensibilities. As is exemplified in the words of Christ to the dying thief: "To-day thou shalt be with me in Paradise," the Christian teacher ought to realize that all his demands on his pupils should be allied to the higher life in the soul of the child. There exists a rebellion of the spirit as well as of the flesh which is so often found in promising children; they rebel against being ordered about as if they were horses or dogs, their *anima christiana* being overlooked instead of being drawn into co-operation. This applies especially to professional education. We should give a training in motives; the best character forces would then be called into play instead of external benefits being the only stimulant for work. Therefore the ideal to be aimed at is the welding of soul and work into one whole. I once said to some children aged twelve and thirteen something to this effect: "Plato taught that the soul of man had come down from God—out of the world of the ideal—and that is why we always feel a prick of conscience when we leave anything untidy or unfinished. The soul is conscious of what is due to her high descent and suffers from forced incompleteness by indolence of the flesh or by other causes." To set free creative forces for daily life it is necessary to keep alive in the soul of the child its connexion with the Creator. However, we cannot do this by merely teaching about God; there must also be an appeal to the soul's memory of its high origin.

I have mentioned before that it is possible to fit the soul for the reception of the mystery of the will which overcomes the world by an elementary stimulation of the will forces. I should now like to point out, but from a different point of view, how necessary it is to bridge over the gulf between the ordinary condition of man and the Christian ideal; how to lead the natural forces towards God, and how to proclaim and explain religion more in accordance with the demands of daily life. Let us, from this point of view, try to solve the following problem: How can the Christian ideal be brought into touch with the world of the boy, to make it a vital agency of discipline, so simple that it is within his comprehension yet without unnaturally forcing the development of growing youth? During one of my lectures I asked some young children to quote the words of Christ in regard to the right and left cheek. I at once received the following reply, honestly meant: "If anyone strikes you on the left cheek, strike him back on the right." Such an answer is natural to boyhood; for at that age manliness means quick reaction upon a personal wrong—a purely physical reflex action. Christianity curbs the predominance of reflex movements. But the boy is not able to harmonize this repression of motory action with his highly developed craving for self-assertion. The precepts of the Sermon on the Mount transport the Gospel into the realm of "The Arabian Nights," a world into which no healthy, active mortal can follow.

But what is the result of such an estrangement between the boyish and the Christian ideal? The merely natural ideal of physical strength common to adolescence remains sterile and is left to its own coarse impulses. Christianity is not ad-

mitted into the code of honour of boyhood; it is only the *apache* chief who reigns there. Consequently, the natural impulses, bereft of spiritual influences, are not chastened and deepened because they are not appealed to in a language they understand. Christianity is not translated into the dialect of boyhood, nor is its appeal to the heroic nature sufficiently vivid. Religion is not brought down to the ordinary understanding and to the natural life of that period.

A further result of this lack shows itself in the exceedingly coarse conception of manliness still flourishing in our Christian civilization. The antique world and the uncivilized races have often surpassed us in this ideal of manhood; in this respect the savage and the civilized man are living, as yet, on very much the same level. It is because our conception of strength has remained so primitive and unpurified that many adults even are unable to perceive that it is in the Christian type that the ideal of strength finds its highest fulfilment and completion. Christianity is looked upon by many as the mere negation of all natural virtue. If natural virtue, however, were more cultivated and fully applied in the details of everyday life, then the potential conditions of its own life would be found to be fulfilled in Christianity.

It is the lack of such teaching which makes it possible for us to understand how a thinker like Nietzsche could conceive the mistaken idea that Christianity is the victory of the feminine virtues over the manly type. Lecky also declared that Christianity has replaced the ideal of strength by the ideal of love. But, in reality it is Christianity which has raised the ideal of strength to its highest point; it is Christ who fulfils the ideal underlying the story of Hercules, for He applies this ideal to all that is bestial in man. It is He who gives the will the possibility of becoming a universal power. In the light of the Gospel our conception is deepened, and we recognize that it is only through love that perfect strength enters life, and that where love is lacking even strength carries a secret weakness and bondage in itself.

Are we not often surprised to see Christ represented as a weak-looking man, with his hair parted in the middle, without any attempt made to suggest the world-conquering *will*? Strong natures are repelled from Christianity by such an interpretation, and are thereby hindered from finding in it their true ideal.

What can be done to bring about an understanding between the natural and the Christian ideal of strength, so as to make it an educational influence?

It would be a mistake to try to replace the living active self-assertion of boyhood by an artificial and forced peaceableness. Self-assertion is a valuable and integral factor in the forming of strong characters. We are even able to take a hint from the fact that in the development of mankind the ideal of heroic self-assertion preceded Christianity. The heroic spirit is more clearly related to the Christian spirit than the mere "being good"; without the element of strength all culture of emotion leads to decay of character and to a weak compliance with every kind of demand and suggestion. The following example may perhaps serve to show how the Christian element may be linked with the exuberant vitality of the boy, yet without producing hothouse virtues. After having pointed out to a class of boys of twelve and thirteen years of age the difference between real and false strength, I put the following problem to them: "Supposing a comrade kicks you downstairs, what would you do?" "We should kick in return." "In that case, you show that you have been infected by his bullying and have made him your leader whom you copy—he is the man, you are the apes." One boy, however, made this proposal: "Having thrown him down, I would put my knee on his chest and would say to him, 'I could beat you black and blue, but I refuse to be a bully like you. Now get up, but don't dare to try it on again.'"

It would be a good practice occasionally to bring into conversation topics bearing on the principles of the Sermon on the Mount, as for instance: "If you want to find out whether there is a higher world than the one in which cats spit and dogs bark, just try to do good to someone who has spoken evil of you."

The point is not whether this advice is followed out or not—the chief thing is to bring youth into contact with the ideal embodied in the Sermon on the Mount; the rest we can leave to the secret working of Christianity. What is so wrong in our present system is that, in spite of religious instruction, our young people are left to their own devices where their elementary impulses are concerned. It is of the greatest importance for educationists to study from the above point of view the fundamental elements of the natural character—namely, the striving after independence, courage, manliness, and liberty. These characteristics should then be developed, one by one, thereby preparing the ground for the reception of Christian principles. According to Pestalozzi "education is the lending of a helping hand to Nature in its striving after its own development. Our duty is, therefore, to train children in thoroughness, to help them to really want what they wish for; we must lead them on from pretence and incompleteness to reality and completeness."

It might be well to work out an analysis of such a question as "What is manliness?" To do this one would have to get beyond the idea of purely physical force to that of will energy which, when applied to the inner life, becomes the conception of resistance against different stimuli. Hilty suggests that the classical writers on ethics should be drawn upon; say Seneca's letters to Lucilius. The next step would be to hold up the medieval ideal of knighthood which demonstrates the embodiment of manhood on a broader and higher plane. The great want in our culture is the lack of an intermediate conception between the natural state of man and the highest Christian type.

We might learn a very necessary and helpful lesson from the grafting of trees. The wild stock must first be grafted with an inferior graft and gradually with better ones till at last it can take the best kind which then enables it to produce the choicest fruit. For the formation of character we require such preliminary grafting; even the most elementary principles of education demand it. The ideal of manhood has to pass through various stages before it can reach its fulfilment. In the meaning of the word "gentleman" as so finely interpreted by Cardinal Newman, we find just such a transitional conception. Even then, it must be distinct from the purely social attributes; it must become an inward attitude to be applied to all questions of character.

General Grant was one of the few to apply this conception to sexual purity. It is specially necessary for sex education that clear knowledge should exist as to a real and consistent ideal of manliness. The primary cause of our present-day laxity in sexual questions is ignorance of the true meaning of manhood: its inherent claims on self-control, hardiness, and chivalry are overlooked. Unfortunately this ignorance has led to a misconception and manhood has become synonymous with puberty. Youth, in its striving after the state of "grown-upness," is in need of a clear definition of the mature energy of life. And yet the years of adolescence are a period of discontinuity; the impulses of childhood have lost their attraction, while those of riper years have not yet assumed definiteness and power. Hence the duty of the educationist to link the conception of maturity with tangible and definite aims, which yet are not too advanced for youth.

Those Christian educationists who are horrified at the preponderating influence of Nietzsche over their older pupils should realize that this is only due to the fact that he puts before them, in a manner which they can grasp, an ideal of will-power, nobility, and heroism; yet it is not "Anti-Christ" but the potential Christian in the young man which is gripped by these ideals. The conventional interpretation of Christianity is too alien from the instincts of youth. The best counteraction to Nietzsche would, therefore, be the offering of a satisfying response to these needs, and to refute Nietzsche from the point of view of the true ideal of manhood.

In conclusion, I should like to say one more word as to the true and false adaptation of Christianity to the conditions of modern life. The educationist has before him a two-fold duty: the first is to come down to the level of his pupil, the second is to raise him to his own level. There is, at present, a tendency in modern religious education which

demands of Christianity the surrender of everything which cannot be brought down to the flat level of human understanding. But such Christianity can neither serve as a discipline for life nor can it take away the sting of death. Our aim should be not to weaken Christianity or to make it superficial, but to deepen the shallow modern man in order to enable him to gain fresh access to Christianity. It is because man has become a stranger to himself that he is estranged from religion. The deepest aspirations of conscience are buried out of his sight, and only when these are revived and brought to his consciousness—only then will he be enabled to lay hold on the Eternal Word from within.

I should like to illustrate by an example how I have tried to lead up to such teaching. I must mention the fact that in this case my experience proceeds from dealing with young people taken from irreligious circles. We commonly hear that children should not be forced in anything religious. I consider this idea fundamentally false. Young people must be trained to show reverence and obedience to religion, and should be prevented from arrogating to themselves the idea that their own little spiritual experiences can reach the great truths in their deepest sense. What we can do to prepare them for religious experiences is to quicken and deepen their consciousness of the conflict with their passions and desires. Savages even demand severe tests of physical endurance and will-power from their young men before they are admitted to the privileges of manhood.

The Greeks knew and proved by severe self-denial and renunciation demanded of the adepts in Eleusis that, in order to believe truly in a spiritual world, the superiority of the will over the flesh must be put to the test.

In Germany confirmation is too much of a conventional profession of faith and not sufficiently a personal test of conviction and will. Therefore our young people, too, should be encouraged, before confirmation, to break away from some bad habit, to overcome some pet failing, to bear with patience and self-control some irritating difficulty at home or in school, and to conquer passions and whims.

I never enter into argument with sceptical young people; I always tell them that there are certain truths the deep sense of which cannot be grasped by speculation, but only by putting them into practice. (John vii, 17: "If any man will do his will, he shall know of the doctrine, whether it be of God, or whether I speak of myself.")

I also tell them that if they wish to hear the lark sing they must escape from the sound of the barrel-organ and the noises of the street. Likewise, if they want to believe and experience the existence of a higher world the clamour of earthly wants and desires must be silenced. We must live according to heavenly counsel, and heaven will open up before us.

It is impossible to combat the materialism of our socialistic youth with mere Apologetics. The "red Press" primes them with plenty of answers. No, these young people should be led to make quite simple experiences which it is impossible to express in the language of materialism and which will prepare their capacity to understand religion. But what would those experiences be? Let them test, from the above-mentioned point of view, the superiority of spiritual forces over the cravings of the body, the influence of social environment, and even over the power of destiny. Let them solve the following problems:—"Is it necessary for the son of a drunken father also to become a drunkard?" Again, Is there any power in man which enables him to rise above what surroundings and heredity seem to doom him to?" We can go a step further and ask: "What can a girl of twelve years of age do if she lives in a neglected home?"

Is it not necessary that in a house where one person is unsteady there must be another one who is quite stable—in a home where impure speech is rife there must be at least one who is quite pure in word and deed?

By such questioning and by sympathetically entering into the young man's longing to abolish the miseries of life, initiative of character may be roused in him, and a faint premonition will be awakened of the possibility of truth contained in the words: "I have overcome the world." Such contact be-

tween religion and the experiences of daily life is of greatest value for preparing our modern youth for the acceptance of religious convictions.

But this contact between the abstract and the concrete can be established only by means of teachers who have thoroughly mastered this matter. As the present conditions of life are always cited as witnesses against Christianity, it is especially urgent to have a profound knowledge of life, and then from life itself to interpret anew the truth of Christianity. Modern man considers Christianity to be antiquated or dead: he does not realize, however, that it is he who is the corpse, and that all his palliatives belong to corruption and not to life. "When we who are dead shall awaken"—that is, when man will return from abstraction to himself and to life, then we shall cease to consider to be alive that which is really dead. Then shall we once more understand Him who is the Overcomer, the Eternal, the Unconquerable One who says: "I am the Way, the Truth, the Life."

COMPULSORY GAMES AT SCHOOLS.

By CHARLES A. PARKER, F.R.C.S.E.

THE system of education in the public schools of England has altered very considerably during the last twenty-five years, and it is a question whether the time has not arrived when the present system of compulsory games should not also be altered in furtherance of education in its widest sense. In the old days a boy's education was almost entirely limited to classics and mathematics. A little history and geography were taught in the most uninteresting way, and possibly an hour a week was given up to French or German, but the serious part of his education was confined to classics and mathematics. Entrance scholarships, both to the schools and to the Universities, were awarded on his proficiency in these two subjects. Boys had, therefore, to work at them from about ten years of age till they left school at eighteen or nineteen, or, if they went on to a University, until about twenty-three years of age. This was the ordinary routine, and boys had to fall in with it whether they had any great aptitude for such subjects or not. No effort was made to find out a boy's natural bent and, even if such bent were strong enough to force itself to the front, there were no opportunities at schools for developing it by means of a suitable education. But little trouble was taken to arouse any interest in anything outside classics or mathematics, and if a boy happened to find both these subjects irksome and uninteresting, his life was indeed monotonous. Darwin, it is said, passed through his school life with the reputation of being a dull and backward boy, and so did Sir Walter Scott. The educational system of those days was not such as to bring to light the buried genius; it rather helped to bury it still deeper.

Now, if a boy finds his work utterly unattractive, he is peculiarly liable, from sheer reaction, to get into all sorts of mischief during his playtime. The greater the mischief the greater the excitement, and so the more alluring it will become. If no mischievous act comes to hand, he will exercise the greatest ingenuity in inventing some form of devilry as a recreation. Nature rebels against monotony and boredom because life is meant to be full and joyous, especially to the young. Even adults must have relief from monotony and, if it cannot be obtained in a healthy way, it will be obtained in some unhealthy manner. The very rich, bored to death by their very pleasures, lacking in any real interests, so befogged with selfish luxury that the meaning of life is yet unthought of, seek relief on the racecourse, in society scandals, in gross breaches of faith and love, in gambling and in wild speculations. Dull monotony must be relieved at all costs, no matter how great the injury inflicted, how great the mischief wrought. Again, the very poor, crushed in spirit by our cruel commercial system, often underfed, lacking in clothes, housed in cheerless insanitary surroundings, huddled together without breathing-

space, and robbed of the joys of handicraft but pinned instead to mechanical drudgery—they, too, must seek relief in mischief. They are driven to the public house, the sensational play, the professional football match or the gambling den to find a recreation from their unattractive work and degrading home surroundings. With men and boys alike, monotony breeds mischief.

It is probable that compulsory games at school gradually developed with the direct object of keeping boys out of mischief and rendering it easier for the masters to keep them constantly under supervision. And, undoubtedly, under the older conditions of a monotonous education there must have been great advantages in the system. At the present time, however, in the more up-to-date schools at any rate, a boy's outlook is not limited to classics and mathematics, and, even if it were so, these subjects are so much better taught that they have become almost interesting. Trouble is now taken to search out each boy's special aptitude, and whether it be pure science or applied science in any of the older branches, or whether it be classics or mathematics, each boy is given every encouragement to develop on the lines most in accordance with his natural bent. Moreover, an up-to-date school is now equipped with all the means of educating a boy on such lines as his master thinks best suited to his individual temperament. There are chemical laboratories, physical laboratories, scientific instruments of all kinds and description, engineering workshops, meteorological stations, the means of studying botany, horticulture, and so forth. The consequence is that he is a dull boy indeed who lacks interest or who finds time heavy on his hands.

In such a school, compulsory games may, in reality, be harmful rather than beneficial to a boy's proper development, and wasteful of valuable time. In England, the games which are compulsory are cricket and football and in addition many schools have what are known as compulsory runs. Very many boys cordially dislike cricket and find it horribly tedious, a large number of boys dislike football, and many detest the compulsory run. A few schools are able to offer rowing as a substitute for the other games and this one extra choice at once brightens the lives of a good many boys. Now though a dash of Spartanism in education may be a good thing, even in games, it is doubtful whether it can be good for a boy to be compelled day after day to spend from one to four hours in playing a game he cordially dislikes. School life is not an easy one. It is entirely governed by a bell. From rising in the morning to going to rest at night wellnigh every hour is allotted to some definite task which has to be punctually commenced on the ringing of this bell. Let a boy be two or three minutes late and punishment is his lot. Again, no boy can find pleasure in all his work: he is bound to learn certain things under compulsion, which are distasteful to him, and it is well known that an hour's uncongenial work is far more exhausting than many hours of congenial work. Is there not then sufficient Spartanism for educational purposes without introducing the same unbending element of compulsion into the boy's hours of supposed rest and recreation? A game which is wearisome, played under compulsion, is not recreation at all and it is not rest: it becomes work of an arduous nature.

"Rest" and "recreation": these words should mean so much to all, especially to the growing boy, yet their true significance has been forgotten in the whirl of modern machinery, in the present day rush for gold, and in the regimentation of the school curriculum with examinations as its goal. Adults should remember that

Rest is not quitting the busy career,
Rest is but fitting the self to the sphere;

and those who are responsible for boys should remember, in the words of Prof. Hjalmar Oehrwal, a Swedish authority on education, that "Rest should be nothing more than rest—the freedom to do what one wants to do or nothing at all. Set forms of exercise and gymnastics are errone-

ously spoken of as relaxation from mental strain; they are simply a new form of brain fatigue." Dr. Greville MacDonald, has inspired the word "recreation" with much beauty and dignity. He says, that "no word in our language proclaims the imaginative deeps, over which and in which we conscientiously have our being, more plainly than this word 'recreation.'" He portrays what recreation should be, in these words—"Instead of digging with bowed head, slow step and weary arm, we will throw down the spade, trusty friend though it be; we will lift up the head and kick up the heels and chuck stones into the tree tops. . . . Thus shall we play with our physical energies and find therein recreation to our hearts; trust indeed in the faith that man must not, and still less must his child, try to live by work and bread alone. We dare hardly think this delight in life and the expression of its joy in play are other than the finding 'the Kingdom of Heaven within us.'" Roused to enthusiasm by this beautiful and ideal conception of recreation, does not the idea of just one or two compulsory and often distasteful games, as the child's only form of recreation, come as a wet blanket? Compared to what rest and recreation might be to the boy's spiritual, mental, and physical development, are not compulsory games a failure and to many boys a soul-destroying limitation?

To children, under fifteen at all events, spontaneous games, arranged and played on the spur of the moment, are always far more enjoyable than set games, let alone compulsory games. Who has not known the wild delight of a party of children over some game devised in a hurry? The Spirit of Play has entered into and obtained possession of old and young alike: the children have gained frolicsome recreation and their elders have enjoyed temporary forgetfulness of the world of worries. Let one of the elders, remembering the joy the game had given, try to repeat it on some other occasion, in some other place, and amidst different surroundings—and how flat it falls! The spontaneity has gone and the Spirit of Play refuses her presence.

Some boys, of course, love football; some cricket, and some running and find in them joyous recreation, but one and the same boy seldom likes all three. So the cricketer in winter has to content himself with looking forward to the summer, the footballer to the winter, and the runner to the Easter term. There is no time of year in which every boy can get his fill of healthful pleasure. Even when boys who as a rule like cricket, football, or running, as the case may be, there must often be days when they feel disinclined to play or run, and thus the element of compulsion may in the end rob them of their love of the game. By compelling a boy to play a game for which he has either a temporary or permanent disinclination, we are robbing him of his relaxation, and thus whole days may be passed without his getting any real recreation whatever. This must be wholly bad and may lead to an effort on his part to get relief from a too arduous and monotonous life in mischievous and even immoral ways. If the hours of play are rendered wearisome by compulsory games, which arouse no enthusiasm or interest, then these hours must be added to those of work and a truly healthy life becomes impossible. Therefore, to many boys at any rate, compulsory games are likely to be harmful to their moral and mental development.

I know that the compulsory games are often upheld as a means of preventing immorality in schools, but the way to counteract evil tendencies is to displace them by healthy and congenial interest and occupations. There is no doubt that the ardent cricketer and the keen footballer may be helped by having opportunities for these games, but there is equally no doubt that loafing about the pavilion waiting for a turn at the wicket with interest unaroused, or standing out fielding for perhaps hours at a stretch, can be of no service whatever to the boy who dislikes and has no aptitude for cricket. His heart will not be in the game and, if unfortunately the seeds of vice have been planted in his mind, he will have no healthy interests to displace and replace them. Compulsory attendance on the playing fields

may lessen the opportunities for vicious acts, but it cannot be claimed that it corrects the tendency.

With a good modern education there is not the same necessity as of old to create methods of keeping boys out of mischief, nor is there the same necessity for keeping a boy constantly under the eye of a master. Fill a boy's life with real and living interests and the love of getting into mischief will be supplanted by the love of doing things, making things, or adding to his store of knowledge by some other use of his hands. What boy really keen on constructing a model aeroplane, a yacht, or an engine, or engrossed in some scientific investigation and given opportunities of carrying them out, will go out of his way to break windows or wrench knockers out of sheer love of mischief? If a boy of public-school age indulges in wanton mischief, it is surely a proof of some fault in the method of his education and of the employment of his play hours. Given a system of education and a well equipped school which allow a boy to develop on the lines of his own special bent, it is a great pity to hedge him round with compulsory rules in play hours as well as in school time. They can but cramp his efforts and originality and prevent him from indulging in hobbies during times of recreation on parallel lines to the work he is doing in school.

It must be a waste of time to compel a boy with no taste, and perhaps an actual distaste for cricket, to spend from twelve to sixteen hours a week on the cricket field. If he is a boy with intelligent interests and hobbies, he could undoubtedly employ his time to much greater advantage. One hour devoted to a game of tennis or fives or to a brisk walk, whichever would give him the most enjoyment and so the most true recreation, and the remaining "play-time" devoted to experimental work or some handicraft according to his taste, would be infinitely better for him physically, mentally, and morally. He would return into school far more refreshed than he would after spending three hours over a game in which he could find no interest. Allowing a boy freedom of choice in the matter of recreation might add to the difficulties of organization from the master's point of view, but so doubtless has the inclusion of many subjects beyond classics and mathematics in the school curriculum. The wise treatment of the hours of recreation is quite as important as that of the hours of work, and any difficulty that may exist should be overcome.

At the present time there are two difficulties often met with by parents, which can be directly traced to the more limited fields of education retained at some schools and to the compulsory system of games existing at all schools. First, so many boys arrive at the end of their school education without having the very remotest idea as to what they would like to undertake as their life's work. Parents on all sides grumble that their boys have no definite tastes and that they are worried to know what to make of them. Surely this is a great reflection on educational methods both in and out of school hours. Secondly, during holidays so many boys, especially those living in towns, find time hang heavy on their hands and, after the first day or two, parents are often at their wits' end to find amusements for them. Artificial amusements have to be resorted to to fill up the time and keep the boys happy and out of mischief. Surely, again, this would not be the case were boys taught at school the proper use of the play hours.

Just as the subjects taught at schools have been broadened in later years and just as the equipment of schools has been bettered to suit modern requirements, so should games and pastimes be broadened and greater opportunities should be given to every boy to obtain recreation best suited to his special needs. A boy with no aptitude for Greek is no longer kept year after year eating his heart out in vain efforts to learn it, and in the same way a boy with no aptitude for cricket should no longer be compelled to devote his time to it week after week and year after year. Just as in schooltime the common grindstone has given place to more specialized education in accordance with a boy's natural abilities, so in play time the present compulsory

games should give place to recreation more in accordance with each boy's particular taste and bent. Only in this way can a boy develop a really healthy mind in a healthy body.

There is yet another important aspect of this subject. The majority of boys are extremely sensitive and take ill-natured chaff or adverse criticism from their fellows with extreme seriousness. The unfortunate boy who has no aptitude for cricket and who, time after time "goes in" and is "bowled first ball" is often jeered at by his mates, and, if sensitive, suffers untold torture. Speaking of some of the drawbacks of school, Ellen Key, in her book, "The Century of the Child," says: "These dangers are not only evil influences, but, more than anything else, that collective process of reaching a standard of stupidity due to the pressure of public opinion that comes from association in masses. The fear of common opinion, of being laughed at, is created in the receptive years of childhood so open to such influences. The slightest deviation of dress or taste is criticized unsparingly. . . . If an investigation were conducted on the sufferings of children through the tyranny of their fellows—a tyranny which sometimes takes harsher and sometimes milder forms—it would upset the prejudice that the usefulness of the school in this respect cannot be replaced." This is a serious matter, and it becomes a question whether it is right to keep a boy at school if he cannot quickly throw off his individuality and descend into that deep rut of commonplace, which masters, and boys themselves, have worn to guide him to the uneventful life of a respectable English gentleman. Too much rotting and ragging of the *boy* may rob the *man* of courage and initiative and may for ever crab his life. The bodily discomforts entailed are of no account, but the mental anguish is often wellnigh unbearable and leaves a permanently injurious effect. There may be some unusually strong characters who, refusing to descend into the rut, are even stimulated by the rotting they receive from their fellows and leave school with greatly increased individuality and power, but more often harm is done and individuality is destroyed.

In England, where games are worshipped, the captain of a cricket eleven is often more of a hero than the boy who takes the most brilliant scholarship, whilst the boy who is no good at games generally has a rough time. He comes to dread the afternoons when he has to take his place on the cricket field and often shams a headache so as to get "leave off." This is a most unwholesome state of affairs. To dread the hours of recreation and to lie in order to get off playing a game is grossly bad for the boy's healthy development. This could be remedied to a great extent by broadening the choice of games, by making no one game compulsory, and by shortening the hours of necessary physical exercise. In this way every boy might be enabled to find some form of exercise which would be to him a true recreation and he would also obtain leisure for carrying on his own special pursuits.

In the past stress has been laid on the importance of exercise to physical development. As Dr. Duke puts it in his book "Health at Schools"—"Compulsory games are a necessity in physical education." There is here confusion of thought, for surely there is a very real difference between healthy recreative exercise and physical training. Both are essential, but it is not often possible to combine them. Healthy exercise for boys should be made to approximate as nearly as possible to the joyous romp of childhood or to Dr. MacDonald's conception of recreation. It should be spontaneous and engrossingly interesting and it should carry a boy *right* out of himself and his lessons into pleasureland. Compulsory games, limited to cricket, football, and running, cannot fulfil these requirements for all boys at all times of the year. The organization of many more games and freedom of choice in selecting games are essential to healthy exercise. Just as it is best to develop a boy intellectually on the lines for which he shows natural ability, so is it best to encourage him to obtain the necessary amount of healthy exercise on lines in accordance with his

natural gifts, leaving him time to follow other pursuits in which he is interested. In this way only can his exercise and play time be healthy and afford him relaxation from work and real recreation of his mental powers.

Physical training, on the other hand, is a very much more serious matter and should be dealt with scientifically. This cannot be done by forcing cricket, football, and compulsory runs on all growing boys indiscriminately. The fact that some boys grow up into well developed men is rather in spite of such games than because of them. It is impossible to secure the even, well regulated development of chest, heart, and limbs by such haphazard means. Gymnasia, which at last have been introduced into most schools, have come only when they are about to be superseded by still more scientific methods. Physical culture is quite as important as mental culture, and much more thought should be bestowed upon it than is done at present. It should be put upon a proper scientific basis in all schools. Boys, however, are never likely to find any great pleasure in scientific physical culture: they are far more likely to find it irksome, and it should therefore be made part of their work and not part of their play. As already quoted, Prof. Oehrwil considers "set forms of exercise as simply a new form of brain fatigue."

Another great reason given for compulsory games is the danger of idleness. Dr. Dukes is very strong on this point. He says: "The boy is an active animal, and unless he be kept employed at an innocent and healthy occupation during playtime he will . . . occupy himself with something that is probably not innocent or healthy, and will become neither a credit to himself nor his school, but an evil doer and teacher and an example of evil doing to others. . . . It is frequently forgotten that every idle hour to the boy is a bore; and that every idle boy tends to become a vicious boy and morally and physically an unhealthy boy." And again, he says, "failing this course (*i.e.* compulsory games) there will arise an unmanly precocity in self-indulgence, betting, smoking, and drinking; boys will, naturally, develop into premature men of the world and schools become tainted with an atmosphere of society which no master can purify." If compulsory games are really necessary to keep boys out of mischief, it surely shows a faulty system of education. If a spare hour in a boy's life is necessarily an idle hour, it shows that his masters have lamentably failed to supply his mind and his tastes with the necessary food for his development.

Again, it has been urged that compulsory games are excellent from the social side of life; that to learn to take your place as one of a "side" in cricket teaches you to take your place as one of the community. The whole of school life, and indeed the family life preceding school, should have this as one of its chief aims. Some games encourage the spirit of "every boy for himself, and the devil take the hindmost," and consequently are not altogether wholesome from the social point of view. It is also said that in games boys learn to take knocks and tumbles in a plucky way. This may be true of very little children, but all boys have learned to do this before they go to a public school, and probably the lesson will be repeated many a time after they leave school. Neither the fear of idleness nor the hope of cultivating social qualities and pluck are sufficiently strong reasons for maintaining the present system of games.

In conclusion, it may be said that compulsory games, in so far as they are distasteful and wearisome, fail to be invigorating and mentally refreshing; that to the duffer at games they are harmful and demoralizing; that they absorb much valuable time which could be far better spent; that the choice of games should be infinitely extended so that every boy could find rest in joyous exercise; that boys should be given time to follow out interests which have been awakened by their education; that educational methods should be so improved that it will be a dull boy indeed who is lacking in such interests; that when education is so improved the necessity of compulsory games, as at present

in force, will no longer exist. It is far better to teach a boy independence in the use of his leisure than to keep him under compulsory rules both in and out of school hours. For both boys and men alike there is no more important lesson to learn than how to keep holy the Sabbath day—that is, how to use the hours of leisure for the benefit of himself, for the good of his neighbours, and for the glory of God.

REVIEWS.

What do we mean by Education? By J. Welton.
(3s. net. Macmillan.)

This work does not belong to the same type as President Murray Butler's "The Meaning of Education." It is not a critical examination of the various views held of the nature of education, but a constructive development of its author's own view. His main thesis is that education must not be divorced from life, and, in the course of his treatment, he brings out, in a very striking way, the dangers underlying the popular fallacy that identifies instruction with education. Beginning with a demonstration that the end of education must determine the means, Prof. Welton proceeds to a consideration of the end, which he recognizes to be the development of full personality with its core of character. Next, he does a great deal to clear up the implications of the antagonism between liberty and authority as they appear in some of our popular modern theories. A consideration of the means at the disposal of education leads up to a final chapter on the agents who are to carry out the educational processes.

On one occasion Prof. Münsterberg regretted criticizing certain schemes for the psychological training of teachers, inasmuch as he knew his remarks would be used by lazy teachers to justify their indifference to the theoretical aspects of their subject. A similar danger lurks in the earlier pages of this book. Those teachers who dislike the more exact mathematical methods of applying psychological principles to their life-work will be glad to learn that Prof. Welton does not hope very much from exact quantitative educational formulae. He declines, indeed, to recognize education as a science in the same sense as physics is a science. It is a challenge to Prof. Spearman, Dr. Myers, and Dr. Brown to make good the educational applications of their researches. But the teacher who is proud of his profession need not be alarmed, for Prof. Welton recognizes education as a science in the same sense that medicine is a science, and the lazy teacher who hopes for confirmation in an easygoing study of his profession must apply elsewhere. Those who read this book need not look for a "soft pedagogy." The argument is carried on in a most thorough and closely reasoned way.

There is much encouragement, on the other hand, for the earnest teacher who is not afraid of responsibility. The parent is, no doubt, called upon, along with the clergyman and the educational administrator, to shoulder a part of the burden that is too commonly laid upon the teacher alone, but the responsibility that is left to the teacher is increased in kind if diminished in quantity. Obedience must not only be exacted from the pupil, but it must be so exacted that it becomes a pleasure to him. So on the intellectual side. There is no need for school work to be dull. The consciences of many of us must be pricked when we read "The desire to learn is as innate and as strong as the desire to act." Prof. Welton steers a safe course between the Charybdis of Tolstoy and the Scylla of John Sturm. It is not often that a man who has won distinction as a writer on method has the insight and courage, as our writer has, to warn his readers against the snares of methodology: "Nothing is more disastrous to teaching as an instrument of education than implicit faith in a form of method."

Excellent as are the first four chapters, it is the final chapter that the practical teacher and the educational administrator will value most. Here we are in the midst of questions that concern everybody who has the interest of the country at heart. Prof. Welton writes with singular directness on such delicate subjects as the religious difficulty.

We shall be surprised if we do not find him extensively quoted on political platforms as soon as such matters again acquire their old importance. Not that the text betrays any political bias. Prof. Welton sticks to his subject, not merely in the usual sense of not wandering from it, but in the even more creditable sense of not quitting it when it leads into paths which discretion might find plausible reasons for avoiding. But not teachers alone, nor politicians alone, will benefit by the appearance of this book. "The parent" finds in Prof. Welton a redoubtable champion. If he has his way it will no longer be possible to write, as a Church dignitary wrote sixty years ago, that in English schools "no influence of home is recognized—the very existence of a parent is ignored."

The New Parent's Assistant. By Stephen Paget.
(3s. 6d. net. Smith, Elder.)

Dr. Paget bases his title upon Maria Edgeworth's "The Parent's Assistant," but his work is of an entirely different character from that of its quaint prototype. Here we have the expert from one profession dropping, more or less casually, into the province of a profession in which he is a mere layman, and disporting himself with the cheerful irresponsibility that ordinarily marks the lay critic. The educational expert who lacks a sense of humour will be repelled by Dr. Paget's tone, and it would certainly not spoil the book if its author restrained his scorn for the arcana of a profession perhaps less well developed than his own. But, after all, the reader cannot take him seriously in his quips. The arrows are sharp enough, but they are all carefully tipped with the best india rubber. His stabs at experts and "educationists" and psychology are all, no doubt, as he himself says about the remarks of "the young men in psychological laboratories," only his fun. To tell the truth, professional teachers will pass very lightly over his opinion of their craft. On such matters they have the confidence of knowledge and experience. But they will listen with respect to Dr. Paget when he deals, as he so often does, with matters on which he is a recognized authority.

But the author's strongest appeal is not made as a distinguished doctor, but as an amiable human being who writes delightfully about everything that interests him and who here discourses charmingly about parents and children. The book is soothingly unsystematic, and, in spite of its expert-baiting, essentially kindly. It does not think of itself more highly than it ought to think. It says of itself that "it may serve in this or that home to start a talk or raise a laugh or shift the outlook for half an hour." Of course, it does much more than this. It makes us think; it puts familiar facts into that new setting that forces us to regard them afresh and set about reorganizing our impressions about them. Sometimes it makes us think *too* hard. Many plain men will be puzzled here and there to know what Dr. Paget is driving at. His treatment of "he," "his," "him," for example, will give the plain reader a good deal of unaccustomed exercise before he realizes that the subject of discourse is personality. But maybe Dr. Paget thinks the plain person will be none the worse for the exercise, and maybe Dr. Paget is right. At any rate, he has an advantage over the ordinary writer, who may desire as much as he pleases to get his readers to work, but who has not the power to lure him on to unwonted efforts. The reader may be piqued now and then by the author's elusiveness, but he cannot help pressing on to find out what it all means.

The puzzled parent will find that in these pages most of his difficulties have been anticipated, and that, in many cases, a very satisfactory solution is suggested. Parents may come to these pages with perfect confidence that they will be irritated, instructed, delighted.

Verses, 'Varsity, Scholastic, and otherwise. By A. C. B.
(Pp. 25. 1s. Cambridge: W. P. Spalding.)

There is small room for wonder that the traditions, the teachings, the atmosphere of Cambridge should conspire to make it a "nest of singing birds"; nor, again, is it strange, however pathetic, that of their strains few survive the little hour in which they warble, and fewer still are heard beyond the hallowed precincts which are at once their cradle and

their grave. Even the most brilliant of these bards, such (comparative) giants as Calverley, Trevelyan, and Kellett, are but little known (at least by those effusions which are redolent of the soil) to the general public, who begin to be really alive to their existence when, like Burnand and Seaman,

The wits that were great on the *Granta*
Are punsters in *Punch*.

And this was perhaps inevitable, since there is about the smartest efforts of University wit something esoteric, and, still more unhappily, ephemeral. To quote from the preface to "A Book of Cambridge Verse": "Nothing more speedily loses its bouquet than ordinary topical humorous verse; and of the vast quantity recently written in Cambridge, much has been occasional and topical to a degree." And here is the rock upon which A. C. B. runs—which is also the Pierian Mount from which he soars. He sings of events which created a momentary flutter in a narrow circle, of movements which died (or deserved to die) stillborn, of fashions already half forgotten. Sometimes only a (comic) philologist can grasp his allusions, thus:—

Come ye and know that the primitive *o* with the *a* will infallibly
"fall."

Bow to the "yod" as the tutelard god of phonetic enormities all,
Mournfully quake at the pitiless "breaking" of innocent *i* or of *e*,
Ponder the cause of the mystical laws of a diphthongization with me!

He can be pleasantly satirical on a new departure (particularly at Oxford), such as the University Co-operative Stores:

And the rapid institution in a fitting devolution
Of each specialized department we shall see;
For your cigarettes you'll think on the eclectic stock at Lincoln,
While the House will do you proudly as to tea;
When the gas is growing feeble send a message round to Keble,
And for sympathetic socks apply to Queen's;
For an outfit equatorial or antarctic go to Oriel,
And to Univ. for your bacon and your beans.

He can brightly touch off an absurd popular rumour, such as that anent the Russian Contingent:—

There was evidence conclusive by those doughty, if elusive,
Clerks and signalmen of Darlington and Leith;
And that lunchevitch demanded by the bearded giants remanded*
In the sidings of Montgomery and Neath.

* As to his technique, his metres and rhymes are lively (the best of them seem cribbed from E. E. Kellett), yet they run not always over trippingly, and his sense is not always so pellucid as so light a bard's should be.

Well, well, the jubilation of youth pervades his (few) pages, and those to whom everything that breathes of the lighter side of Cambridge thought (or want of thought) is interesting are hereby adjured to purchase this small fledgling of her Muse, before it is too late; for, if they long hesitate, the aroma of its nectar is fleeting, and within a year may have evaporated. We may add that their shilling (or part of it) will have gone to help a good cause, as the preface informs us that any profits (O dear, he *must* be a young poet!) will go to the Belgian Relief Fund.

Les Poètes Français du XIXe Siècle. Etude Prosodique et Littéraire. By Auguste Auzas. (3s. 6d. Clarendon Press.)

We are really beginning to understand that form matters, and to apprehend the spirit of French poetry. It is not so long ago since we considered preoccupation with form and style an idiosyncrasy of morbid neurasthenics like Flaubert, while French poetry was airily dismissed as "prosaic" and lacking in "lilt." Such books as the "Manuals" of Dr. F. Spencer, Prof. Kastner, and, above all, M. Legouis's "Défense de la Poésie Française," have done much to disturb our complacent ignorance. Even examiners now ask interesting and rational questions about French metre. This book of M. Auzas will help students to give them rational answers. The introduction, dealing with the elements of French versification, is scholarly and clear. No one is ever quite satisfied with an anthology—some of one's own favourites are always missing—but the poems selected by

* Learned note by reviewer: we suggest the reading "stranded"; for "remanded" (the meaning of which is not obvious) requires "giants" to be pronounced "jints"—which is Sam Wellerese.

M. Auzas are invariably well chosen and characteristic. Particularly admirable are the "Exercices de Littérature" and the "Exercices de Versification" appended to each section. They should open up vistas of thought and literary appreciation to many minds which need the stimulus of French criticism. The bibliography, too, is comprehensive. One might wish that M. Auzas had made more extensive use of Tobler's work, which often brings light and unity into the many intricacies of French versification. Perhaps, however, Tobler's exposition of the principles underlying the counting of syllables, for instance, presupposes a knowledge of Latin and philology which may not be assumed in a textbook of this character.

Bannockburn. By John E. Morris, D.Litt. Oxon., Litt.D. Man., Assistant Master in Bedford Grammar School. (5s. net. Cambridge University Press.)

Dr. Morris has written an all too brief, but extremely interesting and very important, monograph on occasion of the sex-centenary of the battle of Bannockburn. He traces the influence of the struggle for the Confirmation of the Charters and the Ordinances on the War of Scottish Independence, examines the size and capacity of a typical Edwardian army, and studies tactics before and after Bannockburn (down to Halidon Hill); and in the middle of all this he describes the battle of Bannockburn, with an estimate of the values of its historians. His central purpose, however, is to enforce Mr. W. M. Mackenzie's suggestion of a new site for the battle. Certainly the traditional site has its difficulties. Dr. Morris, following Mr. Mackenzie, takes the battle of Monday, June 24, away from the Bannock and the upland of the Park, and places it in the Carse, at the point where Randolph fought Clifford on the Sunday. This is what the map shows, but the argument of the text does not seem to support it effectively, and we find it difficult to believe. If Bruce was so keen to check Clifford's career, it is not obvious why he should have allowed the whole English army to get up to the same dangerous point without question. According to the new theory, the English crossed the Bannock in the night, probably a good way down, not far from the junction with the Forth, and plodded through the pools and soft terrain till they reached the firmer ground near St. Ninian's. But why did Bruce allow them, not merely to advance to this point, but even to cross the burn at all, without opposition? Perhaps because he meant to fight a defensive battle on the higher ground, with the chances of pressing the enemy back into the Forth or the Bannock. Dr. Morris urges against Sir Herbert Maxwell that Bruce did not then pounce upon the English because he "was then meditating retreat"—a wholly inadmissible suggestion, with all respect to Gray's narrative. Why should he think of retreat when he had so far been brilliantly successful and would have his enemy hemmed in between the Forth and the Bannock on lower and bad ground? At any rate, it does seem that Gloucester and his five hundred men, though roughly handled on Sunday, did not recross the burn, but remained in the Carse all night; and it is probable enough that more—perhaps many more—passed over during the night. That the whole army then passed over is a different question. The Lanercost chronicler says, on the authority of an eyewitness, that "before the battle they had had to cross a great ditch, . . . called the Bannokeburne"; but "before the battle" does not necessarily mean "in the night before." Barbour and Gray, however, are certainly explicit on the point, though we cannot help thinking that they mean only that a substantial part of the army—Gray says expressly "the main army"—passed the night in the Carse. At any rate, it may be conceded that the main battle of Monday, if not the whole battle, did take place in the Carse, and substantially on the firm ground, though not away up at St. Ninian's, but much more nearly adjoining the burn. The Carse battle has one great attraction: it explains so simply and satisfactorily Bruce's change of dispositions for Monday's battle. At the same time, Dr. Morris's objection to the upland battle theory, that it involves the crossing of Bruce's brigades, and consequently grave risks of confusion, appears to apply to the new theory as well, in the shifting of Bruce's own brigade, though not quite so forcibly. There are other difficulties. For example, there is strong evidence that the English were seriously hampered

for room in the battle, and at the new site they apparently would have had quite ample room. And when they fell back, it was upon the Bannock—which would have been sideways. "The rearmost English," says Gray, "fell back upon the channel of the Bannockburn," and he is corroborated by other writers. On the whole, Dr. Morris attracts, but does not fully convince us: the question requires a much more detailed handling. The illustrations are very welcome, but they are quite inadequate for an exact study of the situation. We shall look with interest for a second edition, with the main thesis enlarged.

Memorabilia Mathematica. By Robert Edouard Moritz, Ph.D., Ph.E.D. (12s. 6d. New York: Macmillan Co. London, &c.: Macmillan.)

How often in everyday life and conversation there arises a question as to the authorship or the original home of a line of poetry or a passage of prose! How valuable it is at such times to know that dictionaries of quotations exist from which, given the opportunity, we may supply the desired information. The collections however that have been made in the past by English compilers have, in general, had reference to gems culled from the works of poets, of dramatists, and of writers of fiction. Dr. Moritz is perhaps the first to whom it has occurred to present to the public an English treasury of quotations bearing on the science of mathematics in its varied relations. His work has been a labour of love and is the outcome of ten years of diligent research prosecuted in the leisure hours available in the course of a busy life. He has been at great pains to secure accuracy of both text and reference not only for its own sake but in the interest of his readers, and in cases where the passage has been derived from a work in a foreign language, a masterly translation is the form in which the quotation is offered. For the English rendering the compiler is very frequently personally responsible. The preface to the volume states that under the first scheme it was intended that the foreign original and its English version should both appear. But the rapid increase in the quantity of material collected prevented the possibility of including equivalent forms and the choice of the English version was made for the sake of readers not conversant with many languages.

Dr. Moritz has traversed a wide field in carrying out his researches. He quotes from more than three hundred authors—poets, philosophers, historians, statesmen, scientists, and mathematicians in the strict sense of the word, and, as the pages of the volume are turned over, the eye meets a host of familiar names recalling men whose words will be welcomed not by the mathematician alone, but by a large body of general readers of serious literature. The topics dealt with are well and carefully classified; moreover they have been placed in happily conceived juxtaposition. The work opens with a chapter devoted to the definitions which such men as Descartes, Sylvester, Klein, and numerous other modern mathematicians have given of the name and the object of mathematics. This is followed by a succession of most interesting sections in which the series of passages quoted will be found to bear respectively on the nature and the value of mathematical science. To the chapters in question belong contributions from the writings of Bacon, Locke, John Stuart Mill, Voltaire, Todhunter, and many other illustrious authors. Next we find a collection of quotations whose subject is the teaching of mathematics, and it is not surprising to note among the authors cited here a considerable proportion whose names belong to the present day. Mathematical study and research, modern mathematical thought, the realm of personal anecdote, mathematics as a fine art and as a language, mathematics in its relations to logic, to philosophy, and to science, mathematics as represented by special branches—all these subjects furnish notable passages due to well known writers and deemed by Dr. Moritz well worth placing in his volume. The compiler has avoided as far as possible traversing the ground that has been trodden already by Rebière and Ahrens. To his desire to keep on virgin soil is attributable for instance the absence of transcriptions from the correspondence between celebrated mathematicians. It is obviously wiser for us to refrain from drawing attention to individual authors and quotations, where there is such a wealth of attractive reading.

Rather let us recommend all who are likely to be interested to turn over the leaves of the work for themselves and pause where they find especial pleasure in the contents.

- (1) *The Essentials of French Grammar.* By C. W. Bell (2s. Harrap.) (2) *Modern French Grammar.* By M. M. Deshumbert and Marc Ceppi. (2s. 6d. net. Bell.) (3) *Cours Français du Lycée Perse.* Deuxième Partie. By L. C. von Glehn et L. Chouville. (1s. 6d. Heffer.)

(1) Mr. Bell speaks sarcastically of "New Methods" and "Direct Methods" as contrasted with "solid grammar." He may find a sufficient answer in some pages of (3), which analyse exhaustively certain phenomena of French grammar treated with comparative superficiality in his own book. His book suffers not only from a failure to understand the reformers' point of view, but from a failure to study the recent work of scholarly grammarians, French and others. 173 pages; grammar, 137 pages; exercises (detached sentences), 20 pages; vocabulary, 8 pages.

(2) is issued wholly in French as well as partly in English, so we may presume that the authors are not hostile to the newer methods, and here and there we find a fresh analysis of some grammatical phenomena; but their work suffers from much the same neglect as (1). Both fail, for instance, to bring out the fact that certain forms are ear changes rather eye changes, and that it is necessary to understand the pronunciation in order to understand the orthography. This might be further emphasized in (3). 213 pages (the left-hand page is occupied by examples, and the right-hand page mostly by grammatical forms and rules).

(3) is not a well balanced book, and it might go further in the direction of reform (e.g. an alphabetical list of "irregular" verbs is surely out of date). It is obviously designed for the special needs of the authors at the Perse School; but the reviewer hopes they will presently issue a reconsidered edition more suitable for general use. They are, consciously or unconsciously, working out a new grammar—simple and concrete for the pupil, exhaustively analytical for the teacher. At present the two objects are not sufficiently distinguished. 79 pages (large size) and a table of the subjunctive.

In support of the above criticism, reference may be made to our old friends the conjunctive and disjunctive pronouns in (1), pages 40-46; in (2), pages 91-98. (1) says the disjunctive pronouns stand "apart" from the verb, and this in the face of the examples "Sa sœur et lui seront récompensés" (page 45) and "Je le lui donne," &c. (page 42). (2) gives us nine cases where the disjunctive form is used; but a mere enumeration is not enough for intelligent grammarians. We have no explanation why the same form should be used for subject and object—why, e.g., the two forms *je* and *moi* are both used for the subject, and the forms *me* and *moi* for the object. The same fault of mere enumeration is to be observed in the treatment of the subjunctive—less in (2) than in (1). In (1) we find concession, purpose—"de crainte que," "de peur que" (which should obviously come with *craindre* and similar expressions of emotion), "pourvu que" (though there is a note on "conjunctions meaning 'if'") massed together without distinction.

In (2) we find our old friend "priority" and the old failure to call attention to the relative clause. There is the same failure to arrive at principles in the treatment of the infinitive. In (3) the treatment of the subjunctive is a very different piece of work. It seems to be an afterthought, but a happy afterthought. In a new edition would it not be well to incorporate it and leave the page opposite each group blank?

Modern Instruments and Methods of Calculation. Edited by E. M. Horsburgh, M.A., B.Sc., Assoc. M.Inst.C.E. (7s. net. London: G. Bell, and the Royal Society of Edinburgh.)

The above-mentioned volume constituted a handbook in connexion with the Congress and Exhibition which were held at the close of last July as a worthy means of celebrating the tercentenary of the publication of Napier's "Mirifici Logarithmorum Canonis Descriptio."

Necessarily, it is for those who had the privilege of taking

part in the celebrations that the book must have the greatest interest. To them more especially it must be of value both now and in the future, for we would draw attention to the fact that the compilation was brought out in advance of the Congress as a guide to those about to participate in it; whereas the papers which were delivered and discussed whilst the celebration was in progress have been reserved for issue in a memorial volume. There is, however, very much in the present work which is calculated to attract mathematicians and students in general. Let us reflect for a moment on what Napier really achieved for mathematical science, and then we shall read with keen interest the life of the man which has been so ably outlined by Prof. G. A. Gibson in Section A of the volume. As Prof. Gibson reminds us, we readily admit the vast debt the scientific world owes to Newton, but we should equally bear in mind that Newton in his turn was indebted to Kepler, and we may well ask whether the latter could have completed his laborious computations had not Napier placed within his reach the simplified and less cumbersome methods of calculation afforded by logarithms. We use these now—as we do so many other great and valuable gifts—and take them for granted, giving little or no thought to the great genius that was needed in order to evolve their epoch-making discovery. It may perchance be a surprise to many a student to learn that in their first development logarithms were not regarded as indices of powers of some chosen numerical or more general algebraic base; that they were derived from considerations of velocities and were viewed more particularly with reference to their influence on the treatment of trigonometrical problems.

Section B of the volume before us gives the list of notable, possibly priceless, exhibits of antiquarian character which formed one of the Loan Collections of the exhibition. A considerable proportion of these have a personal relation to Napier, whilst the remainder naturally derive much of their value from the application of logarithmic principles to the part they play in scientific work. The successive sections of the handbook give details of the various classes of objects on view—for example, historical works, and sets of tables, calculating machines, the abacus, slide rules, &c. Numerous valuable notes on the principles underlying the construction of exhibits, or on their history, have been contributed to the publication by writers expert in mathematics and in practical science. Some reproductions of portraits of Napier himself and also of Babbage and Dr. Edward Sang adorn the work, and give to readers some knowledge of the personal appearance of the well known originals. Elaborate and well executed diagrams are very numerous, and are illustrative (1) of various machines, (2) of ruled papers of several kinds, and (3) of certain mathematical models.

A Grammar of Late Modern English. By H. Poutsma.
(12s. Noordhoff, Groningen.)

By Dr. BÖGHOLM, University of Copenhagen.

Holland boasts a splendid series of writers on "Modern English": Stoffel, Günther, van Draat, Swaen, Poutsma, and others. The first characteristic of them all is an enormous reading and an extraordinary diligence, coupled with an unusual skill in presenting facts. It goes without saying that they all write English like one to the manner born, I had almost written, like Mr. Maartens.

The present instalment of Mr. Poutsma's "Grammar" is in many respects an advance on its predecessor. In this section IA of Part II of the "Grammar" (Mr. Poutsma's divisions are sometimes rather confusing), the author deals with nouns, adjectives, and articles in a very exhaustive and scholarly manner. Grammar as treated in this book ceases to be a byword for tediousness, appeals to the learner's powers of observation, and becomes a safe guide even to the native speaker (or writer). The best chapters are those dealing with the plural and the genitive. There is a good deal of confused reasoning abroad on the question of what phenomena give a safe indication of the total conversion of an adjective into a noun. Mr. Poutsma sums up the different characteristics of a noun in order of importance on page 387. And no one feels doubtful that the question remains fairly settled, when he has finished the passage.

Plural nouns present a lot of inconsistencies, "much pains"

(not "many") "were (was) taken" is a case in point. Careful grammarians as Mr. Poutsma is, he never dismisses a plural noun without having examined it as to preceding modifiers, ending, verbal concord. Surely for class use this sort of logical treatment should be most interesting, to pupil no less than to teacher.

In "the extravagant tailor's bill" the adjective belongs to "bill," whereas in "the extravagant son's bill" it refers to "son." For the rationale of the different reference of the adjective in the two sentences, the "Grammar" should be consulted.

The weak point of the book is the stress of work under which it seems to have been written. This stress is traceable not only in the frequent occurrences of phrases like this—"no instances to hand at the moment of writing"; but here and there one misses the guiding hand. The foreigner wants expressly to be told what is typical and what not.

It would have enhanced the very high value of the book still more if the author had distinguished more sharply between the different layers of contemporary English. The influence of "paper English" on "spoken English" is sometimes very important. The brevity affected by advertisers accounts for the omission of a possessive in phrases like "Own Tailors." Page 394, Mr. Poutsma calls attention to the use of "the poor," where we might expect "the poor ones." Doubtless the shorter form is due to such publications as statistical returns.

Least satisfactory is the chapter on Comparison. The comparative is not the only form in the phrase "the greater number." The catchword "the greatest happiness of the greatest number" always has the superlative. The reason for the different treatment of the adjective here is not apparent from Mr. Poutsma's book.

But one does not like to quarrel with details in a book which has given one so much enjoyment. The work before us is a strong testimony to Dutch scholarship, and incidentally to English scholarship also; but for "The Oxford Dictionary" such a book could not have been written.

(1) *First-Fruits of the Play Method in Prose.* Edited by H. Caldwell Cook. (3s. Heffer.) (2) *The Rhyming Thirds.* Edited by W. L. Paine. (1s. 6d. Bell.)

Somebody once asked Arnauld ("le grand Arnauld") how it was that the younger members of his tribe wrote so well "Sir," answered that stern enemy of facile compliment and mere pleasantness in social intercourse, "they write as we are accustomed to talk in my family." It was Pascal who created French prose as we know it, and one secret of the great tradition is undoubtedly revealed in this saying of his master. Directness, simplicity, unpretentiousness, an absence of pompous ornament—good talk is impossible without these qualities; and we should write as we talk. Anyone familiar with the daily life of a French school and French methods of conducting examinations knows how unremitting is the training in *bien parler* which underlies the teaching of written composition.

These two books are significant. Time was when an articulate schoolboy was anathema in England. His business was to plod painfully through the grammar of Greek and Latin and the authors whose works furnished him with mental gymnastics. Any real dexterity in handling his own language savoured of glibness and bordered on the unseemly. The change in our methods of teaching English comes in great part from that permeation of the English world by French ways of thought which has been the determining factor in the intellectual life of the last twelve years. Thus, at the Perse School, the written work of the lower middle forms is done against a background of oral training. These "First-Fruits of the Play Method in Prose" give fresh evidence of the originality and resource we have come to expect from Mr. Caldwell Cook. In his hands oral composition—already in danger of becoming stereotyped—remains varied and elastic. His boys express themselves by means of debates, soliloquies, lectures, and original written composition. The appeal throughout is to their creative faculties, and their work is never allowed to develop into mere reproduction. Intelligent imitation of the best models, a remaking of them in the boys' own imagination, is, however, encouraged. The old, incessant grind over parsing, analysis, paragraphing, and

punctuation has been ruthlessly swept away and, as a result, we have the work of these young "Play-boys." Perhaps the most astonishing feature of an astonishing book is the absence of the hackneyed epithet. There is no more searching test of a sound feeling for literature. These boys will always know the difference between literature and cheap sentimentality in print.

Mr. Paine's book, "The Rhyming Thirds," is conceived on the same lines, and is the work of boys in Forms IIIA and IIIB. It includes original work in prose and poetry, and proves once again that modern methods are practicable. It is, however, lacking in the variety of the Perse Book. This monotony of tone may be due to the fact that the subject-matter is too exclusively "manly" in character. The formula is: "Let man or beast chase beast or man." Possibly this comparative narrowness of range not only limits a boy's actual command of words, but also stunts the development of his imagination.

The introductions to both books are full of interest to the teacher. For instance, what joy it must be to teach at a properly equipped school! We imagine Mr. Cook and his pupils deep in the preparation of a lecture on "Domestic Life in Shakespeare's Time." They refer to books like "Life in Shakespeare's England," "Sports and Pastimes," Sidney Lee's "Stratford-on-Avon." The boys, therefore, acquire a very fair idea of the social conditions which produced the Elizabethan drama. We sigh regretfully as we remember the many school libraries we know with a Shakespearean section consisting of "Shakespeare's Mind and Art" and a few commonplace essays on the characters in the plays. And yet the school library is really as important as the laboratory!

Again, some of Mr. Cook's devices for maintaining the interest of his pupils may appear puerile to the so-called practical teacher, who will probably talk about the "difficulty of maintaining discipline" with such unceremonious methods in the classroom. But books like "The Rhyming Thirds" and the Perse Play-books compel the most sternly utilitarian of us to think, and we may well ask ourselves whether the old methods could produce work anything like as good. We are forced to believe that teachers of English are awake, and are experimenting with a freshness, a directness, and good faith all their own.

OVERSEAS.

Among the discussions in the January *Educational Review* (New York) the subject, "Restraint of our Public Schools," is treated in a way that will appeal to the ordinary English teacher. Miss Disbrow, after reading a book by an English lady who "has published a good deal of matter on the general subject of child culture" [Miss D. "names no names," and we follow her excellent example], was "led to the supposition that the only rational and reasonable members of society are the children." As against this English lady and her American fellows, Miss Disbrow recommends a certain persistence in saying "no" in school, under suitable conditions. She dismisses the usual charge of moulding all on the same pattern by explaining that "grasping the fundamentals of a common school education can hardly be called being put in a mould." In plain English, we must "break in" our children as we break in colts. We are sure that Miss Disbrow will read with great pleasure Chapter III of Prof. Welton's "What do we Mean by Education?" for there she will find a well-reasoned-out synthesis of Liberty and Authority.

The Association of American Universities (twenty-two Universities form its membership) met at the end of last year in conference. The meetings were mainly concerned with honorary degrees, University publications, and the economy of time in University work. It is the third subject that interests us here. In America there exists between the school and the University an institution called the college. Those who love symmetry are inclined to encourage an arrangement by which the school should do all the preparatory work, the college should do all the cultural work of University standard, while the University should do all the post-graduate and professional work. Opinion, however, is generally in favour of retaining the present system even at the expense of a little occasional overlapping between school and University. There appear to be two parties with regard to the University ideal: some

prefer the English model and others the German. The natural result is a compromise between the two, and it looks as if, in a short time, we shall have a distinctively American type of University of a very high grade. At present the suggested economy of time is that the students who enter now at the age of nineteen should enter with the same qualifications as at present, but at the age of seventeen. This naturally means a speeding up of the work in the schools, and the school men are not so sure about it as are the University men. It is being pointed out that an exceedingly small percentage of secondary-school pupils ever go near the University. The retort of the University men is that, even if the pupil goes no further than the end of the secondary-school course, a little speeding up is an excellent thing. There is, indeed, a general impression among American educators that more time is spent on certain subjects than is necessary.

Readers of this column may remember that some time ago an article was referred to as appearing in the American *The English Journal* under the title of "The Unguarded Gate." This gate was journalism, and teachers of English were solemnly warned against the dangers of bad style and all manner of corruptions creeping into English through the agency of the press. We have, therefore, that pleasant shock of surprise that American education is always giving us when we read in *Educational* (Boston) that a leaflet has been published by the New England Association of Teachers of English, giving an account of an ingenious Method of Teaching English by means of Newspaper Writing. In the account of how the scheme was applied we read: "The class brought in newspaper clippings of different kinds, and from the study of these the principles of writing the news 'story' were evolved. Then they tried to produce similar reports. Personal items about *alumni* were first written. Local bits of news were later worked up." What now of the Unguarded Gate? Personalities! and "working up"! What does the National Council of Teachers of English say to this?

The School Review (Chicago) is exercised about external criticism of the school methods and results of American education. We in England must have a fellow-feeling for the point of view adopted. It appears that home critics in the middle west are applying to their own educational system the kind of criticism with which we are tolerably familiar in Great Britain. The article is headed "We are again less intelligent." The exponent of the superiority of foreign education over that of the middle west is Mr. George L. Fox, who has been addressing the Hampden County Teachers' Association, and showing them that English secondary education is superior to American. The *Review* remarks that "Because the English tradition requires an intensive study of the classic languages where the American emphasizes other subjects, it therefore does not follow that the brain stuff of English schoolboys is better than the brain stuff of American schoolboys." It holds that before there can be a just comparison instituted we must know much more than we do at present of the conditions in the two cases. Real comparison, it maintains, is impossible, and then in a tired key it concludes: "And, after all, what does it matter?"

More useful and more heartening is the discussion of the marvellous development of night schools over the whole of the United States. The *Review* gives very startling figures illustrating the success of this form of continuation work. "The figures of attendance," it says, "are almost incredible." The ages of the pupils range from fourteen to sixty-five: "there is no upper limit." This in itself is disquieting. But all the evidence goes to show that the movement is mainly one for young people, and the most encouraging thing is that employers of labour find it to their advantage to encourage the movement. Experience has shown them that "those who are interested enough to attend night schools will make the best employees." Teachers will be interested to know that the night work is mainly done by professional teachers who also work in school during the day, and that their payment ranges from 2s. 9d. to 4s. 2d. per hour.

MR. W. T. TREGGAR, Head Master of the Secondary School, Sandown, has been appointed an Inspector of Elementary Schools under the Board of Education. He was formerly a Master at the Whitechapel Foundation School.

GENERAL NOTICES.

EDUCATION.

The Problems of Boyhood. By Franklin Winslow Johnson. (4s. net. Cambridge University Press.)

The 155 pages of this book are devoted to a foreword to the teacher, a foreword to the boy, and twenty-two studies of moral problems. The author has in view mainly the extra school training that boys find in clubs and other social institutions established for their benefit. The subjects treated are such as Custom, Honesty, Loyalty, Alcoholic Liquors and Tobacco, Sex, Measure of Success, the Choice of a Life Work. The studies are meant to be read by the boys themselves, and at the end of each study is a list of a few problems for discussion among boys in their clubs or elsewhere. We cannot understand why self-control should be the only study that is unsupplied with problems. It is doubtful whether a four-shilling book is the sort of thing that is needed for this kind of work if the boys are expected to be provided with a copy each. For the conductor of a boys' club the volume will be found stimulating and suggestive.

CLASSICS.

Proceedings of the Classical Association, Vol. XI. (2s. 6d. net. John Murray.)

In addition to the rules, a list of members, and the financial statement for 1913, this volume contains a number of papers on subjects of considerable interest to the classical public. The Presidential address, by Sir Frederick Kenyon, is on "The Classics as an Element in Life." Other papers here reproduced, with the discussion they evoked, are: "The Teaching of Classics as Literature" and "Oral Methods in Teaching Classics." Lectures on "The Origin of Greek Tragedy," "The Scamander Ford," "The Underworld and the Way There," "Museums and the Classical Revival," and "The Museums of America" are also included.

Euripides: Heracles. By O. R. A. Byrde, M.A. (2s. 6d. Clarendon Press.)

The text of this edition is reprinted with slight changes from the Oxford edition of Prof. Gilbert Murray, whose *apparatus criticus* of the play is also reproduced. The play is furnished with an introduction and notes. In the former Mr. Byrde gives a summary of the theory of the development of tragedy from the Dionysiac ritual, familiar from the writings of Prof. Murray, and shows its application to the "Heracles." The growth of the "Heracles" myth and the interpretation of the play are also briefly dealt with. The notes are brief and scholarly and questions of the text are handled with clearness and skill. The explanatory notes are equally good, though a few more might perhaps have been added with advantage. We recommend the edition to teachers and students.

(1) *Noctes Latinae.* By Walter Madeley, M.A. ("Macmillan's Elementary Classics." 1s. 6d.)—(2) *De Ducibus* (Selections from Cornelius Nepos). By W. G. Butler. (1s. 6d. Bell.)—(3) *Olum* ("Ludi Scaenici"). By E. Ryle. (1s. Bell.)—(4) *Fabulae.* By R. B. Appleton. (2s. Bell.)

The above Latin readers differ somewhat among themselves in method, and each of the volumes will probably appeal to various groups of teachers. The books of Messrs. Madeley and Butler are collections of stories suitable for boys of about thirteen. Mr. Madeley has drawn his stories from a variety of sources—Gellius, Macrobius, Herodotus, &c., freely simplifying, expanding, or translating into Latin, as the case may be. His book has very attractive illustrations, and it is a pity that he has not marked the quantity of the vowels. This has been done in all the other books here considered, and, indeed, Miss Ryle and Mr. Appleton have marked many "hidden" quantities. Mr. Butler has selected all his material from Cornelius Nepos. Each passage is preceded by a short biography of the hero with which it deals. Each chapter has a set of grammatical exercises. Miss Ryle's book consists of a number of little plays and dialogues meant to be acted in class and very suitable for that purpose. The book has one unique feature, in that the material is likely to be of especial interest to girls, whereas, as Miss Ryle justly remarks, most Latin books are better adapted for boys. Dramatization is undoubtedly of great value in the teaching of Latin, as in that of modern languages, and we hope that this book will enjoy a wide circulation. Mr. Appleton's book is meant not only to be used as a reader, but also to provide teachers with stories which may be told by them to the class. The material is excellent for that purpose, and has evidently been selected with great care from a wide range of authors. Hyginus, Apuleius, Pliny the Elder, scholiasts and lexicographers have all been laid under contribution. Mr. Appleton has provided his book with an "all Latin" vocabulary such as we have already criticized in these columns. The following examples which we select from the vocabulary do not increase our confidence:—"Faz, facis (f.); quasi baculum quod urimus et nobiscum portamus quo noctem illustremus; fortuna, -ae, (f.), si res bene accidit est bona

fortuna, si male est mala fortuna." We are pessimistic enough to believe that the boy who can make little of the story because he does not know the meaning of *fax* or *fortuna* will make still less of the vocabulary. Such definitions as these are only possible for oral work. Indeed, we suspect that Mr. Appleton intends these vocabularies as "propaganda," and that they are meant rather for teachers than for scholars. Despite the vocabulary, the book deserves to be widely used.

FRENCH.

A Primer of French Literature and History. By J. P. R. Marichal. (2s. Dent.)

The teaching of French literature in upper forms is continually hampered by the absence of suitable textbooks. It is not desirable to use summaries of French literature written in English. The facts should be presented in French from the French point of view; but manuals like those of MM. Gustave Lanson and Remi Doumic, excellent as they are, are too mature in tone for the average Form VI pupil. Further, no literature should be studied *en l'air* without an historical background, and European history, alas! by no means figures in the curriculum of every secondary school. This Primer of French Literature, written in French and "based on the interconnexion between language, literature, and history," therefore meets a real need. Each lesson is preceded by a short historical introduction, and the actual literary criticism is both interesting and sound. The appendix contains more detailed notices of the very great writers, an introduction to the study of French metre, a history of the French language, and chronological tables. It is no small achievement to have compressed the history of French literature into eighty-six pages, yet to have produced no mere summary. The need for conciseness has, however, injured the sections dealing with French prosody and the growth of the language. It has not been possible to explain the influence of the "yod" sound upon the development of the French vowels, and one of the great difficulties in scanning French verse has to be dismissed thus summarily: "Les groupes de voyelles dans un mot comptent quelquefois pour une syllabe, quelquefois pour deux."

La Guerre de Cent Ans. By F. Alec Woolf, B.A. (1s. 6d. Dent.)

This is the third volume in "Dent's Series of Historical Readers." The period covered is the Hundred Years' War, beginning with the accession of Philip VI and ending with the Fall of Bordeaux in 1453. It is a gratifying fact that modern language teachers are becoming increasingly conscious of the many-sided aspects of their task. They feel that the young should not only be led to converse intelligently and with a tolerable accent about the miller's daughter and the other features of Hölzel's wall pictures, but should also have some conception of the nation who so surprisingly talk French. Any real knowledge of France is impossible without some acquaintance with French history, and these little books convey the necessary information with clearness and simplicity. Useful exercises and chronological tables are appended. The illustrations are taken, for the most part, from contemporary sources. One only regrets that more use has not been made of Froissart, with an occasional quotation from Michelet. A more picturesque touch might well have been used in presenting to English children what is virtually an epic of chivalry. And French history which is not made vivid is not really French.

GERMAN.

Direct German Course. By H. J. Chaytor. (2s. 6d. University Tutorial Press.)

This course is meant for pupils who begin German at the age of fourteen and fifteen, and, unless boys of even that age were much interested in getting to know the language quickly, they might find the memory work involved too laborious. The grammar rules are well put, but they seem to be introduced with too great fullness for an early stage, and, although the course is called "direct," the master would often have to use English. Indeed, translation from English is actually set by the time the end of the book is reached. The pictures on which the lessons are based are all repeated on the last page so that they may be used without looking at the text. Students who take up German rather later than fourteen or fifteen would learn much from this course.

A Reform First German Book. By J. S. Walters. (3s. Mills & Boon.)

A German book which claims to be a compromise in which "old and new are judiciously blended," new as well as old being "reformed." Dr. Walters's "First French Book" was written specially for adult students and evening institutes, and we think such students will appreciate the variety and clearness of his German work. The book is well supplied with coloured pictures, kept in a pocket on its last cover.

Der tolle Invalide auf dem Fort Ratonneau. By L. A. von Arnim.

Edited by A. E. Wilson. (2s. 6d. Cambridge University Press.)

"Der tolle Invalide" is a somewhat weird story of the "Romantic" period. It is well edited here, with full questions for conversation as

well as word-formation and vocabulary exercises. There are also useful grammatical exercises, which include plenty of repetition of important points and lay much stress on verbs. The "Cambridge Modern German Series" is decidedly attractive in appearance.

Leodeger der Hirtenschüler. By H. Villinger. Edited by C. W. Merryweather. (1s. 6d. Oxford University Press.)

This is a compact little book containing an interesting story, with plenty of conversation in the text itself. It is edited with *Fragen* and *Übungen*. The latter are not only useful, but often ingenious, and, with their aid, the reading book will become the real centre of all instruction in German. The book may be had without (or with) vocabulary.

ENGLISH.

A Course of Practical English. By E. J. Bailey, B.A., A.C.P. (1s. 6d. G. Bell.)

After a preliminary section on punctuation, this book begins with a section on the verb, which is treated in full detail as being the most important part of speech. The next two sections deal respectively with the sentence (in connexion with which the other parts of speech are introduced) and with composition. It is explained that it is intended that, in the main, these three sections shall be worked concurrently. This plan has the advantages of keeping the sentence to the fore in the grammatical work and of keeping the grammar parallel with the composition, but—at least as it is carried out here—it misses the greater virtues of the method of making composition the basis of the whole work and treating grammar throughout as subsidiary to it. Indeed, the section on composition seems, in any case, thin and inadequate. The chapter on it occupies only twelve pages (out of a total of about a hundred and eighty), and is too much concerned with details, especially with those which are included under the heading "Faults to be Avoided." Little use is made of good models, and little help is given to the pupils in what may be called the broad outlines of treatment of the various forms of composition. There is a chapter on vocabulary which would prove useful for reference; but here and in other parts of the book some of the warnings appear to be superfluous. It is, no doubt, necessary to warn pupils to distinguish between *principle* and *principal*, and even, perhaps, between *delightful* and *delicious*, but it appears to be provoking confusion to give a similar warning in relation to *areas* and *arrear*. Again, it is surely superfluous to tell an English child that adjectives, as a rule, precede the nouns they qualify; still more superfluous to elevate this statement into a "rule" for guidance in composition.

The Mother Tongue. Book II: *The Practice of English.*

By J. W. Adamson and A. A. Cock. (2s. 6d. Ginn.)

Those teachers who know Book I of this series will cordially welcome the present volume, which is intended for secondary schools and for the upper classes of elementary schools. It is said to be based upon the American edition of Books II and III of the series, but it is in many respects superior to them. It is divided into three sections, dealing respectively with narration, description, and exposition (or explanation), each being accompanied by the grammar which is appropriate both to the form of composition in question and to the stage of advancement reached by the pupil. The method adopted, to take the first section as an example, is to place before the pupil four or five good instances of narrative from standard authors and to lead him to study them from various points of view. The predominant character of the words used in narration, the outline, introduction, conclusion, and climax of a story, the value and use of details are some of the matters treated, and in each case interesting and varied exercises are suggested. The grammar to be taken parallel with this section consists of the study of and exercises in the sentence, analysis of sentences, and the main part of the material dealing with the parts of speech. The remaining two sections are treated on similar lines, and the whole sets forth a course in English which is not only sound and thorough, but also eminently interesting and stimulating.

The Romance of Names. By Ernest Weekley. (3s. 6d. net. Murray.)

The author states in his preface that in dealing with the origins and meanings of surnames his aim has been "to steer a clear course between a too learned and a too superficial treatment." The result is a most interesting, even fascinating, study of the subject. The author deals in all with between three and four thousand names (chosen in the main from the "London Directory"), in twenty-three conveniently short chapters, each devoted to one of the various classes and subdivisions into which surnames fall. In cases of doubt alternative explanations are given. There is a good index.

HISTORY.

Commercial Politics (1837-1856). By R. H. Gretton, formerly Demy of Magdalen College, Oxford. (1s. net. G. Bell.)

This is an excellent addition to the very useful series of "Bell's English History Source-books." Besides commercial matters, it illustrates many other aspects of the politics of the period: the state of England and Ireland, the Chartist movement, Free Trade, im-

portant foreign affairs, &c. At the present time, one can draw an extraordinary contrast between the descriptions of Crimean hospitals (1854) here given and the enormous improvements in the arrangements of the present deplorable War.

"Home University Library of Modern Knowledge."—*The Renaissance.* By Edith Sichel. (1s. net. Williams & Norgate.)

None of the gifted writers in this long and varied series appears to us to have hit the ideal more surely than Miss Sichel. The introductory chapter is a most luminous general sketch of the nature of the great movement loosely called the Renaissance, and the remaining chapters vividly outline the spread of it in Italy, and from Italy throughout Europe. The leading figures are deftly limned, and stand out lifelike and conspicuous. The spirit of the movement in its various phases is admirably presented in a piquant and vigorous style.

A History of England and the British Empire. In 4 vols. By Arthur D. Innes, sometime Scholar of Oriol College, Oxford. Vol. III: 1689-1802. (6s. net. Rivingtons.)

The century treated in the present volume, from the "glorious" Revolution down to the Peace of Amiens, is full of the interest of large questions in a series of remarkable historical developments. Mr. Innes maintains fully the high standard of accuracy and insight, and of lucid narrative, that he displayed in the earlier volumes. There is not available, we apprehend, any more trustworthy and attractive handling of the political and military history of the period within manageable space for wider collateral reading with the more condensed school history-book. The final chapter is divided between literature and the industrial and rural revolution. Most useful genealogical tables, and some notes dealing more at length with particular points, are appended. The index is very advantageously ample. By the way, was it in the name of "Britain" or of "Briton" that George III gloried? Mr. Innes writes—at any rate, is printed—"Britain."

A Short History of Europe: from the German Invasions to the Great Renaissance. By W. O. Lester Smith, late Senior History Exhibitor of Merton College, Oxford. (2s. Dent.)

The book is intended primarily for the upper and middle forms of secondary schools and for training colleges, and for readers without the guidance of a teacher a selection of accessible books is suggested. As a rule, one does not approach a condensation of centuries of history into a slim volume with high hopes, but Mr. Lester Smith has very agreeably disappointed us. His work is eminently readable, for he knows how to select his matter and to present the really important points effectively. It should be in every school library. A chronological summary, genealogical tables, and other matters are usefully appended. There are also a number of very clear and helpful maps.

A History of Modern Europe: from the Middle of the Sixteenth Century. By John E. Morris, D.Litt. Oxon., Litt.D. Man., Assistant Master in Bedford Grammar School. (3s. 6d. net. Cambridge University Press.)

With ample knowledge and a broad outlook, Dr. Morris succeeds in presenting in narrow space an excellent sketch of the movement of European affairs during the past three and a half centuries. The treatment is fresh and vivid. A preliminary study of a more detailed history-book will be desirable, and such study should be followed up by this general survey, the book being readily available in the school library for collateral reading. There are seven maps and seven pedigree tables, all very helpful.

GEOGRAPHY.

Black's Geographical Pictures. Series II. *Crustal Movements.* (Six in packet, two packets at 6d. each.)

The high standard of the previous series has been excellently maintained by the most recent additions. The pictures are artistic reproductions of photographs of actual land forms, and the views have been carefully chosen so as best to illustrate the point under immediate discussion. They afford valuable teaching material, and teachers who experience a difficulty in procuring pictorial aids are strongly advised to purchase the whole of the 14 packets now issued. Notes and questions accompany each series of pictures and this letterpress has been carefully prepared.

Macmillan's Geographical Exercise Books.—(1) *The British Isles.* Questions by B. C. Wallis, B.Sc. (6d.)

Many excellent exercise books have recently been issued, but there still remained a gap for one of the type now produced by Mr. Wallis. Upwards of 100 educative questions have been devised so as to afford a thorough revision of pupils' work on the British Isles, while 22 blank maps supply working material for part of the questions, but the present exercise book differs from many in that it does not contain sufficient blank paper, &c. to render it self-contained. Opinions will differ with regard to the value of this. The contoured blank maps are less satisfactory; the relief of South Wales, in particular, needs revision. On the whole the book should prove popular.

Weather Chart Exercises.—*British Isles and West of Europe.* By L. M. Odell, B.Sc. (6d. Hodder & Stoughton for University of London Press.)

This is admirably arranged throughout and contains squared paper, blank maps and selected statistics for the plotting of graphs and the working of exercises dealing with elementary weather and climate study. Conversion tables are included for practice with the new units. Though the author does not claim that it is more than a book for beginners, yet pupils who conscientiously complete the book should obtain accurate ideas relating to rainfall, temperature, pressure, and winds. The addition of the international weather symbols and Beaufort's scale of wind velocities and a few suitable exercises on these would add still further to the value of the book.

Outlines of Physical Geography. By H. Clive Barnard, M.A., B.Litt. (1s. 6d. Black.)

This book is arranged for pupils preparing for the Junior Locals and similar examinations and will prove attractive to others. It is less a mere compilation of disconnected science scraps than so many Physical Geography books prove to be, but, on the whole, is a readable volume progressively arranged. Its various parts deal with maps and map reading, the earth as a globe, climate, geological geography, and the ocean. It contains 93 maps, illustrations, and diagrams, though some of these have done sufficient service in the past to deserve replacement, e.g. Figure 63. The section on map projections is too short to be of any value, e.g. the conical projections are dismissed in five lines and no net of any of them is shown, though the globular is illustrated. There is also an inaccuracy relative to Mercator's Projection. Problems and exercises have been included, as has also a list of books and apparatus, but many deservedly popular books have been omitted and the prices of those given need revision, e.g. Reeves's "Maps" and Marriot's "Hints."

The New Outlook Geography.—*The Home of Man: America.* By W. C. Brown, M.A., F.C.P., and P. H. Johnson, B.A., L.C.P. (1s. 9d. Harrap.)

The other two volumes in this series by these authors have been favourably noticed in these columns previously and we are pleased to see this third part. The special feature which will impress teachers and should cause an extensive demand for the book is the fact that the treatment is from the human aspect. All factors are considered in their relation to man's life and activities, and the continents under discussion lend themselves admirably to this treatment. The vastly different topographical and climatic features of the several parts of the New World have been carefully contrasted throughout, and the pupil is encouraged to determine all contrasts and to offer explanations of them and to suggest the effects likely to result from these contrasts. After chapters dealing with climate in general, structure, geology, and climate of North America, we find analyses of the political units of the northern continent. Chapter X deals with the outlines of the history of North America. A similar treatment is used for South America and various statistical and other tables are added as appendixes. Tables X, XI, and XII are models of arrangement, and deal with the factors determining the distribution of selected vegetable products. Possibly Chapter I is the least satisfactory; too much is attempted in the space available, and we regret the use of the term "S.W. anti-trades," and why "Ferrol" instead of "Ferral" in several places? Upwards of 100 illustrations are given and form a valuable part of the book, though a few have suffered by too much reduction of scale—e.g. Figure 40.

MATHEMATICS.

Descriptive Geometry. Parts I and II. Part I, by John C. Tracy, C.E.; Part II, by Herbert B. North, M.E., and John C. Tracy, C.E. (8s. 6d. net. New York: John Wiley & Sons. London: Chapman & Hall.)

A book primarily designed for engineering students. Well brought out, and fully illustrated with clear diagrams on a small, but not too small, a scale. The features to which the authors desire to draw particular attention, and which they regard as both of paramount importance and of unusual employment in textbooks on the subject, are the following. To our thinking they are practical and valuable. First, all problems are reduced to four fundamental ones, and every problem is resolved into steps corresponding to earlier constructions. Secondly, in illustrative demonstrations each step has its separate diagram. Thirdly, three-column pages display (1) the general method required, (2) its special application to the problem in hand, (3) the required diagrams.

Constructive Textbook of Practical Mathematics. Vol. IV: *Technical Trigonometry.* By Horace Wilmer Marsh. (8s. 6d. net. New York: John Wiley & Sons. London: Chapman & Hall.)

Although in its relation to the author's complete work the present volume is a constituent part, it is nevertheless intended to fulfil satisfactorily the function of a separate textbook on the subject of technical trigonometry. The knowledge to be acquired from the suggested course of instruction is essentially of a practical, as distinct from an academic, character. In fact, the technical student's notes following

on instruction in class, form the basis of the treatise. The volume is well brought out and clearly illustrated.

Elementary Theory of Equations. By Leonard Eugene Dickson, Ph.D. (1 dol. 75 c. New York: John Wiley & Co. London: Chapman & Hall.)

Prof. Dickson presents a useful and instructive, as well as an interesting, introductory course in theory of equations. It is evident that the special line of study beneficial for our future engineers occupied the attention of the author in framing his scheme. Of great value is the chapter devoted to the discussion of graphical work, for here the writer not only dwells on the power gained by a legitimate application of its principles, but points out also the serious errors and misconceptions created by an unskilled employment of the method.

First-Year Course in Mathematics. By K. J. Sanjána, M.A. (Re/-12. Bombay: K. & J. Cooper.)

This treatise on geometry and trigonometry has been prepared specially to satisfy the requirements of students of the first year following the Arts courses at the University of Bombay. Although it is unlikely that the work will be used as a classbook in any of our English colleges (seeing how many standard English authors have supplied our needs), nevertheless the volume will be a valuable accession to any student's collection of mathematical textbooks. Prof. Sanjána's name will be a most familiar one to readers of *The Educational Times* mathematical columns, to which for a number of years he has been a constant and able contributor.

Models to Illustrate the Foundations of Mathematics. By C. Elliott. (2s. 6d. net. Edinburgh: Lindsay.)

Mr. Elliott's pamphlet may be expected to interest two classes of readers in particular. First, it will probably appeal to those mathematicians who are devoting themselves to the general inquiry into the foundations of mathematics; secondly, it may prove a factor in the inspiration of the present and the future teacher of mathematics. Essentially it has been written for the teacher, and its definite object is to be of assistance in enabling some of the new ideas as to the foundations of mathematics to be inculcated by practical interpretation whilst the student is still receiving school education.

SCIENCE.

A First Book of Chemistry. By W. A. Whitton, M.Sc. (1s. 6d. Macmillan.)

A first-rate little volume, which can be confidently recommended as a classbook for scholars entering upon a study of the subject. It is interesting and concise, yet fully experimental, and is copiously illustrated with diagrams and sketches. Moreover, it has the advantage of being well printed on good paper. It will be surprising if this book does not rapidly become a general favourite in schools.

An Elementary Treatment of the Theory of Spinning Tops and Gyroscopic Motion. By Harold Crabtree, M.A. (7s. 6d. Longmans.)

The student who possesses an average working knowledge of mathematics will probably assume, on reading the title of this work, that the matter included is of a type far beyond his grasp. That such a book, which is primarily intended to make an adequate introductory presentation of the subject both to the abler mathematicians at the public schools and to undergraduates should include advanced mathematical theory is, of course, inevitable. Since this matter naturally falls towards the end of the volume, it admits of omission by the average student, who will find much to interest and instruct him in the descriptive and more elementary mathematical treatment of the subject which occupies the first portion of the book. The latter portion is, however, of great value, and has been developed to a considerable extent in this (the second) edition. A series of questions, in addition to the usual numerical examples, has been interspersed throughout the book in order to ensure that the underlying principles are thoroughly grasped. It is adequately illustrated throughout and is well printed. Apart from its interest to students of pure mathematics, it will naturally appeal to students of engineering in all its branches.

BOTANY.

An Introduction to the Study of Plants. By Fritsch and Salisbury. (4s. 6d. net. G. Bell.)

This book is one of a very small class—the kind that makes teachers wonder whatever their pupils did in the past without them. The authors claim that "the subject-matter more than covers the scope of the Matriculation syllabus of the Universities; at the same time, used in conjunction with Scott's 'Structural Botany,' it meets the requirements of first-year students." This claim is quite justified. There are, perhaps, few first-year students who are taken through so comprehensive a course as this. It would also be very useful to students in elementary training colleges and to those preparing for the Higher Certificate of the National Froebel Union in Botany. The illustrations are very largely from actual photographs.

PUBLICATIONS RECEIVED.

EDUCATION.

- What do we Mean by Education? By Prof. J. Welton. Macmillan, 6s. 5s. net.
 Interest and Effort. By E. C. Childs. Baker, 2s. 6d. net.
 Seguin and his Physiological Method of Education. By Henry Holman. Translations mostly by Annie L. Baker. Pitman, 5s.
 Dissenting Academies in England: Their rise and progress and their place among the educational systems of the country. By Irene Parker. Cambridge University Press, 4s. net.

CLASSICS.

- The Roman Elegiac Poets. Edited, with introduction and notes, by Karl P. Harrington. American Book Company, 1.50 dollars.

FRENCH.

- A Manual of French Composition for Universities and the Higher Classes of Schools. By R. L. Graeme Ritchie and James M. Moore. Cambridge University Press, 7s. 6d. net.
 Comorre and other Stories taken from Le Foyer Breton. By Emile Souvestre. Edited by C. J. M. Adie and P. C. H. Satgé. Clarendon Press, 2s.
 Tartarin de Tarascon. Par Alphonse Daudet. With introduction, notes, and vocabulary by Barry Cerf. Ginn, 2s.
 Nouveau Cours Français. By André C. Fontaine. Ginn, 4s.
 L'Odyssee d'un Artilleur. Par Gustave Fautras. Adapted and edited by L. von Glehn. Clarendon Press, 1s. 6d.

GERMAN.

- Passages for Translation into German. Selected by H. Mutschmann. Oxford University Press, 2s.

ENGLISH.

- Selected English: Selections from Shelley, Lamb, Goldsmith, Keats, Dryden, Scott, &c. Edited, with short biographies and notes, by Ray Phillips. Macmillan, 2s. 6d.
 Gulliver's Travels: A Voyage to Lilliput and a Voyage to Brobdingnag. By Jonathan Swift. Edited by Edward K. Robinson and illustrated by Charles Copeland. Ginn, 2s.
 The Merchant of Venice. Edited by S. E. Goggin. Clive, 1s. 4d.
 Chaucer: Prioress's Tale. Edited by C. M. Drennan. Clive, 1s. 6d.
 Abbot Samson: Chapters from Carlyle's "Past and Present." Edited by F. A. Cavenagh. (English Literature for Secondary Schools Series.) Macmillan, 1s.
 The Antiquary. By Sir Walter Scott. Edited by F. A. Cavenagh. Clarendon Press, 2s. 6d.
 Poems of War and Battle. Selected by V. H. Collins. Clarendon Press, 1s. 6d.
 Our Glorious Heritage: A book of patriotic verse for boys and girls. Compiled by Charles Seddon Evans, with introduction by the Dean of Norwich. Heinemann, 1s. net.
 My Heart's Right There. By Florence L. Barclay. Putnam's Sons, 1s. net.
 Watching the War: Thoughts for the People. Part II. Allenson, 6d. net.
 Marching Songs. Stanley Paul, 6d. net.
 Patriotic Song Book. (1) Sol-fa, 1d. (2) Staff Notation, 1½d. McDougall.

HISTORY.

- The Making of Western Europe. Being an attempt to trace the fortunes of the Children of the Roman Empire. By C. R. L. Fletcher. Vol. II: The First Renaissance, 1000-1190 A.D. Murray, 7s. 6d. net.
 Selected English Historical Documents of the Ninth and Tenth Centuries. Edited by F. E. Harmer. Cambridge University Press, 6s. net.
 Selected Speeches on British Foreign Policy, 1738-1914. Edited by Edgar R. Jones. (The World's Classics.) Milford, 1s. net.
 Right against Might: The Great War of 1914. By Bella Sidney Woolf. Heffer, 1s. net.
 The Russian Problem. By Paul Vinogradoff. Constable, 1s. net.
 Famous Fights of Indian Native Regiments. By Reginald Hodder. Hodder & Stoughton, 1s. net.
 The Story of English Industry and Trade. A reader for the upper classes for primary schools and the middle forms of secondary schools. By H. L. Burrows. Black, 1s. 6d.

LOGIC.

- Logic: Deductive and Inductive. By Carveth Read. Fourth edition, enlarged and partly rewritten. Moring, 6s.

GEOGRAPHY.

- A First Book of Commercial Geography. By T. Alford Smith. Macmillan, 1s. 6d.
 The Soldier's Geography of Europe. Philip, 3d. net.
 War Map: Petrograd to Berlin. Orographically coloured. Johnston, 1s. 6d. net.
 The Pupil's Classbook of Geography: The British Dominions. By Ed. J. S. Lay. Macmillan, 6d.
 Calcutta (Great Cities of the World). McDougall, 2d.
 Contour Atlas: South-east England edition. Bacon, 6d.
 Black's Travel Pictures. (1) Countries of the Great War. (2) British Isles. (3) The Mediterranean. Edited by Robert J. Finch. 10d. each.

RELIGION.

- The Golden Legend Lives of the Saints. Translated by William Caxton from the Latin of Jacobus de Voragine. Selected and edited by George V. O'Neill. Cambridge University Press, 3s. net.

MATHEMATICS.

- Exercises in Algebra (including Trigonometry). By Prof. T. Percy Nunn. Part II. Longmans, 6s. 6d.; without answers, 6s.
 Coordinate Geometry: An Elementary Course. By Percy Coleman. Clarendon Press, 4s. 6d.
 Numerical Trigonometry. By N. J. Chignell. Clarendon Press, with or without answers, 2s. 6d.
 A Course of Pure Mathematics. By G. H. Hardy. Second edition. Cambridge University Press, 12s. net.
 Exercises in Arithmetic and Mensuration. By P. Abbott. Longmans, 4s. 6d.
 The Teaching of Mathematics in Australia: Report presented to the International Commission on the Teaching of Mathematics. By H. S. Carslaw. Milford, 2s. 6d. net.
 Plane Trigonometry and Tables. By George Wentworth and David Eugene Smith. Ginn, 5s.

SCIENCE.

- Magnetism and Electricity: including the Principles of Electrical Measurements. By S. S. Richardson. New and revised edition. Blackie, 4s. 6d.
 Elements of General Science. By Otis William Caldwell and William Lewis Eikenberry. Ginn, 4s. 6d.
 The Whatman Filter Paper: for Use in Laboratories. An effort by a well known English firm of paper manufacturers to supply a need for scientific work in place of the filter papers of German manufacture that can no longer be obtained in this country. The prices, rising from 2s. 9d. per 1,000 circles, can be obtained from H. Reeve Angel & Co., 15 New Bridge Street, London, E.C.

HYGIENE.

- First Book of Physiology and Hygiene. By Gertrude D. Cathcart. Macmillan, 1s. 6d.

ANNUALS.

- Almanach Hachette. Petite Encyclopédie Populaire de la Vie pratique. 1915. 1.50 f.
 The Calendar of the University of Wales, 1914-1915. Caxton Press, Oswestry.

BOARD OF EDUCATION.

- Annual Report for 1913 of the Chief Medical Officer. 1s. 8d.
 Regulations for the Training of Teachers of Domestic Subjects. 2d.

PAMPHLETS.

- The Leading Ideas of British Policy. By Gerard Collier. Oxford Pamphlets. Milford, 2d. net.
 The Supreme Duty of the Citizen at the Present Crisis. The Last Message of Lord Roberts. Reprinted from the *Hibbert Journal*, 3d. net.
 Syllabus of Moral and Civic Instruction for the Elementary School. Compiled by F. J. Gould. Moral Education League, 2d.
 University of London: Appointments Board, Its Aim and Work. Drilling Made Easy. (Advises the instructor to add "thought suggestion" to his usual method.) Shaw, 3d. net.
 War and the Workers. For the use of Study Circles. Worker's Educational Association, 1d.
 The Economic Strength of Great Britain. By Harold Cox. Macmillan, 1d.
 Policeman X: The Man Who did not Dare. By John Oxenham. Methuen, 2d. net.
 The Debt. By E. V. Lucas. Methuen, 1d.
 Britannia's Revue. A Patriotic Sketch. By Gladys Davidson. Long (Sheffield), 6d. net.

MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17711. (Professor NEUBERG.)—Si α, β, γ sont les racines de l'équation $x^3 + ax^2 + bx + c = 0$, trouver l'équation cubique qui a pour racines $\alpha(\beta - \gamma)^2, \beta(\gamma - \alpha)^2, \gamma(\alpha - \beta)^2$.

Solutions (I) by W. F. BEARD, M.A., and others;

(II) by F. G. W. BROWN, B.Sc., L.C.P.

(I) Let $y = \alpha(\beta - \gamma)^2 = \alpha(\beta + \gamma)^2 + 4c$ (because $\alpha\beta\gamma = -c$)
 $= \alpha(\alpha + a)^2 + 4c$ (because $\Sigma\alpha = -a$).

Thus $\alpha^3 + 2a\alpha^2 + a^2\alpha + 4c - y = 0$,
 also $\alpha^3 + a\alpha^2 + b\alpha + c = 0$;
 therefore, by subtraction, $a\alpha^2 + (a^2 - b)\alpha + 3c - y = 0$ (i);
 therefore $a\alpha^3 + (a^2 - b)\alpha^2 + (3c - y)\alpha = 0$,
 also $a\alpha^3 + a^2\alpha^2 + ab\alpha + ac = 0$;
 therefore $b\alpha^2 + (y + ab - 3c)\alpha + ac = 0$ (ii);
 eliminating α from (i) and (ii),

$$[ac(a^2 - b) + (y - 3c)(y + ab - 3c)][ay - 3ac + b^2] = (3bc - by - a^2c)^2,$$

$$[(y - 3c)^2 + ab(y - 3c) + ac(a^2 - b)][a(y - 3c) + b^2]$$

$$= b^2(y - 3c)^2 + 2a^2bc(y - 3c) + a^4c^2,$$

$$a(y - 3c)^3 + a^2b(y - 3c)^2 + a(y - 3c)(a^2c - abc + b^3 - 2abc)$$

$$+ a^3b^2c - ab^2c - a^4c^2 = 0,$$

$$(y - 3c)^3 + ab(y - 3c)^2 + (a^2c + b^3 - 3abc)(y - 3c) + a^2b^2c - b^2c - a^4c^2 = 0,$$

which is the required equation.

(II) Since α, β, γ are the roots of $x^3 + ax^2 + bx + c = 0$, then $\alpha + \beta + \gamma = -a, \alpha\beta + \beta\gamma + \gamma\alpha = b$, and $\alpha\beta\gamma = -c$. From these the following results may easily be established:

$$\Sigma\alpha^2 = a^2 - 2b, \quad \Sigma\alpha^2\beta^2 = b^2 - 2ac, \quad \Sigma\alpha^3 = -a^3 + 3ab - 3c,$$

and $\Sigma\alpha^2\beta^3 = b^3 - 3abc + 3c^2$.

Now let the required equation be $x^3 - Ax^2 + Bx - C = 0$, then

$$A = \Sigma\alpha(\beta - \gamma)^2 = \Sigma[\alpha(\beta^2 + \gamma^2)] - 6\alpha\beta\gamma = \Sigma\alpha \cdot \Sigma\alpha\beta - 9\alpha\beta\gamma = -ab + 9c,$$

$$B = \Sigma[\alpha\beta(\beta - \gamma)^2(\gamma - \alpha)^2] = \Sigma[\alpha\beta(\beta\gamma - \alpha\beta - \gamma^2 + \alpha\gamma)^2]$$

$$= \Sigma[\alpha\beta(b - \gamma^2 - 2\alpha\beta)^2]$$

$$= b^2\Sigma\alpha\beta + \alpha\beta\gamma\Sigma\alpha^3 + 4\Sigma\alpha^2\beta^3 - 2b\alpha\beta\gamma \cdot \Sigma\alpha - 4b \cdot \Sigma\alpha^2\beta^2 + 12\alpha^2\beta^2\gamma^3$$

$$= b^3 + a^2c - 9abc + 27c^2.$$

$$C = \alpha\beta\gamma(\beta - \gamma)^2(\gamma - \alpha)^2(\alpha - \beta)^2 = \alpha\beta\gamma \Sigma[\alpha(\beta^2 - \gamma^2)]^2$$

$$= \alpha\beta\gamma[\Sigma\alpha^3(\beta^2 - \gamma^2)^2 + 2\Sigma\alpha\beta(\beta^2 - \gamma^2)(\gamma^2 - \alpha^2)]$$

$$= \alpha\beta\gamma[\Sigma\alpha^2(\beta^4 + \gamma^4) - 6\alpha^2\beta^2\gamma^2 + 2\Sigma\alpha\beta(\beta + \gamma)(\gamma + \alpha)(\beta - \gamma)(\gamma - \alpha)]$$

$$= \alpha\beta\gamma[\Sigma\alpha^2 \cdot \Sigma\alpha^2\beta^2 - 9\alpha^2\beta^2\gamma^2 + 2\Sigma\alpha\beta(b + \gamma^2)(b - \gamma^2 - 2\beta\alpha)]$$

$$= -c[(a^2 - 2b)(b^2 - 2ac) - 9c^2 + 2b^2\Sigma\alpha\beta - 2\alpha\beta\gamma \cdot \Sigma\alpha^3$$

$$- 4b \cdot \Sigma\alpha^2\beta^3 - 12\alpha^2\beta^2\gamma^2$$

$$= -a^2b^2c + 4a^2c^2 + 4b^3c - 18abc^2 + 27c^3.$$

Hence the equation is $x^3 + (ab - 9c)x^2 + (b^3 + a^2c - 9abc + 27c^2)x + c(a^2b^2 - 4a^2c - 4b^3 + 18abc - 27c^2) = 0$.

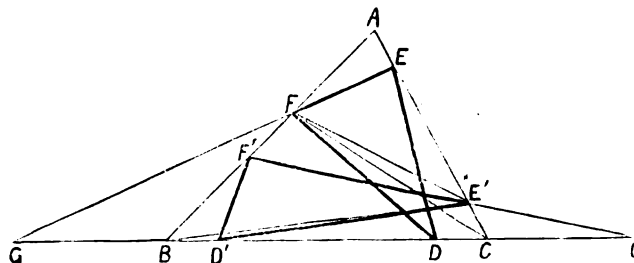
17539. (W. F. BEARD, M.A.)—ABC is a triangle; D, E, F, D', E', F' divide BC, CA, AB isotomically. Prove, geometrically, that the triangles DEF, D'E'F' are equal in area.

[Mr. R. F. DAVIS, M.A., and Mr. Henry Riddell, M.E., suggested the above more general form of Question 17539 to the Proposer.—ED.]

Solutions (I) by HENRY RIDDELL, M.E.; (II) by the PROPOSER.

(I) Produce EF and E'F' to meet BC. Then, by theory of transversals, GC = G'B (a well known theorem). (Δ means area.) Therefore $GC/GD = G'B/G'D'$. But $\Delta FEC/\Delta FED = GC/GD, \dots$

therefore $\Delta FEC/\Delta FED = \Delta F'E'B/\Delta F'E'D'$.

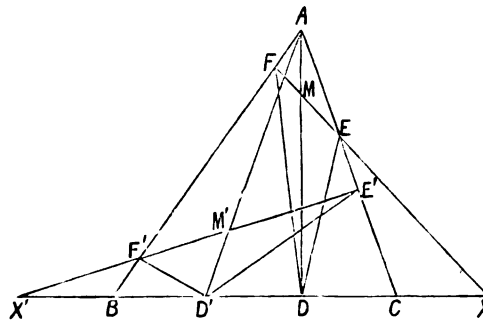


But $\Delta FEC = \Delta FAE' = \Delta F'E'B$;
 therefore $\Delta FED = \Delta F'E'D'$.

(II) Let EF meet AD, BC at M, X, and let AD' meet E'F', BC at M', X'. Then it is simple to prove CX = BX',

$$\Delta DEF/\Delta AEF = DM/AM = DX/CX \cdot CE/AE$$

(because MEX cuts the sides of ADC),
 $\Delta AEF/\Delta AE'F' = (AE \cdot AF)/(AE' \cdot AF')$,
 $\Delta AE'F'/\Delta D'E'F' = AM'/D'M' = BX'/D'X' \cdot AF'/BF'$
 (because M'F'X' cuts the sides of ABD').



Thus $\Delta DEF/\Delta D'E'F' = DX/CX \cdot CE/AE' \cdot AF/BF' \cdot BX'/D'X' = 1$
 (because $DX = D'X', CX = BX', CE = AE', AF = BF'$);
 therefore $\Delta DEF = \Delta D'E'F'$.

17086 & 17092. (Professor SANJANA, M.A.)—(17036) (1) L_1, M_1, N_1 are any points in the sides BC, CA, AB of a triangle, and L_2, M_2, N_2 are their respective isotomic conjugates with regard to those sides; prove that the triangles $L_1M_1N_1, L_2M_2N_2$ are equal in area. If the former set be collinear, so will the latter be. (2) AX, BY, CZ are any straight lines drawn through A, B, C, and AX', BY', CZ' are their respective isogonal conjugates with regard to the angles BAC, CBA, ACB: prove that the triangles formed by the two sets of lines are equal. If the former set be concurrent, so will the latter be.

(17092) AD, BE, CF, are the perpendiculars of a triangle, and H, K, L are their respective mid-points. (1) Prove that the area of the triangle HKL is one-fourth that of DEF. (2) If HK, KL, LH make with AB, BC, CA, angles θ, ϕ, ψ , respectively, in the same sense, show that

$$(\cos^2 A + \cos^2 B) \tan \theta + (\cos^2 B + \cos^2 C) \tan \phi + (\cos^2 C + \cos^2 A) \tan \psi = 0.$$

17589. (W. F. BEARD, M.A.)—(New form.) ABC is a triangle; D, E, F, D', E', F' divide BC, CA, AB isotomically. Prove, geometrically, that the triangles DEF, D'E'F' are equal in area.

Solution by C. E. YOUNGMAN, M.A.

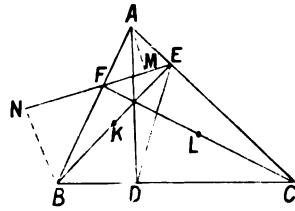
Let $l : l', m : m', n : n'$, be the ratios in which $L_1M_1N_1$ divide BC, CA, AB; with $(l + l'), (m + m'), (n + n')$ each equal to 1. Then, if ABC has unit area, we find $AM_1N_1 = m'n$, and so on; therefore

$$L_1M_1N_1 = 1 - m'n - n'l - l'm = 1 - l - m - n + mn + nl + lm$$

$$= l'm'n' + lmn = L_2M_2N_2.$$

[The second part of Question 17036 is not generally true; for instance, if for AX and BY we put AB and BC, then CZ and CZ' will not fit in anywhere unless ABC is isosceles (CA = CB). General formulas for the area included by AX, BY, CZ are given in Questions 15080, 15368, Reprint, Vol. VII, and in Question 17129, Vol. XXI; in which last, however, the denominator needs correction by help of the Solution.]

In Question 17092, DEF takes the place of $L_1M_1N_1$, and HKL is a quarter of it, because its sides are half those of $L_2M_2N_2$. Secondly, the projection of AB on EF, viz., MN, is $c \cos C$, which = DE; also



$KN = KE$,
and $\angle KNE = \angle KEN = \angle KED$;
therefore $KM = KD$. Similarly,
 $LM = LD$; thus KL is perpendicular to DM , and $ADM = \phi$. But $DAM = B \sim C$; therefore
 $\sin \phi : \sin (\phi + B \sim C) = AM : AD = AE : AB = \cos A$;
therefore $\tan \phi [1 + \cos (B \sim C) \cos (B + C)] = \sin (B \sim C) \cos (B + C)$;
therefore $\tan \phi (\cos^2 B + \cos^2 C) = \frac{1}{2} (\sin 2B \sim \sin 2C)$;
hence the equation in the Question.

17224. (Professor E. J. NANSON.)—If

$$a_0 b_n + a_1 b_{n-1} + \dots + a_n b_0 = 0,$$

except when $n = 0$, and A, B denote the per-symmetric determinants of orders $n + 1$, n whose elements are

$$a_0, a_1, a_2, \dots, a_{2n}; \quad b_2, b_3, b_4, \dots, b_{2n}$$

respectively, then $Ab_0^n = (-1)^n Ba_0^{n+1}$.

Solution by C. M. ROSS, M.A.

$$A = \begin{vmatrix} a_0 & a_1 & a_2 & \dots & a_{n-1} & a_n \\ a_1 & a_2 & a_3 & \dots & a_n & a_{n+1} \\ a_2 & a_3 & a_4 & \dots & a_{n+1} & a_{n+2} \\ \dots & \dots & \dots & \dots & \dots & \dots \\ a_n & a_{n+1} & a_{n+2} & \dots & a_{2n-1} & a_{2n} \end{vmatrix}$$

Operating on the columns thus

$$\text{col}_1 \times b_n + \text{col}_2 \times b_{n-1} + \dots + \text{col}_n \times b_1$$

we have

$$Ab_0 = \begin{vmatrix} a_0 & a_1 & a_2 & \dots & a_{n-1} & 0 \\ a_1 & a_2 & a_3 & \dots & a_n & -a_0 b_{n+1} \\ a_2 & a_3 & a_4 & \dots & a_{n+1} & -(a_0 b_{n+2} + a_1 b_{n+1}) \\ \dots & \dots & \dots & \dots & \dots & \dots \\ a_n & a_{n+1} & a_{n+2} & \dots & a_{2n-1} & -(a_0 b_{2n} + a_1 b_{2n-1} + \dots + a_{n-1} b_{n+1}) \end{vmatrix}$$

Again operating on the columns, thus

$$\text{col}_1 \times b_{n-1} + \text{col}_2 \times b_{n-2} + \dots + \text{col}_n \times b_0,$$

we have

$$Ab_0^2 = \begin{vmatrix} a_0 & a_1 & a_2 & \dots & 0 \\ a_1 & a_2 & a_3 & \dots & -a_0 b_n \\ a_2 & a_3 & a_4 & \dots & -(a_0 b_{n+1} + a_1 b_n) \\ \dots & \dots & \dots & \dots & \dots \\ a_n & a_{n+1} & a_{n+2} & \dots & -(a_0 b_{2n-1} + \dots + a_{n-1} b_n) \end{vmatrix}$$

Proceeding in a similar way we finally operate on the columns

$$\text{col}_1 \times b_1 + \text{col}_2 \times b_0,$$

and then

$$Ab_0^n = \begin{vmatrix} a_n & 0 & \dots & 0 \\ a_1 & -a_0 b_2 & \dots & -a_1 b_n \\ \dots & \dots & \dots & \dots \\ a_n & -(a_1 b_{n-1} + \dots + a_{n-1} b_2) & \dots & -(a_0 b_{2n-1} + \dots + a_{n-1} b_n) \end{vmatrix}$$

$$= (-1)^n a_0^n \begin{vmatrix} b_2 & b_3 & \dots & b_{n+1} \\ a_0 b_3 + a_1 b_2 & a_0 b_4 + a_1 b_3 & \dots & a_0 b_{n+2} + a_1 b_{n+1} \\ \dots & \dots & \dots & \dots \\ a_0 b_{n+1} + \dots + a_{n-1} b_2 & a_0 b_{n+2} + \dots + a_{n-1} b_3 & \dots & a_0 b_{2n} + \dots + a_{n-1} b_{n+1} \end{vmatrix}$$

Multiply row₁ by a_1 , and subtracting it from row₂, we have

$$Ab_0^n = (-1)^n a_0^n \begin{vmatrix} b_2 & b_3 & \dots & b_{n+1} \\ b_3 & b_4 & \dots & b_{n+2} \\ \dots & \dots & \dots & \dots \\ a_0 b_{n+1} + \dots + a_{n-1} b_2 & a_0 b_{n+2} + \dots + a_{n-1} b_3 & \dots & a_0 b_{2n} + \dots + a_{n-1} b_{n+1} \end{vmatrix}$$

Proceeding in a similar manner, we finally operate on the rows thus $\text{row}_1 \times a_{n-1} + \text{row}_2 \times a_{n-2} + \dots + \text{row}_{n-1} \times a_1$, and subtracting this sum from the n -th row, we have

$$Ab_0^n = (-1)^n a_0^{n+1} \begin{vmatrix} b_2 & b_3 & \dots & b_{n+1} \\ b_3 & b_4 & \dots & b_{n+2} \\ \dots & \dots & \dots & \dots \\ b_{n+1} & b_{n+2} & \dots & b_{2n} \end{vmatrix}$$

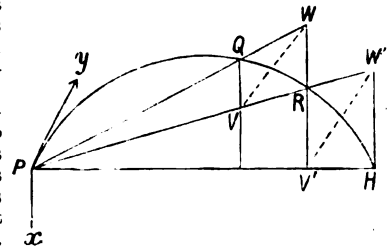
i.e.,

$$Ab_0^n = (-1)^n Ba_0^{n+1}.$$

Note by Professor R. W. GENESE, M.A.

The following simple property of a parabola may possibly have practical applications:—

P, Q, R are three points of a parabola; PQ meets the diameter through R in W, and PR meets the diameter through Q in V; then VW is fixed in direction, viz., it is parallel to the tangent at P. This theorem was obtained as an exercise on Pascal's theorem, but is most easily verified analytically.



The equation to the curve referred to diameter through P and tangent at P being $y^2 = 2px$, and the co-ordinates of Q, R (x_1, y_1) , (x_2, y_2) , the equation to PQ is $y/x = y_1/x_1 = p/y_1$. This meets $y = y_2$, where $x = y_2 y_1 / p$. By symmetry, x of W = x of V; therefore VW is parallel to the axis of y .

Taking the parabola with vertical axis as an approximation to the path of a projectile, we see that, knowing the direction of projection from P, and one other position of the shot R, we can find where the shot meets any other line PV'. In the figure the horizontal range PH is determined.

Clearly also if we know H, the slope at H, and one point R we can, reversing the motion, find HP, the enemy's range.

QUESTIONS FOR SOLUTION.

17928. (S. KRISHNASWAMI AYYANGAR.)—Rays are incident parallel to the axis of y on the reflecting parabola $y^2 = 4ax$. Show that the caustic after reflection is $27ay^2 = x(x-9a)^2$.

17929. (T. MUIR, LL.D.)—If each of two general determinants be multiplied row-wise by one and the same orthogonal, and the first product thus obtained be multiplied row-wise by the second, the resulting determinant is equal to the product of the two original determinants.

17930. (C. M. ROSS, M.A.)—Prove that

$$\begin{vmatrix} 1 & \dots & \cos a_1 \\ \cos a_1 & \dots & 1 \\ \cos(a_1 + a_2) & \dots & \cos a_2 \\ \dots & \dots & \dots \\ \cos(a_1 + a_2 + \dots + a_n) & \dots & \cos(a_2 + a_3 + \dots + a_n) \\ \dots & \dots & \dots \\ \cos(a_1 + a_2) & \dots & \cos(a_1 + a_2 + \dots + a_n) \\ \dots & \dots & \dots \\ \cos a_2 & \dots & \cos(a_2 + a_3 + \dots + a_n) \\ \dots & \dots & \dots \\ 1 & \dots & \cos(a_3 + a_4 + \dots + a_n) \\ \dots & \dots & \dots \\ \cos(a_3 + a_4 + \dots + a_n) & \dots & 1 \end{vmatrix} = 0,$$

where the determinant is of the $(n + 1)$ -th order (n even).

17931. (Prof. K. J. SANJANA, M.A.)—Solve $(a^2 + x^2)(y - d^2 y/dx^2) = b$.

17982. (Prof. E. J. NANSON.)—Having given an array (a_{pq}) with m rows and n columns, show that, in order to find a determinant of the array of order k which does not vanish whilst all the determinants of order $k+1$, if any, do vanish, it is sufficient to examine at most $\frac{1}{2}n(n-1)(3m-n-1)$ determinants, m not being less than n .

17983. (E. R. HAMILTON.)—Show that, in an ellipsoid,

$$\iint p(x+y+z) dS = \frac{2}{3}(a+b+c)V,$$

V being the volume, the integral being taken over the whole surface. The letters have their usual meaning.

17984. (B. HOWARTH.)—Given that D is prime, that $1/D$ has a period of p figures, and that n is a multiple of p , prove that D^n is not a factor of

$$10^{D-1} + 10^{D-2} + 10^{D-3} + \dots + 10^2 + 10 + 1.$$

Is it true that D^2 is not a factor of

$$10^{D-1} + 10^{D-2} + 10^{D-3} + \dots + 10^2 + 10 + 1,$$

when D is not prime, providing $1/D$ gives rise to a pure circulating decimal with a period of p figures?

17985. (Prof. K. J. SANJANA, M.A.)—The inclination of each of two planes to a fixed plane being known as also the angle between their lines of section by that plane, find the dihedral angle between the planes and the inclination of their line of section to the fixed plane.

17986. (Prof. J. E. A. STEGGALL, M.A.)—Find the conditions that the two quadrics

$$(a, b, c, f, g, h \overline{Q} x, y, z)^2 = 0,$$

$$(a', b', c', f', g', h' \overline{Q} x, y, z)^2 = 0,$$

shall be coaxial.

17987. (T. P. TRIVEDI, M.A., LL.B.)—Prove that the intrinsic equation of the cissoid $y^2(2a-x) = x^3$ is

$$s = 2a [\cot^{\frac{1}{2}} \psi + \tan^{\frac{1}{2}} \psi + \sqrt{\frac{2}{3}} \log \{(\cot^{\frac{1}{2}} \psi + \tan^{\frac{1}{2}} \psi - \sqrt{3})(\cot^{\frac{1}{2}} \psi + \tan^{\frac{1}{2}} \psi + \sqrt{3})\}.$$

17988. (V. DANIEL, B.Sc.)—With the usual notation for the triangle, the locus of the intersections of corresponding circles having BC and EF respectively as chords is one of three cubic curves, at every point of which a zero-tending vector in the plane of the triangle subtends vanishingly equal angles at the three vertices. Its equation referred to AB and AC as axes of x and y is

$$(cx + by) = (x^2 + y^2 + 2xy \cos A)(3 - 2x/c - 2y/b).$$

Show that, if $(C > B)$, (i) the asymptote cuts the curve again in the point in which are concurrent all the radical axes of the determining circles, viz.,

$$[-\frac{3}{2}bc^2/(c^2 - b^2)], [\frac{3}{2}bc^2/(c^2 - b^2)].$$

(ii) The curve passes through A, B, C, E, F ; touches at A the anti-parallel to BC , and at B and C the symmedians through those points. (iii) These symmedians meet the curve again in points determined by the equations

$$2(\cot \phi + \tan B) = 1/(\cot B + 2 \cot C) - (\cot B + 2 \cot C),$$

$$2(\cot \phi' + \tan C) = 1/(\cot C + 2 \cot B) - (\cot C + 2 \cot B),$$

where ϕ and ϕ' are the angles made by the radii vectors from A with AC and AB respectively. (iv) According as

$$\sin B \sin C \begin{cases} \leq \\ \geq \end{cases} 8 \sin^2 \frac{1}{2} A,$$

the cubic consists of one infinite branch; or has a node on the line $\theta = \cos^{-1}(3 \sin \frac{1}{2} A)$; or breaks up into a closed curve through A, E, F , together with an infinite branch through B, C ; where θ is the deviation from the perpendicular through A , in the direction of the smaller base angle. (v) When the triangle is isosceles, plot the cubic, given (1) $\frac{1}{2}A = \tan^{-1} \frac{1}{3}$, (2) $\frac{1}{2}A = \sin^{-1} \frac{1}{3}$, and show that in (1) K and G are maximum and minimum points respectively, in (ii) I is a node where the tangents cross the axis of symmetry at $\pm 45^\circ$, and the two radii of curvature are $\frac{1}{2}a$ and $3a/4$.

17989. (MAURICE A. GIBLETT, B.Sc. Lond.)—The tangents drawn from a point Z , on the directrix of an ellipse, meet the auxiliary circle in points P, P', Q, Q' (points P, Q being those near to Z). If C is the centre, and S the focus corresponding to the directrix on which Z lies; then the centre-locus of the system of conics through the points P', Q', Z, S is the circle PQC .

17940. (W. N. BAILEY.)—Limaçons with a common pole are drawn to touch two fixed circles through the pole. Show that their directrices form a coaxial system.

17941. (Prof. J. C. SWAMINARAYAN, M.A.)—Show that the squares of the semi-axes of the conic $(u, v, w, u', v', w' \overline{Q} \alpha, \beta, \gamma)$

are the roots of the quadratic equation

$$\frac{D_1^3}{a^2 b^2 c^2} x^2 + DD_1 x (u+v+w-2u' \cos A - 2v' \cos B - 2w' \cos C) - 4\Delta^2 D^2 = 0,$$

where $D = \begin{vmatrix} u & v & w \\ u' & v' & w' \\ a & b & c \end{vmatrix}$ and $D_1 = \begin{vmatrix} u & v & w & a \\ u' & v' & w' & b \\ v' & u' & w & c \\ a & b & c & 0 \end{vmatrix}$,

and Δ denotes the area of the triangle of reference.

17942. (Prof. E. J. NANSON.)—Two triangles $PQR, P'Q'R'$ are polar to a conic S , and five of the vertices lie on a conic S' . Show that the locus of the sixth vertex is a conic S'' , and find the condition that S'' may coincide with S' .

17943. (N. SANKARA AIYAR, M.A.)— P is a point on a hyperbola. If lines be drawn through P cutting two given straight lines parallel to the asymptotes in Q and R , show that the envelope of QR is a conic which becomes a parabola if the given hyperbola is rectangular.

17944. (W. F. BEARD, M.A.)—Two rectangular hyperbolas are circumscribed about a triangle so as to cut the same circle at opposite ends of a diameter. Prove that the axes of each hyperbola are parallel to the asymptotes of the other.

17945. (C. E. YOUNGMAN, M.A.)— F and S are points moving round the same circle in opposite directions, F twice as fast as S ; and a parabola has focus F and directrix the tangent at S ; prove that its envelope is the same as that of FS . And if F and S move in the same direction round their circle, the envelope becomes the inverse (for that circle) of the envelope of FS .

17946. (A. M. NESBITT, M.A.)—If S be the area of a plane triangle, R its circum-radius, the square on the distance of any point P from the circum-centre of S is $R^2(1-4S'/S)$, where S' is the area of the triangle whose vertices are the feet of the perpendiculars from P to the sides of S .

17947. (A. A. KRISHNASWAMI AIYANGAR, B.A.)— ABC is a triangle, I the in-centre, S the circum-centre, and O the orthocentre. Prove that the circle through the feet of the perpendiculars from C on SI, OI , and the mid-point of CI passes through the in-centre and the in-F Feuerbach point.

17948. (R. F. DAVIS, M.A.)— ABC is a triangle whose orthocentre is H . Through H antiparallels EHF', FHD', DHE' are drawn to BC, CA, AB respectively, so that (E', F) lie on $BC, (F', D)$ on $CA, (D', E)$ on AB . Prove that DD', EE', FF' concur at the circumcentre and that H is equidistant from them.

17949. (W. F. BEARD, M.A.)— P is any point on the polar circle of a triangle ABC ; PA, PB, PC meet the polar circle at QRS . Prove that RAS, SBQ, QCR are straight lines.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

MISS CONSTANCE I. MARKS, B.A., 10 Matheson Road, West Kensington, W.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, January 14, 1915.—Prof. Sir Joseph Larmor, M.P., F.R.S., President, in the Chair.

Dr. Bromwich as Secretary reported that at the date of the Annual General Meeting (November, 1914) the number of members of the Society was 305.

Prof. H. M. Macdonald read a paper, "A Class of Diffraction Problems."

Mr. H. E. J. Curzon read a paper, "On Halphen's Transformation."

Dr. Bromwich, as Secretary, communicated an abstract of a paper by Dr. A. Young, "A Christmas Problem in Probabilities."

A paper by Mr. W. E. H. Berwick, "The Condition that a Quintic Equation should be Solvable by Radicals," was communicated, by title, from the Chair.

Prof. Love, F.R.S., Vice-President, having taken the Chair, Sir Joseph Larmor made an informal communication on the astronomical evidence that the earth's angular velocity of rotation is not absolutely constant; and pointed out some possible dynamical reasons for this phenomenon.

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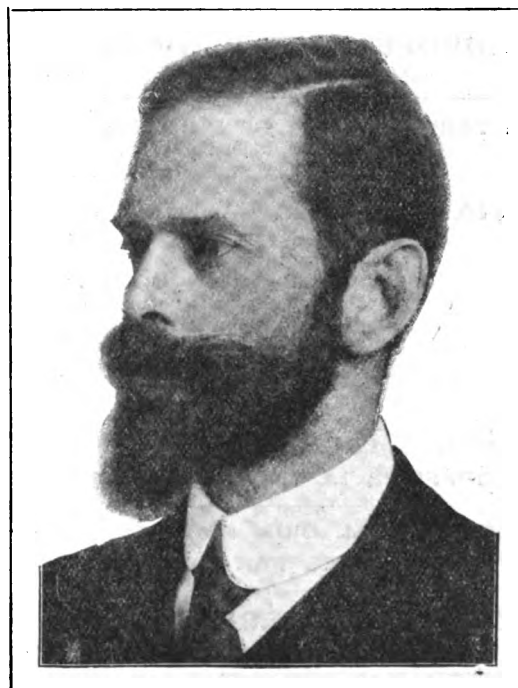
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 Bragg, B. *e.a.* Mercers' School, Holborn, E.C.
 Henman, P. S. *e.al.ms.* Shoreham Gram. S.
 Hewitson, D. A. J. *s.a.d.* Norwich High S. for Boys
 Ryding, W. *a.f.* Private tuition
 Hancock, M. B. *a.l.* Mercers' School, Holborn, E.C.
 Kemp, R. H. *e.l.phys.d.* Palmer's S., Grays
 Selby, P. *s.e.* Shoreham Gram. S.
 Assenheim, P. *e.al.gm.ma.* Shoreham Gram. S.
 Dench, R. J. *a.l.ma.* Shoreham Gram. S.
 Strong, C. J. *a.l.* Newquay Coll., Cornwall
 Bridges, F. E. *s.al.gm.f.* Boys' High S., Sutton
 Clift, B. L. *s.e.gm.d.* The Jersey Modern S., St. Helier
 Weedon, R. G. *a.l.* Mercers' School, Holborn, E.C.
 Carr, J. H. *a.l.* Grosvenor Coll., Carlisle
 Murray, C. *a.l.ma.* Shoreham Gram. S.
 McIntyre, J. L. *s.ma.* Shoreham Gram. S.
 Ashbery, R. W. Mercers' School, Holborn, E.C.
 Faulks, J. M. Mercers' School, Holborn, E.C.
 New, A. C. *s.f.* Mercers' School, Holborn, E.C.
 Crichton, J. G. *a.l.ma.* St. John's Coll., Finsbury Park
 Chambers, A. B. *ma.* Shoreham Gram. S.
 Daniels, P. F. *a.l.gm.d.* Norwich High S. for Boys
 Perrott, H. F. *a.l.ms.* Bradley High S. for Boys, Newton Abbot
 Simmons, W. F. *l.t.* Tollington S., Muswell Hill, N.
 Harrington, H. W. *ms.* The High S., Brentwood
 Middleton, C. R. *e.* Mercers' School, Holborn, E.C.
 Swalwell, J. A. *a.l.* Shoreham Gram. S.
 Thorne, A. H. *s.e.* Mercers' School, Holborn, E.C.
 Francis, J. H. *a.l.f.* The Douglas S., Cheltenham
 Syvret, A. C. *s.f.* Oxenford H., St. Lawrence, Jersey
 Chapman, W. E. *e.al.ms.* Richmond Hill S., Richmond
 Macqueen, J. M. Cliftonville Coll., Margate
 Starkey, G. *a.l.* Cranbrook Coll., Ilford
 Hatchard, D. R. H. *ma.* Bourne Coll., Quinton
 Critchley, A. *a.al.* Private tuition
 Taylor, E. N. *a.l.f.* The Commercial S., Bridlington
 Davis, R. T. St. John's Coll., Finsbury Park
 Farquharson, J. L. *f.* Private tuition
 Lloyd, T. E. *s.a.* The Palace S., Bewdley
 Salmon, S. *phys.* St. Leonards Coll. S.
 Burton, H. M. *a.al.f.* Private tuition
 Long, A. D. *a.l.ms.* Shoreham Gram. S.
 Anthony, E. G. *a.l.f.* Northampton School
 Duncan, P. F. Tollington S., Muswell Hill, N.
 Lewis, C. J. *a.l.f.* Private tuition
 Lloyd, L. C. Tollington S., Muswell Hill, N.
 Keay, J. R. *a.al.f.* Private tuition
 McMichael, G. B. *a.l.f.* Private tuition
 Paros, I. *a.l.bk.* St. John's Coll., Finsbury Park
 Richardson, G. *s.a.al.* Ascham H., Harrogate

Copeland, W. H. *l.t.* Tollington S., Muswell Hill, N.
 Hawkridge, J. A. *e.al.f.* Private tuition
 Pyne, G. J. *a.l.* Mt. Radford S., Exeter
 Rogers, J. A. L. *a.l.f.* St. Mary's Coll., Harlow
 Staniland, L. N. Tollington S., Muswell Hill, N.
 Wood, N. *f.* Private tuition
 Bear, E. G. *a.l.* Tollington S., Muswell Hill, N.
 Francis, E. M. *s.ma.* St. John's Coll., Finsbury Park
 Nethery, R. G. Hoe Gram. S., Plymouth
 Baker, F. J. *gm.* Shoreham Gram. S.
 MacFarlane, C. *a.* Grosvenor Coll., Carlisle
 Nuttall, W. V. *s.ch.* Penketh School
 Armitage, F. H. Newquay Coll., Cornwall
 Bodenham, S. W. *ms.* The College, Weston-super-Mare
 Felton, A. G. *a.l.gm.ms.* Private tuition
 Macqueen, H. S. *l.t.* Tollington S., Muswell Hill, N.
 Owen, R. J. *e.a.al.f.* Newcastle Modern S.
 Greenleaves, W. C. *a.al.f.* Private tuition
 Lacey, E. R. *ch.* Lancaster Coll., W. Norwood
 Pierce, E. O. *a.l.* St. Leonards Coll. S.
 Rowland, T. L. *a.* Mercers' School, Holborn, E.C.
 Crossley, O. L. *e.al.gm.f.* Private tuition
 Ellicott, A. S. High S., Falkland Road, Torquay
 Mitchell, F. F. *ms.* High S. for Boys, Wareham
 Barnett, T. L. Tollington S., Muswell Hill, N.
 Stabler, A. W. E. *a.l.f.* The Grammar S., Driffield
 Bradley, J. F. C. Shoreham Gram. S.
 Culver, C. J. *a.l.* Tollington S., Muswell Hill, N.
 Margaron, T. J. *f.d.* Norwich High S. for Boys
 Cooper, W. H. *e.a.al.f.* Private tuition
 Lloyd, J. M. Balham Gram. S.
 Maver, E. A. *a.l.* Fauntleroy, St. Leonards-on-Sea
 Reece, J. W. *s.* Margate Comm. S.
 Enoch, S. A. *s.* The College, Weston-super-Mare
 Restall, G. M. *s.al.gm.* Waterlooville Coll., Cosham
 Walker, F. Wilmslow College

JUNIOR.

Pass Division.

 Moncrieff, R. W. *a.l.* Fulwood Gram. S., Preston
 Page, R. O. *s.al.* The Palace S., Bewdley
 Cooper, G. B. Sir Roger Manwood's S., Sandwich
 Lamming, H. R. St. Mary's Coll., Harlow
 Symonds, H. F. *a.l.* Mercers' School, Holborn, E.C.
 Dauvers, E. J. Tollington S., Muswell Hill, N.
 Jamison, J. H. *a.l.* Mercers' School, Holborn, E.C.
 Harrison, R. Argyle H., Sunderland
 Hayton, J. *a.l.* Grosvenor Coll., Carlisle
 Roper, F. G. Private tuition
 Ellis, H. *ch.* Penketh School
 Strachan, F. M. *a.l.* Mercers' School, Holborn, E.C.
 Bransby, A. Penketh School
 Simon, L. J. *f.* Harleston H., St. Lawrence, Jersey
 Bland, S. E. Heathfield H., Crouch Hill
 Hale, G. W. The Philological S., Southsea
 Low, R. G. *a.l.* Tollington S., Muswell Hill, N.
 Moore, H. W. H. *a.al.* Private tuition
 Müller, C. W. A. Private tuition
 Staught, I. C. The Douglas S., Cheltenham
 Taylor, J. H. *e.g.a.* Private tuition
 Wilson, W. M. Private tuition
 Dunn, W. H. Fitzroy S., Crouch End
 Haley, W. J. *a.l.* Oxenford H., St. Lawrence, Jersey
 Pinel, A. H. *f.* Harleston H., St. Lawrence, Jersey

Carpenter, R. E. H. Private tuition
 Gerrans, C. N. *a.l.* Southend Gram. S.
 James, E. G. Cliftonville Coll., Margate
 Sutton, H. L. *a.l.* Private tuition
 Wheeler, E. J. Shoreham Gram. S.
 Gammon, A. K. *bk.* The Philological S., Southsea
 Oates, A. T. *e.h.g.* Mill Hill School, N. W.
 Tollaund, H. *a.l.* Grosvenor Coll., Carlisle
 Turner, A. W. *f.* Boys' High S., Sutton
 Aplin, C. C. *a.l.* The Modern S., Streatham Common
 Bonshor, C. L. *s.al.* Boys' High S., Swan Hill, Shewsbury
 Dixon, K. *a.l.* Private tuition
 Gleadow, H. W. Highfield S., Muswell Hill
 Moore, B. H. Private tuition
 Sandercock, K. L. Newquay Coll., Cornwall
 Willis, A. E. Carshalton College
 Andrews, R. C. *e.f.* Private tuition
 Ball, R. D. *ge.* Wilmslow College
 Boughtwood, F. C. Cranbrook Coll., Ilford
 Eberlin, F. H. M. *l.t.* Mill Hill School, N. W.
 Grist, F. C. *s.h.k.* Margate Comm. S.
 Hines, C. T. *al.ch.d.* Elt's College, North Finchley
 Jackson, J. Private tuition
 Mitchell, D. S. *a.al.* Private tuition
 Thomson, J. *a.l.* Grosvenor Coll., Carlisle
 Dean, C. S. C. King's S., Bruton
 Gallimore, L. P. *s.f.* Ashville Coll., Harrogate
 Martin, L. W. Margate Gram. S.
 Russell, A. C. Mercers' School, Holborn, E.C.
 Coleridge, R. E. *e.* Southland's Gram. S., Littlestone-on-Sea
 Gooding, H. W. Wellingbrook S., Chulmleigh
 Auburn, C. A. Tollington S., Muswell Hill, N.
 Corkill, N. L. *a.l.gm.ch.* Private tuition
 Elin, J. E. St. Mary's Coll., Harlow
 Marshall, R. M. *a.l.f.* Newcastle Modern S.
 Murray-Shirreff, B. G. *a.l.* Private tuition
 Staveley, S. Steyning Gram. S.
 Stevenson, H. T. St. John's Coll., Finsbury Park
 Inkster, A. G. Boys' High S., Sutton
 Owen, R. G. Cranbrook Coll., Ilford
 Sharp, A. *s.e.l.* Private tuition
 Banks, C. F. The Palace S., Bewdley
 Davies, E. *l.t.ch.* Hulme Gram. S., Manchester
 Hill, V. F. R. Hoe Gram. S., Plymouth
 King, C. C. Gillingham Gram. S.
 Robertson, H. C. *f.* Merchant Taylors School, E.C.
 Switzer, B. Margate Comm. S.
 Biggood, R. J. St. Mary's Coll., Harlow
 Green, J. *a.l.ma.* Private tuition
 Hill, C. W. Mt. Radford S., Exeter
 Humphris, D. W. Fairfield Sec. S., Montpelier, Bristol
 Ivens, K. K. *e.* Shoreham Gram. S.
 Standish, C. *s.* Private tuition
 Wilson, J. W. Fulwood Gram. S., Preston
 Bayly, W. Shebbear College
 Cuthbert, E. *a.l.* Highbury Park S., N.
 Kelly, W. G. *f.d.* Ascham H., Harrogate
 Lambert, P. *a.l.* Private tuition
 Medley, T. E. *a.l.* Bourne Coll., Quinton
 Woolgar, L. *phys.* Steyning Gram. S.
 Burrows, F. A. *f.* Elmhurst, Kingston-on-Thames
 Franklin, R. St. Aubyn's, Woodford Green
 Renouf, C. W. *a.l.f.* Springside H., Gorey
 Thomas, R. M. G. 15 Ellerker Gardens, Richmond
 Wood, G. The Palace S., Bewdley
 Croft, W. N. *a.d.* Osborne High S., West Hartlepool
 Grieves, R. B. Boys' High S., Sutton
 Hobson, T. H. *s.al.* Scarborough College
 Offer, A. G. A. Balham Gram. S.
 Rix, R. W. Shoreham Gram. S.
 Staepole, H. R. Steyne S., Worthing
 Thorne, D. W. Ryde H., Ripley
 Hamon, A. P. Oxenford H., St. Lawrence, Jersey
 Holt, O. D. *d.* Private tuition
 Johnson, A. J. R. F. Norwich High S. for Boys
 Matthews, P. *a.l.* Mt. Radford S., Exeter
 McIlwaine, N. J. *a.l.* Cliftonville Coll., Margate
 Wilson, J. H. A. *f.* The Douglas S., Cheltenham
 Coates, J. W. *s.* Private tuition
 Evans, D. K. Municipal Coll., Portsmouth

Graham, J. *ge.* Shoreham Gram. S.
 Weston, A. E. Castle Hill S., W. Baling
 Wheelodon, J. W. *al.* The Western Coll., Harrogate
 Wilson, G. C. *s.* Fulwood Gram. S., Preston
 Parsonage, R. P. The Gram. S., Whitechurch
 Shaw, R. C. Private tuition
 Wilson, C. B. Private tuition
 Botting, N. P. *sh.* Ryde H., Ripley
 Holcroft, G. Penketh School
 O'Flynn, J. L. C. *e.* Private tuition
 Franich, S. *a.l.* Private tuition
 Billingham, W. F. *s.* St. Thomas' High S., Erdington
 Cooper, C. R. *f.* Private tuition
 Lumley, E. Private tuition
 Richardson, R. A. Grosvenor Coll., Carlisle
 Aston, T. H. *d.* Wallingbrook S., Chulmleigh
 Cloud, C. O. *f.phys.* Steyning Gram. S.
 Grimes, C. G. Heathfield H., Crouch Hill
 Henday, E. V. Shoreham Gram. S.
 Hislop, J. A. *mu.* Private tuition
 Jillings, B. R. *f.* Private tuition
 Jones, C. S. *al.* Bourne Coll., Quinton
 Stafford, F. A. Richmond Hill S., Richmond
 Stone, B. C. The Commercial S., Bridlington
 Wood, H. M. *a.l.* Hyde Gram. S.
 Blockley, T. N. St. Dunstan's Coll., Margate
 French, R. D. Epsom College
 Kibbey, A. *l.t.ch.* Private tuition
 Plunkett, J. R. *a.l.* Private tuition
 Webber, F. H. *e.ch.* Private tuition
 Bailey, J. B. Private tuition
 Benazon, I. Private tuition
 Clear, A. W. *s.al.* Private tuition
 Cornish, W. *f.* The Jersey Modern S., St. Helier
 Craig, J. K. Tollington S., Muswell Hill, N.
 Hansen, H. Steyning Gram. S.
 Haywood, H. W. The Palace S., Bewdley
 Sibson, R. D. Osborne High S., West Hartlepool
 Burgoyne, W. *a.l.ch.* Private tuition
 Cavaghan, T. Grosvenor Coll., Carlisle
 Faulson, J. C. *s.* Walker's Training Coll., Southsea
 Reynolds, F. C. Private tuition
 Whittle, J. A. *e.* Private tuition
 Munday, W. F. *a.* Private tuition
 Suddaby, H. I. *a.* Private tuition
 Worsfold, W. J. Ryde H., Ripley
 Allan, D. J. Scarborough College
 Amos, D. V. St. Peter's (Eaton Square) Choir S., S. W.
 Gregson, J. D. Southport College
 Hosegood, E. J. The High S., Brentwood
 Nimmo, C. D. Shoreham Gram. S.
 Tarry, W. E. Allenby H., Derby
 Tunney, J. W. Castle Hill S., W. Ealing
 Fayers, R. E. Heathfield H., Crouch Hill
 Hine, J. C. L. *a.l.* Gram. S., Chorlton-cum-Hardy
 Lean, W. F. Hoe Gram. S., Plymouth
 Webber, A. C. *d.* The School, Wellington Rd., Taunton
 Gregory, J. M. Private tuition
 Hawkes, E. A. Ryde H., Ripley
 Shenton, J. G. H. *a.l.* Froebel H., Devonport
 Weninger, F. P. Wallingbrook S., Chulmleigh
 Williams, T. B. Private tuition
 Guy, F. J. *a.l.* Taunton H., Brighton
 Jones, E. W. Bourne Coll., Quinton
 Murray, W. J. C. Shoreham Gram. S.
 Oppen, J. St. Dunstan's Coll., Margate
 Power, E. M. Private tuition
 Pring, C. J. *f.d.* The School, Wellington Rd., Taunton
 Collings, F. R. *s.* Hoe Gram. S., Plymouth
 Cooper, J. Margate Gram. S.
 George, R. D. Pembroke Dock County S.
 Hitchcock, H. C. Wallingbrook S., Chulmleigh
 Robinson, N. Q. Southend Gram. S.
 Tarry, S. L. *d.* Gunnersbury Prep. S.
 Aird, B. Private tuition
 Assad, K. *a.l.ch.* St. Mary's Coll., Harlow
 Brazier, T. A. Margate Comm. S.
 Levene, T. J. *a.l.ch.* Private tuition
 Themans, L. The Western Coll., Harrogate
 D'Arcy, O. J. Private tuition
 Leach, R. F. Private tuition
 Prince, A. E. Grosvenor Coll., Carlisle
 Scott, R. C. Private tuition
 Smith, A. L. Private tuition

BOYS, JUNIOR, PASS—Continued.

Bateson, F.R.C. al. Private tuition
Burton, F. Private tuition
Grosley, C.R. Private tuition
Goderidge, R. St. Leonards Coll. S.
Lee, C.E. al.
St. Peter's (Eaton Square) Choir S., S.W.
Murray, D. al. Private tuition
Richardson, L.
King James 1st Gram. S., Bishop Auckland
Rusby, F. Boys' High S., Barnsley
Waddington, C.R. al. Scarborough College
Waterhouse, H. Private tuition
Bean, A.H. Kensington Coaching Coll., S.W.
Elwood, R.V. St. Mary's Coll., Harlow
Gobey, L.F. Private tuition
Holt, J. Private tuition
Jones, E.B. J. Private tuition
Cross, D.W. Private tuition
Kemish, F.W.
London Coll. for Choristers, Paddington
O'Donovan, J.R. al. Private tuition
Procter, T.H. al. Balham Gram. S.
Kennedy, H.P. Private tuition
Perkins, A. Froebel H., Devonport
Perring, W.A.S. Private tuition
Shearman, J.W.
The Commercial S., Bridlington
Tragheim, L.H. Private tuition
Tregenna, C.H. s. Scarborough College
Winwood, G.R. W. Bourne Coll., Quinton
Burrows, S. al. Private tuition
Chambers, E.A. C. gm. Shoreham Gram. S.
Davies, J.R. Pentwyn, Penrhiwceiber
Field, G. Private tuition
Gomersall, J.G.
The Western Coll., Harrogate
Squire, E.K. St. Mary's Coll., Harlow
Winterburn, R. Ellesmere S., Harrogate
Mähler, A.C.
Gram. S., Chorlton-cum-Hardy
Porter, H. York Model S.
Rattray, A.S. Private tuition
Tadman, R.S. Shoreham Gram. S.
Theed, T.E. h. Private tuition
Willey, N.
Archbishop Holgate's Gram. S., York
Wilson, S.F. St. John's Coll., Finsbury Park
Amn, R.D. Private tuition
Gains, C.S.R. Private tuition
Strachan, A.W. Private tuition
Thomas, T.B. Taunton School
Clayton, C.J.
Greystones S. for Boys, Scarborough
Duckworth, W.E. Grosvenor Coll., Carlisle
Hall, F.L. Private tuition
Smith, C.V. Cranbrook Coll., Ilford
Willis, G.S. W. e. al. Private tuition
Young, J. Private tuition
Ball, W.A. Private tuition
Crowther, R.B. Private tuition
Flocks, H.B. Private tuition
Harley, E. Private tuition
Jackson, A.F.
St. Peter's (Eaton Square) Choir S., S.W.
Michalsky, A.V. s. Private tuition
Montague, J.H.
King Edward VI S., Retford
Lancaster, H.W. Willow H., Walsall
Vincent, R. St. Aubyn's, Woodford Green
Barratt, R.N. Hoe Gram. S., Plymouth
Caldwell, H.E. e. Ashland High S., Wigan
Sheard, F. Gram. S., Chorlton-cum-Hardy
Thompson, A.S. Argyle H., Sunderland
Whithead, F. d. Private tuition
Abbott, R.F. al. Private tuition
Carlyon, B. Margate Comm. S.
Lys, F.G. B. Hurstpierpoint College
Eastland, W.M. St. Leonards Coll. S.
Gallimore, H.W. deP. Ashville Coll., Harrogate
Moyses, M. The High S., Brentwood
Sherwood, F.C.
The Modern S., Streatham Common
Whately, T. Private tuition
Boulter, R.S. Hoe Gram. S., Plymouth
Davis, M.W. Private tuition
Golden, L.J. Private tuition
Hanson, W.E. Private tuition
Holland, F.A. Private tuition
Jones, W.M. Brighton H., Clifton
Langlois, J.V.
The Jersey Modern S., St. Helier
Martin, J.D. St. Leonards Coll. S.
Collingworth, W. Private tuition
Howarth, N.S. Fulwood Gram. S., Preston

Miller, H.B. Richmond Hill S., Richmond
Muil, D.J. Private tuition
Vandersteen, C.J. P. Bourne Coll., Quinton
Vick, L.S. a. Private tuition
Downing, D.B. Southport College
Fear, C.R. Gram. S. Aberystwyth
Hoggett, H.C. Private tuition
Newton, A. Private tuition
Cunliffe, H. a. Private tuition
Glassecock, W.V. Cranbrook Coll., Ilford
Pipon, A.S.
Harleston H., St. Lawrence, Jersey
Smith, S.C. The Palace S., Bewdley
Taylor, W.S. Private tuition
Caldicott, J.H.
Edgbaston Acad., Birmingham
Criswick, J.V. Private tuition
Gomes, A. Private tuition
Hamper, F.G.R. al. Scarborough Gram. S.
Hendy, S.A.
United Kingdom Coll., Lavender Hill
Langton, L. Hertford Gram. S.
Unger, K.R. al. St. Paul's S., W. Kensington
Aucott, D.J. St. Dunstan's Coll., Margate
Kirkbride, H. Private tuition
O'Donovan, M.J. Private tuition
Vause, H.B. e. Private tuition
Heath, S.R. Gunnersbury Prep S.
Kirkbride, F. Private tuition
Nicholas, L.G. Merthyr Intermediate S.
Nicholls, W. al. Private tuition
Twine, W.J. Private tuition
Watkins, J. Private tuition
Olver, C.P. Hoe Gram. S., Plymouth
Osborne, R.T. Westbourne S., Paddington
Preston, B. Ashville Coll., Harrogate
Berrington, B.W. Ashville Coll., Harrogate
Candlish, R.H.
High S., Falkland Road, Torquay
Davies, A. Private tuition
Denamery, B.V.
Wallingbrook S., Chulmleigh
Ford, D.A.K.
The High S. for Boys, Croydon
Carrel, E.J. P. Springside H., Gorey
Croke, F.P. Private tuition
Falside, J. g. Private tuition
Floyd, R. Private tuition
Gillman, J.H. Boys' Coll. S., Aldershot
Glead, S. Private tuition
Hopper, F.E. Private tuition
Jenkins, E.T. Victoria Gram. S., Ulverston
Kull, I. St. Mary's Coll., Harlow
Newman, G.G. St. Mary's Coll., Harlow
Silby, E.O. F. Private tuition
Simpson, J. Fulwood Gram. S., Preston
Atkins, R.V. al. Private tuition
Blackadder, M.M. Private tuition
Bodenham, F.J. W. al.
The Palace S., Bewdley
College, A.V. Dean Close S., Cheltenham
Pinks, A.
St. Peter's (Eaton Square) Choir S., S.W.
Sharpe, F.G.G. Private tuition
Whitfield, S.J.
King James 1st Gram. S., Bishop Auckland
Wilson, N. The Palace S., Bewdley
Anderson, C.S. Taunton School
Ockenden, K.W. W. Boys' High S., Sutton
Powell, J.H. Private tuition
Roberts, C.D. Private tuition
Rushworth, B. Private tuition
Sturgess, L.H.
London College for Choristers, Paddington
Tadgell, W.C. Heathfield H., Crouch Hill
Davies, T.E. Old College S., Carmarthen
Hyde, W.T. Private tuition
Lancaster, J.R. Northeroft H., Penrith
Richards, D.O. Old College S., Carmarthen
Smith, F.J. Private tuition
Williamson, H.D. Private tuition
Burnett, G.S. al. Boys' High S., Barnsley
Cooper, W.F. Ashville Coll., Harrogate
Everton, A. Private tuition
Hessian, L.J. Private tuition
Simpson, A.L. A. Scarborough Gram. S.
Waterson, W.J.
The Modern S., Streatham Common
Waterson, W.T.
Fauntleroy, St. Leonards-on-Sea
Wells, E.O. Private tuition
Whatmore, F.J. Private tuition
Elsey, F.S. Private tuition
Gibaut, R.J.
Harleston H., St. Lawrence, Jersey
Ingram, C. Private tuition

Bradshaw, A.O.H.
Edgbaston Acad., Birmingham
Cameron, W.J. Private tuition
Church, F.H. Private tuition
Hakim, L.S. Private tuition
Roberts, H.W. The Palace S., Bewdley
Waterhouse, E. Private tuition
Bromfield, R.C. Private tuition
Gray, L. St. G.
The School, Wellington Rd., Taunton
Lloyd, C.J. St. Leonards Coll. S.
Armstrong, J.B. Willow H., Walsall
Berrington-Stoner, O.S.T. Private tuition
Evans, C.G. Private tuition
Gillies, A.C. Wallingbrook S., Chulmleigh
Johnston, J.C. Private tuition
Mann, S.C. Private tuition
Pullen-Burry, H.T. Steyne S., Worthing
Reddelinghuys, J.J. Private tuition
Thomson, A.W. al. Ryde H., Ripley
Bennett, A.M. Private tuition
Booth, R. Private tuition
Bridgman, T.J. Private tuition
Burchill, K.H. All Saints' Choir S., Clifton
Hicks, C.M.H. Private tuition
Jessen, R.E. Private tuition
Johnson, C.P. The Western Coll., Harrogate
White, G. s. The Western Coll., Harrogate
Zettel, F.A. J. Private tuition
Austen, E.A.
Kensington Coaching College, S.W.
Collins, B. Stone's City S., Exeter
Marriott, G. a. Private tuition
Murray, C.G. Private tuition
Penley, R.J. B. Private tuition
Rhodes, G. L.
Gram. S., Chorlton-cum-Hardy
Short, E.A. Steyne S., Worthing
Staveley, A.P. Private tuition
Temple, T.E. s. Donington Gram. S.
Burd, E.P. Private tuition
Edwards, T.G. Private tuition
Guttsell, R.F. St. Leonards Coll. S.
LeMarquand, B.G.
Harleston H., St. Lawrence, Jersey
Minnack, E.E. Steyning Gram. S.
Scarles, F.N. Private tuition
Stevens, C. St. Thomas' High S., Erdington
Warden, A. Private tuition
Beattie, R.D. Private tuition
Borthwick, A.J. Heathfield, Crouch Hill
Culver, L.E. Steyne S., Worthing
Hutches, E.E. Private tuition
Rothwell, C.E. Private tuition
Stevens, J.H. Froebel H., Devonport
Wilkins, C.H. Private tuition
Allan, W.A. Private tuition
Hemming, W.L.F.
St. Peter's (Eaton Square) Choir S., S.W.
Clemmitson, W.
King James I Gram. S., Bishop Auckland
Fawcett, D.H. St. J. Private tuition
Hill, L.A. G.
St. Peter's (Eaton Square) Choir S., S.W.
Norman, W. Private tuition
Bolton, F. Steyning Gram. S.
Goodall, L.C.G. Private tuition
Lloyd, W. Private tuition
Siddiqui, B.A. Manor H., Clapham
Jona, A.H. Merchant Taylors School, E.C.
Way, C.C. Private tuition
Woodhouse, G. Private tuition
Cross, F.J. L. Private tuition
Harwood, H.W. Private tuition
Hutchings, S.A.R. Hoe Gram. S., Plymouth
Foster, W. Poole Coll. S.
Greatrex, A.H. St. Mary's Coll. Harlow
Breckon, F.P. Private tuition
Clarke, G.B.W. Wilmslow College
Collins, E.D. Private tuition
Maynard, R.H.
The School, Wellington Rd., Taunton
Sowerby, A. Private tuition
Ainsworth, H.R. Private tuition
Hardwick, C.
The Commercial S., Bridlington
Smith, E.F. Private tuition
Pogram, J.A. Streatham Modern Coll.
Alder, G.S. Private tuition
Bardsley, R.
Montgomery Coll., Sharrow, Sheffield
Billings, F.J. Portland Coll., Chiswick
Frank, J.F. Private tuition

PRELIMINARY.
Honours Division.
Carter, D.R. s. al.
Newquay College, Cornwall
Ellicott, L.E. e. al. gm. f. d.
High S., Falkland Road, Torquay
Craig, E.H. e. g. a. al.
St. John's Coll., Finsbury Park
Le Ruez, S. P. s. g. f.
Harleston H., St. Lawrence, Jersey
Cross, N.J. s. e. h. g. f.
Kent Coast Coll., Herne Bay
Langlois, H.G. s. g.
Harleston H., St. Lawrence, Jersey
Lachlan, D. e. al. gm. f. l.
Skelsmergh H., Cliftonville, Margate
Morgan, E. e. al. gm. f. l.
Skelsmergh H., Cliftonville, Margate
Jarnet, R.C. s. e. f.
Harleston H., St. Lawrence, Jersey
Le Heron, A. F. e. a. al. f.
Oxenford H., St. Lawrence, Jersey
Green, D. al. St. John's Coll., Finsbury Park
Maxwell, R.S. e. a. al. Manor H., Clapham
Chudley, K.S. e. g. d.
High School, Falkland Road, Torquay
Crisp, H.S. s. e. g. a. al. d. Holworthy Gram. S.
Fowler, C. e. a. al. d. Shoreham Gram. S.
Moody, G.E. e. al. d.
Alexander H., Broadstairs
Rowe, D.H. s. e. a.
Newquay College, Cornwall
Johnson, A.A. s. h. g. s. e. Penketh School
Michell, W.S. g. e. l.
Newquay College, Cornwall
Gray, D.J. M. a. al. Shoreham Gram. S.
Holmes, B. s. g. a. d. Ellesmere S., Harrogate
Peirce, G.M. e. s. d.
Richmond Hill S., Richmond
Hall, F.T. D. al. d. Bourne Coll., Quinton
Kent, L.J. F. al. d. Frome Blue Coat School
Hews, D.A. e. a. al. Shoreham Gram. S.
Thomas, H.A. s. e. Bourne Coll., Quinton
Cove, S.H.M. al. The Gram. S., Ongar
Stone, H.W. G. e. a. al.
The Jersey Modern S., St. Helier
Billings, A.E. s. al. Shoreham Gram. S.
Dodge, G.P. al. Frome Blue Coat School
Gough, H.L. al. Shoreham Gram. S.
Green, D.W. al. gm. Shoreham Gram. S.
Arnall, D.V. s. d. Cambridge H., Norwich
Briggs, L.B. bk. New Coll., Harrogate
Lawrence, F.C. al. Argyle H., Sunderland
Le Vesconte, Cyril al. f.
Oxenford H., St. Lawrence, Jersey
Pallot, D.J. e. al. f.
The Jersey Modern S., St. Helier
Wilson, G. h. g. Bourne Coll., Quinton
Zimmermann, L.J. e. The Gram. S., Ongar
Haynes, H.T. g. al.
The Jersey Modern S., St. Helier
Holbrook, R.P. al. gm. Shoreham Gram. S.
McCarthy, F.J. al. The High S., Brentwood
Pellant, K. al. Shoreham Gram. S.
Pepin, S. e. f.
Oxenford H., St. Lawrence, Jersey
Purse, W.A. s. e. Shoreham Gram. S.
Willbourn, F.A. e. au.
Gram. S., Chorlton-cum-Hardy
Conybeare, E.T. s. al.
Hoe Gram. S., Plymouth
Henwood, H.A. g. d.
St. Aubyn's, Woodford Green
Shipway, G. gm.
Skelsmergh H., Cliftonville, Margate
Balster, H.J. al.
Bradley High S. for Boys, Newton Abbot
Hawken, F.P.G. e. Hoe Gram. S., Plymouth
Langdale, F.H. h. h.
Richmond Hill S., Richmond
Noel, H.A. The Jersey Modern S., St. Helier
Mitchell, L.R. s. al. Hoe Gram. S., Plymouth
Steel, O. al. Shoreham Gram. S.
Dicks, E.G. al. The Douglas S., Cheltenham
Emmerson, R. al. Shoreham Gram. S.
Kreutzberger, E.E. al. d. Shoreham Gram. S.
Thompson, E. a. Grosvenor Coll., Carlisle

The Cheapest Prospectuses

are those that

Produce Pupils.

AND THEY ARE THE ONLY KIND WORTH HAVING.

There are few items of School expenditure on which money is so commonly and **needlessly wasted** as the average Prospectus.

An unsatisfactory Prospectus works a **double injury** to any School:—

It uses up so much capital to no good purpose;

And, so long as its useless bundles have not been got rid of in some fashion, it blocks the way for anything better.

Not every Principal has the courage to scrap heaps of futile productions that have cost good money in the past. If it were realised that they are **costing more still** each time they lose or repel a possible Pupil, their fate would be swifter. For, obviously, if a Prospectus does not attract, it is a failure, and worse—it is a handicap. A School has one chance with a Parent: if from any reason the chance is lost or wasted, it does not come again. It is a pity if the reason is its own Prospectus. And very often it is.

As Educational Agents we have to file the Prospectuses of many hundreds of Schools, and make the best use we can of them; so that their weaknesses or omissions, affecting our daily work, become very familiar. These are a few of the most common:—

**VIEWS.—Conventional,
Badly selected,
Poorly photographed,
Unsatisfactorily (but not always
inexpensively) reproduced.**

**LETTERPRESS.—Type ill-chosen and ineffective.
Matter bald and uninteresting, poorly
arranged, and often avoiding or
slurring over what would give a
School an individuality of its own.**

AN EFFECTIVE PROSPECTUS should be well planned and, to some extent, original. It should be so written and so printed as to impress on a Parent at once some clear idea of what the School has to offer. The photographs should be good and well reproduced, and they need not be just the same as a Parent will find in three out of four others lying beside it.

**WE TAKE THE BEST PHOTOGRAPHS,
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WE DO THE BEST PRINTING,
WE DESIGN AND PRODUCE THE
BEST PROSPECTUSES.**

And, since no Prospectus but the **best possible** can do a School justice,

WE SEND A REPRESENTATIVE,

when required, to advise as to the arrangement, and, if desired, to write up the matter of the Prospectus with the Principal. And, as we have to use the Prospectus afterwards in recommending the School, we have, besides an added interest in it, at the same time obtained first-hand impressions and knowledge of the School, which must prove of the **greatest assistance to Parents.**

If you are interested, please write us—

J. & J. PATON, Educational Agents,
143 CANNON STREET, LONDON, E.C.
Telephone: 5053 Central.

BOYS—Continued.

PRELIMINARY Pass Division.

(Carter, D.L. Private tuition
Carter, A.R. Ashville Coll., Harrogate
Berridge, T.D. Froebel H., Devonport
Sayer, D.H. St. Leonards Coll. S.
Lawrence, G.H. Margate Comm. S.
Dain, G.H. Heathfield H., Crouch Hill
Robert, C.T. Charing Cross S., St. Heliers
Taylor, C.W.B. Private tuition
Hughes, F.G. St. Mary's Coll., Harlow
Forge, E.L.e. St. Aubyn's, Woodford Green
Jackson, H.T. a.d. Scarborough College
Ackland, R.H. e.d. High S., Falkland Road, Torquay
Bridge, J.R. St. Peter's (Eaton Square) Choir S., S.W.
Brookbank, R. al. Shoreham Gram. S.
Brown, H. St. Leonards Coll. S.
Oliver, R.M. e.d. High S., Falkland Road, Torquay
Staples, R.G. a.d. St. John's Coll., Finsbury Park
Bamford, A. Highbury Park S., N.
Davies, R.E. The High S., Brentwood
Marshall, S.A. St. Peter's (Eaton Square) Choir S., S.W.
Mayne, F.H. d. High S., Falkland Road, Torquay
Price, C.A. a. Penketh School
Bennett, G.K.H. a. The Palace S., Bewdley
Haskins, C. The College, Weston-super-Mare
Hocknell, B.C. g.a.f. Ellesmere S., Harrogate
Kaye, R. St. John's Coll., Finsbury Park
Lynn, D.C. New Coll., Harrogate
Spring, J.K.F. Weymouth Modern S.
Chidwick, B. Steyne S., Worthing
Commander, E.T. New Coll., Harrogate
Nash, D.F. s. Hoe Gram. S., Plymouth
Stevenson, J.F.C. The Gram. S., Ongar
Wheatcroft, J.V. al. The Gram. S., Ongar
Williamson, J.E. a. al. The Douglas S., Cheltenham
Easton, C. s. St. Leonards Coll. S.
Furchas, T.E. Newquay Coll., Cornwall
Rebeck, A. al. Frome Blue Coat School
Wood, N.W. Froebel H., Devonport
Benjamin, H.B. a. al. d. St. Leonards Coll. S.
Oliver, W.A. D. Bailey S., Durham
Oppitz, W.J. Steyne S., Worthing
Tooke, G. s. Alderman Norman's Endowed S., Norwich
Baldwin, J.E. a. St. Dunstan's Coll., Margate
Bellas, E.I.R. s.g. Penketh School
Dallain, A. al. Oxenford H., St. Lawrence, Jersey
Davidson, H. g. Wallingbrook S., Chulmleigh
Gardner, R. d. Frome Blue Coat School
Ridley, H. a. Grosvenor Coll., Carlisle
Solman, S.G. al. Heathfield H., Crouch Hill
Stephenson, W.A. Grosvenor Coll., Carlisle
Whiter, F.S.S. St. John's Coll., Finsbury Park
Dodge, H.R. a. al. Frome Blue Coat School
Goddard, E.P. al. Alexander H., Broadstairs
Martin, C.M. Norwich High S. for Boys
Money, J. a. al. Shoreham Gram. S.
Payton, G.H. Richmond Lodge, Torquay
Perren, C.H. a. al. d. Bradley High S. for Boys, Newton Abbot
Sanders, G.E. Margate Comm. S.
Sparey, R.G. Bourne Coll., Quinton
Van Weede, W. s. al. Skelmersgh H., Cliftonville, Margate
Morgan, E.A. f. St. John's Choir S., St. Leonards-on-Sea
Westcott, H.M. e. Argyle H., Sunderland
Widdon, R.G. High S., Falkland Road, Torquay
Howell, A. Bickerton H., Birkdale
May, C.A.L. Grove H., Highgate
Sayer, G.S. a. al. Manor S., York
Slatter, E. a. The Gram. S., Ongar
Sorabjee, E. The Vale Coll., Ramsgate
Howland, H.S. Southampton Boys' Coll. and High S.
Hunt, W. s. Penketh School
Hutchinson, R.D. Argyle H., Sunderland
Le Vesconte, Clifford, J. Oxenford H., St. Lawrence, Jersey

Marchant, S.S. Richmond Hill S., Richmond
Reeve, L. e.g.m.d. Skelmersgh H., Cliftonville, Margate
Thomson, D.W. al. Southend Gram. S.
Allain, G.A. f. The Jersey Modern S., St. Helier
Allen, G.A. The Western Coll., Harrogate
Cooper, C.A. Manor S., York
Fenton, J. Argyle H., Sunderland
Greenwell, G. Bailey S., Durham
Merrie, W.E. The College, Weston-s.-Mare
Mill, J. Margate Comm. S.
Nichols, E. Oxenford H., St. Lawrence, Jersey
Page, B.R. al. Newquay Coll., Cornwall
Sole, S.D. Steyne S., Worthing
Cooper, J.R. H. g. Southland's Gram. S., Littlestone-on-Sea
Mays, E.E. The Gram. S., Ongar
Parsons, F. St. Leonards Coll. S.
Haydon, D.I. al. Raleigh Coll., Brixton
Lawson, C.J.F. Scarborough Gram. S.
Low, F.G.E. St. John's Coll., Finsbury Park
Abbott, T.E. Private tuition
Atkinson, W.N. Grosvenor Coll., Carlisle
Bower, A.E. al. Southend Gram. S.
Brocklebank, J.F. Scarborough College
Few, W. Highbury Park S., N.
Hewlett, J. Skelmersgh H., Cliftonville, Margate
Smith, A.T. St. Peter's (Eaton Square) Choir S., S.W.
Tremner, A.J. a. al. Bradley High S. for Boys, Newton Abbot
Embury, K.S. e. al. al. Bradley High S. for Boys, Newton Abbot
Huntley, F.C. Argyle H., Sunderland
Newton, H.A. The College, Weston-s.-Mare
Sangster, W.C. al. Southend Gram. S.
Skelton, H.W. s. J. Harleston H., St. Lawrence, Jersey
Weston, F.R. e. Manor H., Clapham
Atkinson, R.A. Grosvenor Coll., Carlisle
Bowerman, E.J. Bradley High S. for Boys, Newton Abbot
Coleman, C.G. Norwich High S. for Boys
Jarvis, W.F. a. Bradley High S. for Boys, Newton Abbot
Pearl, I.M. Margate Comm. S.
Saville, L.M. A. Richmond Hills, Richmond
Searls, J.C. d. Aesham H., Harrogate
Tozer, G. Froebel H., Devonport
Greasley, V.A. Margate Comm. S.
Ashcroft, D.E. Private tuition
Boulanger, D. Skelmersgh H., Cliftonville, Margate
Coombe, C.A. a. Raleigh Coll., Brixton
Holding, D.S. Southend Gram. S.
Saunders, D.K. South Norwood College
Sorabjee, J. al. The Vale Coll., Ramsgate
Streater, A.E. Shoreham Gram. S.
Dell, C.J. Clark's Prep. S., Ealing
Greaves, D. The Western Coll., Harrogate
Nichol, W.C. a. Grosvenor Coll., Carlisle
Payne, H.W. All Saints' Choir S., Clifton
Seymour, V.D. Southend Gram. S.
Thomson, R.M. al. Grosvenor Coll., Carlisle
Blair, L.L. St. Catherine's Coll., Richmond
Irving, T. a. Grosvenor Coll., Carlisle
LeGresley, P.C. g. Harleston H., St. Lawrence, Jersey
Williams, J.D. a. Old College S., Carmarthen
Hill, R.L.H. Bickerton H., Birkdale
Palmer, E.D. St. Leonards Coll. S.
Prew, A.T. St. Helen's Coll., Seven Kings
Benson, H.C. g. The Western Coll., Harrogate
Brown, R.I. Cambridge H., Norwich
Clancy, R.J. Highfield Coll., Walton-on-Thames
Day, L.C. Cliftonville Coll., Margate
Dean, J.H. Bickerton H., Birkdale
Frost, R.E. Collegiate S., Tetbury
LeMarquand, E.J. f. Springside H., Gorey
Henshall, A. a. Coll. S., Colwyn Bay
Ballard, H. St. Leonards Coll. S.
Brown, R.S. St. Mary's Coll., Harlow
Dyer, A.E. s. Frome Blue Coat School
Hackett, B.C. The Palace S., Bewdley
Hammersley, B. Wilmslow College
Hulme, G.H. St. Leonards Coll. S.
McDonald, E.B. Argyle H., Sunderland
Ross, C.M. The Jersey Modern S., St. Helier
Tourgis, E. Oxenford H., St. Lawrence, Jersey
Alcock, S. Ellesmere S., Harrogate
Cottrell, J.C. The Modern S., Streatham Common

Grice, R.A. Eccles Prep. S., Rowsley, Worsley
Halliday, L.W. The Gram. S., Ongar
Keer, P.H. Hoe Gram. S., Plymouth
Kenny, W. Ousegate S., Selby
Palmer, P.N.H. al. Norwich High S. for Boys
Remon, E.T. Harleston H., St. Lawrence, Jersey
Baroncelli, V. f. i. Southport Modern S.
Cabot, C.A. The Jersey Modern S., St. Helier
Davies, L.T.E. Old College S., Carmarthen
Jukes, H. Monkton H., Cardiff
Richardson, H.S. Aesham H., Harrogate
Trenerry, A.R. d. Norwich High S. for Boys
Underwood, P.J. Hoe Gram. S., Plymouth
Armstrong, H. g. Argyle H., Sunderland
Messent, C.J.W. Norwich High S. for Boys
Polkinghorne, L.A. Newquay Coll., Cornwall
Wickenden, J.B.D. Frome Blue Coat School
Chalke, E.F. d. Frome Blue Coat School
Chambers, B. s. Ion H., East Molesey
Danby, H.M. a. al. Scarborough Gram. S.
Foster, J. Grosvenor Coll., Carlisle
Henwood, H.R. Hoe Gram. S., Plymouth
Johns, H.L. Private tuition
Tavender, H.M. The School, Wellington Rd., Taunton
Wheeler, G.R. Shoreham Gram. S.
Wilson, L. Southport Modern S.
Gibson, W.P. High S. for Boys, Wareham
Houghton, A.H.D. al. Norwich High S. for Boys
Jacobs, V. al. Argyle H., Sunderland
McCloy, J.H. Scarborough College
Peel, R. Queen Street Comm. S., Penrith
Cubitt, H.A.H. Norwich High S. for Boys
Jessamine, T.W. Grosvenor Coll., Carlisle
Mason, T.H. The Gram. S., Ongar
Muncester, J. Grosvenor Coll., Carlisle
Parkin, H.R. Scarborough Gram. S.
Wilson, S.E. Grosvenor Coll., Carlisle
Brewster, L.G. Manor H., Clapham
Buesnel, R.G. Springside H., Gorey
Clare, P.A. Wallingbrook S., Chulmleigh
Cooter, V.C. Municipal Coll., Portsmouth
Cox, H.J. St. John's Coll., Finsbury Park
Creel, N.W. Streatham Modern Coll.
Foden, C. Penketh School
Robinson, R.A. Grosvenor Coll., Carlisle
Sinclair, J.A.G. Froebel H., Devonport
Tallentire, F.W. Private tuition
Fawcett, J.D. Scarborough College
Graham, C.H. Margate Gram. S.
Roberts, W.P. Fulwood Gram. S., Preston
Willets, E.J. al. Southend Gram. S.
Francis, W.J. Municipal Coll., Portsmouth
Harlock, F.G. Private tuition
Martin, J.F. All Saints' Choir S., Clifton
Parker, B. The Palace S., Bewdley
Smith, H.C. s. The Philologicals, Southsea
Comyns, R. Carshalton College
Foucher, A.R. al. Alexander H., Broadstairs
Gale, A.L. Temple Coll., East Sheen
LeSecluer, W.P. f. Springside H., Gorey
Liddicoat, E. Hoe Gram. S., Plymouth
Marsh, B.W. The Palace S., Bewdley
Muspratt, E. Private tuition
Turner, D.J. Wallingbrook S., Chulmleigh
Webb, W.J. Castle Hill S., W. Ealing
Wimby, G.M. Steyne S., Worthing
Contanche, L. Oxenford H., St. Lawrence, Jersey
Criper, R. Skelmersgh H., Cliftonville, Margate
Drew, J.H. al. Manor H., Clapham
Hicks, L. Margate Gram. S.
Miles, J.A. Ashville Coll., Harrogate
Renouf, H.G. Springside H., Gorey
Smallwood, R.T. The Palace S., Bewdley
Bedworth, W.J. al. d. The Palace S., Bewdley
Harper, C. Kirkmanshulme Gram. S., Longsight
Hill, A.G. Margate Gram. S.
Johnson, E.L. Greystones S. for Boys, Scarborough
Wilson, K.W. The Douglas S., Cheltenham
Benmore, C.H. Bickerton H., Birkdale
Dean, H. Eccles Prep. S., Rowsley, Worsley
McGuinness, S. Grosvenor Coll., Carlisle
Taylor, N.H. Wallingbrook S., Chulmleigh
Whitney, N.F. Margate Gram. S.
Goodling, N.R. Wallingbrook S., Chulmleigh
Kennerley, G.J. West Cliff S., Preston
Manks, M. Fitzroy S., Crouch End
Morgan, J.P. Greystones S. for Boys, Scarborough

Smith, E.C. Steyne S., Worthing
Waterfield, W.H. Froebel H., Devonport
Wetherell, C. Ousegate S., Selby
Lawrence, L.E. Froebel H., Devonport
Maddicott, K.J. Mt. Radford S., Exeter
Mallett, R.W. Cambridge H., Norwich
Peard, R.G. Buckingham Place Acad., Portsmouth
Clare, R.A. Norwich High S. for Boys
Arnison, R.L. Eccles Prep. S., Rowsley, Worsley
Church, J.A. Norwich High S. for Boys
Mills, C.W. s. Cambridge H., Norwich
Stavordale, K. Ion H., East Molesey
Walsh, D.W. d. St. Joseph's S., Highgate Hill, N.
Brown, W.R. e. Margate Gram. S.
Doyle, C.W. Manor H., Clapham
Le Brun, S.C. Oxenford H., St. Lawrence, Jersey
Ling, B. Norwich High S. for Boys
Wentworth, J.A.N. Steyne S., Worthing
Wimble, W.J. Southland's Gram. S., Littlestone-on-Sea
Andrews, W.F. Steyne S., Worthing
Atkinson, A.H. Grosvenor Coll., Carlisle
Bowen, T. Old College S., Carmarthen
Crips, A.W. Highbury Park S., N.
Robinson, H.D. Montgomery Coll., Sharrow, Sheffield
Wood, J.W. Craven Park Coll., Harleiden
Bowell, A. Skelmersgh H., Cliftonville, Margate
Cogswell, J.E. d. The Philological S., Southsea
Draysey, R. The Palace S., Bewdley
Moderate, J. Grosvenor Coll., Carlisle
Osborne, D.L. Norwich High S. for Boys
Pickup, F. The Modern S., Streatham Common
Timberley, C.D. Private tuition
Farish, W.W. St. Aubyn's, Woodford Green
Huggins, G.W. Norwich High S. for Boys
Goosey, T.S. Manor H., Clapham
Sutton, D. Bickerton H., Birkdale
Wood, P.H. The Palace School, Bewdley
Beech, H.G. Dudley H., Lee
Bronley, A.J. Norwich High S. for Boys
Chambers, G.D. Greystones S. for Boys, Scarborough
Morgan, W. d. Old College S., Carmarthen
Neubert, F.R. Bickerton H., Birkdale
Williams, D.R. s. Arlington Boys' Prep. S., Porthcawl
Anderson, C.J. Cambridge H., Norwich
Anderson, R. Norwich High S. for Boys
Cole, J. Grosvenor Coll., Carlisle
Gray, F.A. e. Glenarm Coll., Ilford
Holmes, R.W.N. Grosvenor Coll., Carlisle
Royle, E.A. Manor H., Clapham
Larbalastier, L.A. The Jersey Modern S., St. Helier
Neubert, E.W. Bickerton H., Birkdale
Tazewell, E.R. The School, Wellington Rd., Taunton
Tims, C.F. Manor H., Clapham
Griffiths, J.P. Steyne S., Worthing
Hughes, E.J. St. Mary's Coll., Harlow
James, J. Margate Comm. S.
Tomlinson, H. Southport Modern S.
Turton, R. Scarborough College
Bamford, C.D. Arlington Boys' Prep. S., Porthcawl
Cox, F.L. Newquay Coll., Cornwall
Hare, C.D. The School, Wellington Rd., Taunton
Noble, P.B. Cambridge H., Norwich
Penfold, H.E. Brownlow Coll., New Southgate
Wolstenholme, J. Montgomery Coll., Sharrow, Sheffield
Bourne, J.L. The Palace S., Bewdley
Bourne, W.F. Scarborough College
Smallwood, A.H. The Palace S., Bewdley
Vigot, J.A. Springside H., Gorey
Williams, C.E. Steyne S., Worthing
Cole, W.L.H. The Palace S., Bewdley
Goll, H.C. Southport Modern S.
Harris, L.G. St. Aubyn's, Woodford Green
Young, E.N. Fitzroy S., Crouch End
Lowe, J.R. Ashland High S., Wigan
Parsons, S.H. Manor H., Clapham
Kouyoumdjian, A.H. Gram. S., Chorlton-cum-Harby
Thompson-Kelly, H.E.G. Grosvenor Coll., Carlisle

CLASS LIST—GIRLS.

For list of Abbreviations, see page 84.

SENIOR.

Honours Division.

Briggs, I.L. s.e.a.d.f.d.
Crouch End High S. & Coll., Hornsey

SENIOR.

Pass Division.

Langston, M.R. s.mu.
Rock Hill S., Chulmleigh

Garner, A.A.F. h.mu.
Rock Hill S., Chulmleigh

Fozard, P.
Girls' High S., Rothwell

Clark, A.M. do.
Private tuition

Levy, L. s.h.
Private tuition

Snow, K.A.
Crouch End High S. & Coll., Hornsey

Thomas, M.
The Gram. S., Pencader

Jesson, G.M.
Private tuition

Armstrong, L.G.L. s.
Pewgern Coll., Cheltenham

Evans, N.
The Gram. S., Llanybyther

Crump, H.E. d.
Private tuition

Unwin, K.M.
Elvaston, Tulse Hill

Jones, E. s.
Private tuition

Tiplady, E.A.
Private tuition

Curtis, A.M. High S., Twickenham Green

Davies, J. ch.
Private tuition

Davies, N.M.
Tutorial S., New Quay

Rees, J.
The Gram. S., Llanybyther

Smith, I.G.V. do.
Private tuition

Macleod, E.M.M.
Private tuition

Stephen, B.
Hill Crest High S., Stamford Hill

White, E.M.E.
Private tuition

Bishop, B.M.
Private tuition

Owen, G.
Private tuition

Simmons, A.
Private tuition

Phillips, H.M.
Private tuition

Jones, M.
Private tuition

Thomas, A.
Private tuition

Denty, R.
Private tuition

Powell, S.A.
Private tuition

Williams, E.J.A.
Private tuition

Evans, M.
The County S., Whitland

Nicholls, A.M.
Lewannick, Launceston

Stephens, E.A.
Private tuition

Phillips, E.
Private tuition

Jenkins, A.M.
Private tuition

JUNIOR.

Honours Division.

Henderson, J.T. s.d.
Crouch End High S. & Coll., Hornsey

Reeves, S.I. s.e.
Sunnyland, Henley-on-Thames

Wood, K.E. s.d.
Crouch End High S. & Coll., Hornsey

Letts, N.E. f.
Crouch End High S. & Coll., Hornsey

Cohen, F.L.
The Limes, Buckhurst Hill

Smoldon, N.G. e.mu.
Rock Hill S., Chulmleigh

Heslop, C.M. s.
Private tuition

Mills, C.E.L. f.d.
Pewgern Coll., Cheltenham

JUNIOR.

Pass Division.

Young, E.A. al.f. Finsbury Park High S., N.

Harper, M.A. Convent S., Cannock

Millward, B.A. s.e.h.f. Royal Masonic Inst. for Girls, Clapham Junction

Thirtle, R.A.s. Clark's Prep. S., Ealing, W.

Betteridge, D.W. a.al.bk. Private tuition

*Adams, D.E.M. do. Private tuition

Jay, A.L.L. d. Royal Masonic Inst. for Girls, Clapham Junc.

Lowe, M.W.N. s. Calthorpe High S., Edgbaston

Turver, P. al.f. Private tuition

Kelly, M. mu. Rock Hill S., Chulmleigh

Godfrey, M.E. Private tuition

Horwood, A.M. s. Colne Valley S., Rickmansworth

Tyson, D.R. d. Belle Vue, Herne Bay

*Botting, G.M. Trinity H., Bexhill-on-Sea

King, I. s.e. Dunmore S., St. Leonards-on-Sea

Amos, P.M. Tankerton Coll., Whitstable

Bolsover, I.F. Dual Secondary S., Woodhouse

Bagaley, K.E. s. Girls' Gram. S., Southgate, Sleaford

*Hochberg, E. ge. Private tuition

Jones, G.V. Private tuition

Boston, C.A.N. s. Elvaston, Tulse Hill

Foster, E. al.bk. Ousegate S., Selby

Wilson, D.d. Norma S., Waterloo, Liverpool

*Jackson, W. s. Private tuition

Bryan, K.N. s.h. Beaconsfield, Weston-super-Mare

Moody, C.E.A. Ryde H., Ripley

Carr, E. Lime Tree H., York

Allen, A.S. Pencraig Coll., Newport

Laming, V.M. s. Girls' Gram. S., Southgate, Sleaford

*Edwards, B. Private tuition

Young, D. s.e. Stockwell Orphanage Girls S., Clapham Rd.

Lyons, C. Convent S., Cannock

Pasmore, O.C. Norina S., Waterloo, Liverpool

Smith, P.M. s.f. Private tuition

*Rosser, W.J. Private tuition

Cavey, M.A. Wellington Coll., Hastings

Hackwood, E.M. a. Private tuition

Geiselbrecht, M.C. Wellington Coll., Hastings

*O'Donnell, A.M. Private tuition

Proud, D. Private tuition

Short, W. Private tuition

*Whiting, E.E. Ryde H., Ripley

*Davies, M.E. Private tuition

*Phillips, H. do. Private tuition

Hammond, D.M. Crouch End High S. & Coll., Hornsey

*Phillips, W.F. f. Private tuition

Richardson, E.K. Eastrop H., Chichester

Chandler, L. s. Royal Masonic Inst. for Girls, Clapham Junction

*Jones, M.E. Private tuition

*Thomas, I. Private tuition

Williams, A.E. Private tuition

Worrall, F.M. Linwood S., Altrincham

Brown, M.B. The Limes, Buckhurst Hill

Haggett, S.M. s. Girls' High S., Highbridge

Otley, W.M. Brookville, Filey

Ramsay, L.C. e.al. Private tuition

Adams, M. Private tuition

Jackson, M. e. Clare H., St. Albans

Thomas, T.F. Collingwood Coll., Lee

*Simpson, B.M. Private tuition

*Fletcher, M. d. Private tuition

Morgan, D.M.W. Wellington Coll., Hastings

Hunt, D.C. Private tuition

Rowlands, B. Private tuition

*Webster, R. Private tuition

Clipsham, O. Girls' Gram. S., Southgate, Sleaford

Tarbit, E. Saltburn High S., Saltburn-by-the-Sea

Hind, F. s. High S., Twickenham Green

Lawrie, A. Ousegate S., Selby

Protheroe, O.J. Private tuition

*Kesterton, V.G. Private tuition

*Veables, M.K. Pewgern Coll., Cheltenham

Melnikoff, L.C. Dunmarklyn, Weston-super-Mare

Paine, P.M. Private tuition

*Thomas, E.A. Private tuition

Davies, C.A. Private tuition

Evans, I.E. Glenlea, Herne Bay

*Morgan, G. Private tuition

Pike, E.L. s. Private tuition

Burdett, J. High S., Twickenham Green

Cowell, M.H. Central Girls' S., Weston-s. Mare

Dunn, V.A. s. Newry Lodge S., St. Margaret's-on-Thames

Farrington, B. Hill Croft High S., Stamford Hill

*Humphries, E.M. Private tuition

Entwistle, D.H. Springfield S., Stockport

Granger, D.H. Lime Tree H., York

*McMillan, H.M.L. Private tuition

Rees, M. Mill St. Higher Elem. S., Pontypridd

*Benson, E.A. Private tuition

Spencer, F.M. s. 1 Madeira Villas, Hayling Island

Cattell, G.M. Wintersdorf, Birkdale

*Foot, H.J. Private tuition

Cattell, D.E. Norton Lodge S., Small Heath, B'ham

Cranstone, C.R. Private tuition

*Jones, G. Private tuition

Evans, F.A. Private tuition

Christopherson, E.F. 206 Amhurst Road, Hackney

Seddon, I.M. Penketh School

*Martin, G.E. Lime Tree H., York

Mellor, F. Private tuition

Berry, G.V. Private tuition

Dennis, W.F. Chiswick Girls' S.

*Scourfield, M. The County S., Whitland

*Roberts, L.A. Old College S., Carmarthen

Sellar, E.F. Finnart S., Newquay, Cornwall

*Jones, M. Private tuition

*Roberts, L.G. Private tuition

Scribot, M.G. Scarisbrick Coll., Birkdale

Price, A.M. Pewgern Coll., Cheltenham

Travers, D.C. Convent S., Cannock

*Williams, A.N. Private tuition

*Wood, J.M. Private tuition

Wood, K.M. The Limes, Buckhurst Hill

Howe, W.M. The Limes, Buckhurst Hill

Davies, B. Old College S., Carmarthen

Jefferies, E.L. Higher Grade S., Mountain Ash

PRELIMINARY.

Honours Division.

Hancock, T.J.B. e.a.f.d.mu. Rock Hill S., Chulmleigh

Gieve, O.E. s.e.do. Crouch End High S. & Coll., Hornsey

Hick, B.J. s.e.g.a. Southland's Gram. S., Littlestone-on-Sea

Aufholz, A. f. Arundell H., Highbury New Pk.

Watson, F. s.e.h.a.al. Crouch End High S. & Coll., Hornsey

Anning, N.D. s.e.g.a. Dunraven, Higher Brinley, Teignmouth

Tribble, M.P. s.a.al.bk. Holsworthy Gram. S.

Gray, D. e.g.f.d. Brookville, Filey

Cole, D.M.F.G. al. Holsworthy Gram. S.

McKenna, O.F. s. Penketh School

Gardner, F.K. s.e. Crouch End High S. & Coll., Hornsey

Balchin, G.A.M. Pemberton Coll., Upper Holloway

Gould, L.E. e.mu. Rock Hill S., Chulmleigh

Lean, K.D. s.g.a.al. Penketh School

Horsey, M.K. e.a.al.f. St. Mary's Coll., Harlow

Dunn, J.M. al. Crouch End High S. & Coll., Hornsey

Wernig, M.G. s.e.a. Belle Vue, Herne Bay

Dyer, C.L. d. Mount Pleasant, Plympton

Harrison, F.H. e.mu. Rock Hill S., Chulmleigh

Smyth, M. Rock Hill S., Chulmleigh

Hern, K.M. e.a.al. Crouch End High S. & Coll., Hornsey

Wormald, D. s. Girls' High S., Rothwell

Dunk, M.L. Crouch End High S. & Coll., Hornsey

Grabham, H.M. e. Rock Hill S., Chulmleigh

PRELIMINARY.

Pass Division.

*Buttery, V. Ousegate S., Selby

Robinson, M.E. Crouch End High S. & Coll., Hornsey

*Smith, C.D. Ousegate S., Selby

Blacklock, M.E. g. Fairlie, Grassendale, Liverpool

Maas, M. g. Chester H., South Norwood

Robinson, E. s.a.a. Clark's Prep. S., Ealing, W.

Wright, E. g. Inglewood S., Moberley

Fisher, F.M. al. Pewgern Coll., Cheltenham

Hellwell, E.M. g.a. Penketh School

Andrew, A.M. g. a. Rock Hill S., Chulmleigh

Knucky, G.G.J. e.a. Rock Hill S., Chulmleigh

Griffiths, V.F.M. s.g. Steyne S., Worthing

Walbourn, C.I.V. Ryde H., Ripley

Wills, J.M. e. Crouch End High S. & Coll., Hornsey

Bale, M.E. s. Rock Hill S., Chulmleigh

Barrett, H.K. s. Exmouth Villa, Stoke

Ford, R. Minton H., Padworth

Down, K.A. a. Rock Hill S., Chulmleigh

*Haynes, E.L. Wintersdorf, Birkdale

Kelsall, E.C. Penketh School

Lewis, C.M. a. Collingwood Coll., Lee

Richardson, B. Springfield S., Stockport

Prout, G.E.I.G. s. Exmouth Villa, Stoke

Robbers, E.M.E. s. Alexandra Coll., Shirley, Southampton

Cauldwell, E.M. e. Crouch End High S. & Coll., Hornsey

*Corner, R.M. Clark's High S., Tufnell Park

Gough, D. Fairlie, Grassendale, Liverpool

Huchea, M.J. Wellington Coll., Hastings

Mansell, S. Wellington Coll., Hastings

Ross, A.M. s. St. Helen's Coll., Seven Kings

Stewart, C.M. s. Scarisbrick Coll., Birkdale

GIRLS, PRELIMINARY, PASS—Continued.

Douthwaite, O.A. Alexandra Coll., Shirley, Southampton Griffiths, J. s. Penketh School Kelsall, A.L. s. Penketh School
Christie, J.S. Central Girls' S., Weston-super-Mare
Clark, C.V. Private tuition Farmer, N. Alexandra Coll., Shirley, Southampton Kemp, K.J. d. Crouch End High S. & Coll., Hornsey
Paue, M. Hill Croft High S., Stamford Hill Rowland, D.J. s. Springfield Coll., Whitstable Steele, M.H. s. Belle Vue, Herne Bay
Brown, J.I. Westoe High S., South Shields
Copeland, A.D. Girls' Gram. S., Southgate, Sleaford Garry, M.J. Private tuition Gay, M.B. Priory College, Hornsey Piper, A.L. Sunnyland, Henley-on-Thames
A' Bear, B.M. Sunnyland, Henley-on-Thames Bardo, D.B. Preswylfa High S., Cardiff
Etherington, C.I. Iselden, Bournemouth
Morgan, W.H.C. Wellington Coll., Hastings Ratcliffe, N. g. Highfield Coll., Bispham Salsbury, G.M. f. Mount H., Melbourne, Derby
Steward, H.M. Priory College, Hornsey Willis, A.M. s. Aintree High S., Liverpool
Fairbairns, K.M. St. John's Coll., Brixton
Williams, K.B. Clark's High S., Tufnell Park
Williams, M.H. s. Belle Vue, Herne Bay

Brotherton, G.E. e. Crouch End High S. & Coll., Hornsey Leah, K.M. s. Springfield S., Stockport Martin, G. Norma S., Waterloo, Liverpool Pickford, A.N. s. Steyne S., Worthing Porter, I. s. Clark's Coll., Upper Richmond Rd., S.W. Scovell, M.K. s. Steyne S., Worthing Wilkinson, I.M. e. Aintree High S., Liverpool
Banister, D. Dunmore S., St. Leonards-on-Sea Holmes, E.H. s. Brickwood Lodge S., Tonbridge
Fitchett, W. f. Mount H., Melbourne, Derby Mellor, M. Highfield Coll., Bispham
Brookes, H.M. St. Helen's Coll., Seven Kings Escolme, E.A. s. Penketh School
Archer, N. Mount H., Melbourne, Derby Cavey, G.C.U. Wellington Coll., Hastings Chaplin, F.L.E. Highams Park S., Hale End, Chingford Davidson, S.C. Clark's Coll., Upper Richmond Rd., S.W. Hare, K.M. Iselden, Bournemouth Irving, I. Girls' Modern S., Torquay Montgomery, L.A. s. London Coll., Goodmayes Polden, A.S. Southland's Gram.S., Littlestone-on-Sea
Meredith, C. Crouch End High S. & Coll., Hornsey

Hayes, M.E.T. s. Dunmore S., St. Leonards-on-Sea
Stewart, E.M. Scarisbrick Coll., Birkdale
Lakin, E. Fauntleroy, St. Leonards-on-Sea Owtton, V.I. East Molesey
Dawes, M.M. d. London Coll., Goodmayes Way, F.E. Steyne S., Worthing
Acton, E. Inglewood S., Mobberley Brown, M.I. Alexandra Coll., Shirley, Southampton Dace, A.M. Girls' High S., Highbridge Ross, M.F. s. Aintree High S., Liverpool Watts, D.M. Girls' High S., Highbridge
Robathan, L.S. Pemberton Coll., Upper Holloway
Leigh, M. Scarisbrick Coll., Birkdale Macfarlane, H. Rock Hill S., Chulmleigh Prout, D. High S., Twickenham Green
LeSueur, E.E. Les Marais, Grouville Matthews, R.G. s. Holmea, Ongar
Thomson, E.F.M. s. Iselden, Bournemouth
Goble, R. Exmouth H., Hastings Smith, G.M. Wellington Coll., Hastings
Bailey, I.K. s. Queen's S., Cliftonville, Margate Drury, O. Private tuition Morgan, E. Lulworth House, Caerleon Passmore, P.G. s. Norma S., Waterloo, Liverpool

Crake, A.O. Chiswick Girls' S. Graham, E.M. Evelyn High S., Upper Holloway Hobdell, P. s. St. Helen's Coll., Seven Kings
LeGros, D.J. s. The Crown S., St. Martin's, Jersey Ormiston, M.T. Newry Lodge S., St. Margaret's-on-Thames Sperring, D.M. Central Girls' S., Weston-super-Mare
Hayes, M. Private tuition Poulsen, B.D. d. London Coll., Goodmayes Walters, E.G. St. John's Coll., Brixton
Hodges, G.A. Alexandra Coll., Shirley, Southampton Plumpton, M.s. Scarisbrick Coll., Birkdale
Mellish, E.M. St. Mary's Coll., Barnes Potts, F.W. Royal Schools for the Deaf, Old Trafford Stead, W.C. Pengwern Coll., Cheltenham
LeSueur, E.M. Les Marais, Grouville Prodham, P. St. Peter's S., Blackheath
Moreton, E. Newport H., Edgbaston
Tremlett, E. Hill Croft High S., Stamford Hill Francis, M.G. Brownlow Coll., Bowes Park

LOWER FORMS EXAMINATION.—PASS LIST, CHRISTMAS, 1914.

BOYS.

Abraham, W.H. Penketh School
Albright, W.D. Penketh School
Andrews, R.H.H. Penketh School
Arbery, W.C. The Grammar S., Ongar
Ashcroft, P. Southport Modern S.
Atkinson, R.F.E. Penketh School
Axford, E.C. Manor H., Clapham
Axon, W. Skelmergh H., Cliftonville, Margate
Back, C.O. Shoreham Gram. S.
Bailey, K. Streatham Gram. S.
Bainbridge, A. Oxenford H., St. Lawrence, Jersey
Ball, F.A. Margate Gram. S.
Ball, G.W. Margate Gram. S.
Bangs, T.W.T. St. Aubyn's, Woodford Green
Barber, E.K. The School, Wellington Rd., Taunton
Barnes, C.G. Frome Blue Coat S.
Benest, A.J. West End S., Jersey
Bennett, D.P. Steyne S., Worthing
Berg, E. Argyle H., Sunderland
Berry, G. York Minster Choir S.
Bibb, R.F. The College, Weston-super-Mare
Blake, W.D. Kent Coast Coll., Herne Bay
Bolton, H.L. Godwin Coll., Margate
Booth, O.E. Shoreham Gram. S.
Boulding, G.C. Godwin Coll., Margate
Bragg, H.H.J. Eton H., Southend-on-Sea
Brain, A.E. Shoreham Gram. S.
Braine, L.S. St. Helen's Coll., Seven Kings
Brice, N.S. Kelvin Coll., Penarth
Brown, E.W. West End S., Jersey
Brown, J. Argyle H., Sunderland
Brown, J.S. Shoreham Gram. S.
Buonaparte, F.B. The Modern S., Streatham Common
Burke, R.H. West End S., Jersey
Burrows, J.A. Elmhurst, Kingston-on-Thames
Caffyn, F. Elmhurst, Kingston-on-Thames Shoreham Gram. S.

Calver, J.W.A. St. Aubyn's, Woodford Green
Cannell, J. Streatham Gram. S.
Cannon, W.D. St. Thomas' High S., Woodford Green
Carr-Hill, R.W. Shoreham Gram. S.
Carruthers, J.H. Argyle H., Sunderland
Carter, O. The Jersey Modern S., St. Helier
Carter, P.C. Clark's Modern S., Forest Gate
Casserley, H.F. Godwin Coll., Margate
Cawley, R.F. The Jersey Modern S., St. Helier
Chaffer, R. Steyne S., Worthing
Chambers, A.H. Shoreham Gram. S.
Chandler, C.G. Elmhurst, Kingston-on-Thames
Chapman, A.G. Norwich High S. for Boys
Chapman, W.T.R. Fauntleroy, St. Leonards-on-Sea
Chase, S.W. Steyne S., Worthing
Chetwood, D.S. St. Aubyn's, Woodford Green
Chown, C.P. London Coll. for Choristers, Paddington
Cobb, R.H. Clark's Modern S., Forest Gate
Coleman, C.L. Norwich High S. for Boys
Colyer, T. Norwich High S. for Boys
Cookson, J.F.T. Ion H., East Molesey
Coombs, E.W.A. Frome Blue Coat S.
Cottee, H.G. The College, Weston-super-Mare
Coutanche, H.E. Oxenford H., St. Lawrence, Jersey
Cranwell, G.P. St. Thomas' High S., Woodford Green
Curry, W.J. The Jersey Modern S., St. Helier
Curthoys, J.E.G. Streatham Gram. S.
Curwen, L. Southport Modern S.
Cuthbert, B. Highbury Park S., N.
Dale, A. The Jersey Modern S., St. Helier
Dallain, J.A. Oxenford H., St. Lawrence, Jersey
David, H.W. St. John's Coll., Brixton
Day, B.H. Cliftonville Coll., Margate
Dean, R.A.W. Heathfield H., Crouch Hill

deRusset, D.E. Manor H., Clapham
Devereux, M.E. Shoreham Gram. S.
Dick, N.H. Fitzroy S., Crouch End
Dorey, F.R. Oxenford H., St. Lawrence, Jersey
Ducat, D. Highbury Park S., N.
Dunford, K.E. Richmond Lodge, Torquay
Dunston, K. New Coll., Harrogate
Dupré, M.L. St. Thomas' High S., Woodford Green
DuPuis, J.C. Private tuition
Dyson, H.F. Herne Bay College
Edwards, B.S.D. Eton H., Southend-on-Sea
Edwards, G.W. Norwich High S. for Boys
Ekman, O. Shoreham Gram. S.
Elkin, W.J. Shoreham Gram. S.
Emptage, F.E. St. Dunstan's Coll., Margate
Evans, A. Hove College
Falkus, A.W. Eton H., Southend-on-Sea
Falle, P. The Jersey Modern S., St. Helier
Farley, J.H. West End S., Jersey
Farley, J.H. York Minster Choir S.
Farrar, A.J. Ferbrache, R. Oxenford H., St. Lawrence, Jersey
Fiddes, A.C. Kelvin Coll., Penarth
Filley, E.W. St. Dunstan's Coll., Margate
Fisher, J. Norwich High S. for Boys
Fletcher, N.G. Ecclebourne S., Wimbledon
Folks, W.R.A. Eton H., Southend-on-Sea
Follett, H.H. Ecclebourne S., Wimbledon
Forde, T.V. Godwin Coll., Margate
Forge, C.C. The Grammar S., Ongar
Forsyth, R.H. St. John's Coll., Brixton
Galpin, D.H. Herne Bay College
Galpin, R.W. Herne Bay College
Gammage, F.E.D. Worcester Coll., Westcliff-on-Sea
Gates, J.F. The High S., Brentwood
Gibbs, A.G. Godwin Coll., Margate
Gieve, H.F. Heathfield H., Crouch Hill
Glasspool, D.R. Shoreham Gram. S.

Glashyer, R.H. St. Catherine's Coll., Richmond
Glazebrook, J.H. Shoreham Gram. S.
Gossling, U.J. New Coll., Harrogate
Graham, E. Shoreham Gram. S.
Graham, T.F. Argyle H., Sunderland
Greenaway, A.H. St. Thomas' High S., Woodford Green
Griffin, H.W. West End S., Jersey
Griffiths, R.D. Godwin Coll., Margate
Gubbin, J.H. Manor H., Clapham
Hall, J.G. St. Aubyn's, Woodford Green
Halliwell, N.S. Eccles Prep. S., Rowsley, Worsley
Hamilton, C.W. York Minster Choir S.
Hamilton, N.McK. Elmhurst, Kingston-on-Thames
Hammerton, H.M. Herne Bay College
Hammonds, B.S. Shoreham Gram. S.
Handfield, B.S.L. Worcester Coll., Westcliff-on-Sea
Harding, L. Southampton Boys' Coll. and High S.
Hargreaves, E.S. Southport Modern S.
Hargreaves, J. Southport Modern S.
Harper, G.M. Worcester Coll., Westcliff-on-Sea
Harper, R.W. The College, Weston-super-Mare
Harrison, T.H. Wallingbrook S., Chulmleigh
Hartley, E.H. Penketh School
Haskell, N.F. New Coll., Harrogate
Hellyer, A.G.L. Manor H., Clapham
Henman, F.E. Shoreham Gram. S.
Hicks, A. Margate Gram. S.
Hiller, H.J. Streatham Gram. S.
Hogbin, R.A. Kent Coast Coll., Herne Bay
Hollis, S.L. Steyne S., Worthing
Holloway, C.A.H. Shoreham Gram. S.
Holloway, R.J.L. Southampton Boys' Coll. and High S.

BOYS, LOWER FORMS—Continued.
 Holt, B.O.D. St. Aubyn's, Woodford Green
 Holz, J. St. John's Coll., Brixton
 Horswell, P.A. The Grammar S., Ongar
 Horton, G.D. 111 Holly Lane, Erdington
 Huchet, J.
 Oxenford H., St. Lawrence, Jersey
 Inns, L.C. Cliftonville Coll., Margate
 Jackson, A.H. St. Aubyn's, Woodford Green
 Jackson, E. Hyde Gram. S.
 James, H.T. Shoreham Gram. S.
 Jenks, F.C. Penketh School
 Jessop, A. Penketh School
 Johnston, R.C. Shoreham Gram. S.
 Johnston, R.L. St. Placid's, Ramsgate
 Jones, A.M.
 The Modern S., Streatham Common
 Joscelyne, A.W.A.
 Richmond Hill S., Richmond
 Jupe, C.R. Shoreham Gram. S.
 Kerr, W.H. The College, Weston-super-Mare
 Kilburn, J.
 Kingsholme S., Weston-super-Mare
 Kimber, B.M. Godwin Coll., Margate
 King, E. Plympton Higher Prep. S.
 Kivell, E. Holsworthy Gram. S.
 Knapton, W.J. Frome Blue Coat S.
 Lamy, J. Oxenford H., St. Lawrence, Jersey
 Lang, R.M. Worcester Coll., Westcliff-on-Sea
 Lanning, F.E.W. Scarboro' Gram. S.
 Lawn, S.L. Shoreham Gram. S.
 Lawrence, S.
 Southampton Boys Coll. and High S.
 Learned, R.W. Richmond Hill S., Richmond
 Leitkrow, F.W.R.
 St. Aubyn's, Woodford Green
 Le Marquand, C. West End S., Jersey
 Le Miere, M.C.
 The Jersey Modern S., St. Helier
 Le Sueur, A.H. West End S., Jersey
 Le Sueur, C.R.
 Harleston H., St. Lawrence, Jersey
 La Touzè, C.R. West End S., Jersey
 Lincoln, J. New Coll., Harrogate
 Livingstone, H. Southport Modern S.
 Lucas, E.R. Elmhurst, Kingston-on-Thames
 Lush, G.R. Shoreham Gram. S.
 Lysal, J.S. Worcester Coll., Westcliff-on-Sea
 Macfarlan, R.S. Cliftonville Coll., Margate
 MacGregor, J.A.
 The Western Coll., Harrogate
 Manning, H.
 Harleston H., St. Lawrence, Jersey

Mansfield, C. Shoreham Gram. S.
 Marshall, F.M. New Coll., Harrogate
 Mathias, B.P. Highbury Park S., N.
 Mathieson, D.D. St. John's Coll., Brixton
 Matthew, A.G.
 Kingsholme S., Weston-super-Mare
 May, S.P.C.I. Streatham Gram. S.
 Mayze, N.L. Cliftonville Coll., Margate
 McClure, J. Eton H., Southend-on-Sea
 McKinley-Hay, E. Shoreham Gram. S.
 Millard, B.J. Frome Blue Coat S.
 Mitchell, E.W. St. Dunstan's Coll., Margate
 Moat, S. Shoreham Gram. S.
 Morgan, H.S. New Coll., Harrogate
 Mount, D. Godwin Coll., Margate
 Mugford, L.R. Tottill S., Plymouth
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MARCH 1, 1915

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The Educational Times.

SCHOOL EXAMINATIONS AND THE COLLEGE OF PRECEPTORS.

SOME twelve to fifteen years ago the work in secondary schools was seriously disorganized by the large number of external examinations for which pupils needed to be prepared. Multiplicity of examinations became the catch phrase of the moment—an evil for which reform was insistently demanded. After some years the Consultative Committee was asked by the Board of Education to consider how the various examinations could be co-ordinated and controlled. In July of last year the Board issued a series of proposals based upon the report of the Consultative Committee. These proposals are still under discussion. Briefly they are these:—(1) That pupils under sixteen years of age should not be entered for external examinations; (2) that two, and two only, external examinations should be open to pupils in secondary schools, one for pupils of about the age of sixteen, the other to be taken one or two years later; (3) that these examinations should be conducted entirely by University authorities; (4) and that uniformity of standard should be maintained by a Central Body under the control of the Board of Education.

There is much to be said, in an ideal system of organization, for the first proposal that no pupil under sixteen years of age should be subjected to an external examination. But, in laying down the outlines of an ideal organization, we must not neglect to take note of things as they are. It will probably not be denied that the greater number of pupils in schools of the secondary grade leave before the age of sixteen. If examinations are helpful in stimulating work, and useful in giving an indication of knowledge gained, it would be hard to refuse to the majority of the pupils an opportunity of gaining a certificate from an outside examining body. Perhaps it is not necessary to say more on this point: it is quite certain that for

many years to come secondary schools will insist upon examinations of pupils of the age of fifteen, at what is generally known as the Junior Stage in public examinations. If sixteen should become the minimum age at which pupils leave secondary schools, the proposal of the Board might be possible; though there would still be many reasons in favour of the Junior Stage examination.

The system of annual examinations is established in secondary schools. The Board's proposal that the standard of the higher school examination should be such as to necessitate for most pupils two years' work after passing the lower examination, brings difficulties. To a pupil of sixteen, an examination two years away is so distant as to be ineffective as an incentive to immediate study. Time would inevitably be wasted. It would also be more difficult to induce parents to let the pupil remain at school for an examination two years ahead. For one year the parent may be persuaded. Here, as elsewhere in Circular 849, the Board seem to have in view a limited number of secondary schools only.

Throughout the Circular the Board insist that school examinations shall be conducted by Universities. The schools know quite well that resident University professors, tutors, and lecturers are, speaking generally, entirely without the knowledge of secondary schools that would make them good examiners. They can examine for scholarships because there they are testing knowledge and power at a standard to which they are accustomed. They are entirely unsuited by training and experience to test the work of the pupils at the lower stages of the secondary-school course, especially of those pupils, the majority, who are not preparing for a University career. The comparative success of the University Locals is due to two important factors. In the first place, the Delegates, the Syndicate, or Council have been willing to listen to representations from secondary schools; and, in the second place, a larger number of teachers or ex-teachers in secondary schools has been added to the roll of examiners and has been able to guide the more purely academic section. The resident members of a University are, as a rule, unfamiliar with the process of education in a secondary

school and unsuitable as examiners. Yet the Board seriously propose that to the Universities alone should be entrusted the work of testing and assaying and thereby controlling the studies in secondary schools. The Board ignore all examining bodies except the Universities. The Circular makes no mention of the many examining bodies outside the Universities that are now in existence.

No reference is made by the Board to the College of Preceptors. The College examinations were first held in 1853; at the moment when the need for school examinations was felt, the College organized them and held its first examination before the Universities of Oxford and Cambridge established the "Locals." For more than sixty years the College examinations have been regularly held, examining each year hundreds of schools and thousands of pupils. The examinations are organized by a body of teachers familiar with the work of secondary schools; the examiners are, or have been, teachers in secondary schools. The examinations of the College of Preceptors afford a proof that teachers can organize successfully for their own needs. The value of the work that has been done in raising the standard of secondary-school studies and in enabling the schools to maintain the higher standard is attested by many witnesses. Of this the Board appear to have no "official knowledge." The College examinations have done, and will continue to do, their valuable work. The Board of Education are powerless to interfere so long as the large number of secondary schools in the country persist, as they are doing, in remaining loyal to the College. The Board's proposals are weakened by the omission to consider the one well-established examination for secondary schools generally which has been organized by teachers themselves in the interests of education. The College is bound to make a protest and a public statement of its claims, which no action of the Board can seriously damage.

Since the revolt against the multiplicity of examinations some fifteen years ago, many changes have taken place and the evil has been greatly lessened. But there still is a need for a co-ordinating body which shall control and unify the standard of examinations in secondary schools: the Board suggest a composite committee, ruled over by themselves. We have previously shown that such work is outside the province of an administrative body like the Board. A committee formed from the secondary section of the Registration Council is the right authority for this purpose. We need not here repeat the arguments we have already given, beyond insisting that courses of study and the examination of them are matters for the teaching profession to control. The Board have not yet got rid of the academic traditions of the Universities, which are as fetters to the expansion of secondary education.

There are several other points that need discussion which cannot all be dealt with in the limits of a leading article: some we shall discuss later. The need for examinations has been questioned: the value of competition has been denied. We have assumed above that school examinations effect a useful purpose, and that the spirit

of competition when properly guided and not allowed to dominate the work has a definite value. We have assumed equally that the Board intend us to take their proposals seriously: they were issued before the War; and they are largely based on the system in the secondary schools of Prussia. After six months of war English thinkers are able to see clearly the dangers, previously suspected, that are inherent in an organized State system of education. The proposals in Circular 849 will be greatly modified before they come within the region of practical politics. In no case can they injure the important work that the College of Preceptors is doing for secondary education: but the College has been ignored and must assert its legitimate claim to the position and responsibilities that devolve upon its Council.

NOTES.

THE lecture to members of the College of Preceptors recently given by Prof. A. F. Pollard was so thoroughly enjoyed that we are glad to be able to announce that another lecture has been arranged for Wednesday, March 17, at 5.15 p.m., when Prof. Pollard will deal with "The War and its Prospects." There is still great need for sound knowledge and clear thinking on the subject of the War. The many pamphlets that have been issued help us greatly, but often the spoken word has more weight than the printed page. It will be remembered that the series of social meetings organized for this winter was cancelled on the outbreak of the War. Members will be grateful to the Council for the excellent series that has been arranged in its place. The lecture by Mr. Hilaire Belloc which was given last month was fully appreciated. There is no one who has applied a knowledge of topography more successfully to the elucidation of the campaigns. The audience greatly enjoyed the clear exposition of the strategy on the Eastern and Western fronts.

A CORRESPONDENT asks us to act as umpire in a dispute between himself and another student of English. He quotes the following:--
A Question of Grammar. "The Old Curiosity Shop," with its well known story of Little Nell and her grandfather, is one of the most touching and pathetic tales that *has* ever been written, and certainly ranks among the finest and best known of Charles Dickens's works," and asks whether the word "has," which we have italicized, should not be "have." He wants to know further if the use of the singular is an indefensible error, or whether the matter is arguable. As our correspondent laid stress on our opinion as authoritative, we wrote at once to relieve him from his anxiety; but it would be interesting to note if there is any difference of opinion among our readers. We may propound two similar queries: Must the phrase, "a series of lectures," always have a singular verb? and what form

of the verb should be used with such words as "Board," "Council," "Committee," and "Body." We may admit that our printers charge us with lack of uniformity on this point.

As we anticipated last month, the reassembling of Parliament has given opportunity for the discussion of boy labour on farms.

Boy Labour.

It appears that the Board of Education have no precise knowledge of the number of children of school age who have been employed on the land on account of the alleged shortage of labour arising from the War. In August of last year, when harvesting was beginning, both Mr. Asquith and Mr. Pease used words in Parliament that were taken by many Education Committees as an unofficial permission to relax the attendance laws. Mr. Pease now explains that these words were meant only to apply to short-time emergencies; that children might be released during the harvest, and should then go back to school again. To a deputation on this subject, Mr. Pease spoke strongly of the inadequate wages offered by farmers to men, women, and children. He characterized the wages of women as pocket money only. The Board, he said, held that shortage of labour should be met by higher wages and better conditions; that employment given to children should be light; and that children temporarily withdrawn for the special purpose of harvesting should be required afterwards to return to school.

It would be pedantic, even if it were possible, to insist upon the letter of the law in a period of emergency like the present. Our existence as a nation has been, and still is, at stake. The individual liberty of thought and action that makes up our national feeling might have been crushed by an onslaught of war organized with the highest efforts of science. The nation at heart never believed this possible: it was unthinkable because we could not, and would not, think of it as a possibility; yet it might have happened. Under such circumstances, the schooling of the children becomes of minor importance in comparison with the provision of fighting men and the growing of corn. But our food supply has not been seriously threatened, and there is a strong suspicion that the employment of child labour is merely the result of selfishness and greed. So long as possible the education of the children should continue. Where other buildings are available, schools should not be requisitioned by the War Office. Mr. Pease is in a difficult position, but he will have the support of thinking people in trying to avoid the closing of schools.

The resolution passed by the Incorporated Association of Head Masters, to the effect that instruction in military drill and in the use of the rifle should form part of the secondary school course, was brought to the notice of Mr. Pease in the House of Commons. The Minister of Education was not to be drawn into any expression of opinion upon what he evidently thinks is a thorny problem. He looked to the War Office, and had no desire to interfere with another department. But the feeling in the schools, which reflects the feeling in the country, cannot be brushed aside so lightly. Cadet corps are becoming more numerous. The principal difficulty is the matter of funds. The L.C.C. has approved of the formation of cadet corps in the secondary schools of London, with the proviso that they shall not be called upon to pay, beyond the subscriptions of their scholars. This is the preliminary stage of to-day. To-morrow it will be recognized that the charges for physical training fall upon the Governors just as reasonably as the charges for intellectual education.

Cadet Corps.

LORD LONDONDERRY was only sixty-three at the time of his death, but his life had been full of strenuous work. He gained important educational experience as Chairman of the London School Board, an office he held from 1895 to 1898. In 1902 he became the first Minister of Education under the Board of Education Act (1901). Before that time the Education Department was nominally a branch of the Privy Council and was governed by the Lord President of the Council. Great things were expected from the establishment of the Board. Lord Londonderry's first work was to carry out Mr. Balfour's Act of 1902. He made no great impression as a Minister of Education, and it is probable that he viewed his office as one of administration only, but he was an earnest and conscientious worker, and he certainly managed to ensure that the enormous changes in education brought about by Mr. Balfour's Act should be carried out with the minimum of friction.

THE University of London has recently issued a useful pamphlet of information in regard to the work of the Appointments Board. The aim of the Board is to bring vacant posts to the notice of men and women who have had a University training, and to give to employers wider opportunities than they have previously possessed of selecting suitable persons for the higher classes of appointments. The register is open to graduates of the University of London, to graduates of other Universities who have matriculated at London, and to undergraduates of London in the term preceding their degree examinations. The fee is 5s., paid annually so long as the name is kept on the register, and no further fee is charged to either side. The Board know no limits to the scope of their work. Employers of all kinds desiring to get into touch with well educated young men and women are invited to make use of the register. Applications should be addressed to the Secretary of the Appointments Board at the University of London.

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THE Board of Education has issued to Local Authorities a circular on the subject of the Elementary Education (Defective and Epileptic Children) Act of 1914. The new Act came into operation on January 1 of this year, and Local Authorities are now reminded of their responsibilities and duties. Like many other Acts of Parliament, this Act places on the Statute Book the present practice of the richer and more enlightened authorities. Already in some areas the epileptic and the mentally defective are cared for in special institutions. The same must now be done in all areas. In densely populated districts a day school will be possible for most children, though in some cases the home circumstances will make a boarding school preferable. In villages the occasional child must be sent to a boarding school. Either the Authority must provide the boarding school, or may make use of an institution under a voluntary body. The Board propose to pay a grant for each child equal to half the cost of maintenance.

"I COULD shout with the sheer joy of it all. This is the real thing." This extract from the letter of a young University man, writing from a training camp, was quoted the other day by Dr. R. Murray Leslie in the course of a lecture delivered at the Institute of Hygiene. This is a side of recruiting that has not been put forward on the posters; but it is very real. A man enlists from a sense of duty; after a few months' training he begins to experience a joy in being physically strong that was previously quite unknown to him. This accounts for the high spirits of the men in the trenches. If the war shatters the nerves of some who are constitutionally unable to stand the strain, it will probably improve the physique of a very large number. Dr. Leslie noted the extraordinary development that had taken place in flat-chested, weedy-looking young men after a short period of training. He instanced a case where the commanding officer had ordered uniforms on measurements taken at the beginning of the training; they had all to be sent back for alteration, so greatly had the men developed.

A CASE of interest to teachers was brought a short time ago at the Derby Assizes. A parent sued the schoolmaster for assault on his son. The circumstances were these. The plaintiff's son was a day boy, and had been dismissed for the holidays. On the following day he came back to school to fetch some books. He was met and questioned by the head master. He admitted that he had been guilty of some school misdemeanour, and was thereupon caned. At that time the boarders were still in the school, the day boys having been dismissed one day earlier. The ground of the action was that, as the holidays had begun, the schoolmaster was no longer *in loco parentis*, and that the punishment was therefore illegal. Counsel for the defence argued that as the boarders were still on the premises the term was not technically over, and that the

schoolmaster had power to inflict punishment. The jury found for the defendant. So far as can be judged from the newspaper account of the case, the verdict of the jury was the result of the evidence that term had not ended at the time when the punishment was given.

LECTURING before the League of Honour on openings for educated women, Miss Craig said the higher professions, such as medicine, surgery, and architecture, were open to women of exceptional powers. She went on to say that in gardening and horticulture the chief demand was for girls with capital enough to start on their own account after training. Jobbing gardening and town gardening were branches of the work in which there was still plenty of room for girls with some power of organization and initiative. Forestry, too, seemed in many ways to be suitable for women. Cookery offered an immense opening to educated girls, though, curiously enough, at present, men were the greatest experts in cookery. Tea-rooms, dressmaking, hospital nursing, nursery-nursing, and laundry-work had each their own opportunities, while in artistic work the most recent successes were the lady house-decorators. There were also at present successful women book-binders, metal workers, jewellers, chemists, florists, and photographers.

SUMMARY OF THE MONTH.

MILITARY OCCUPATION OF SCHOOLS.

Mr. Pease, in reply to a question in the House of Commons, said: "From returns received by the Board of Education, the number of public elementary schools (excluding special subjects centres and special schools) which had been occupied wholly or in part by the military authorities up to November 1, 1914, was 738 in England and 12 in Wales. Since that date the Board's records show 221 cases of occupation; some of these, no doubt, are cases of reoccupation of premises already counted in the Authorities' returns. It is not practicable to say how many scholars have at one time or another been temporarily out of school. In the majority of cases, either the occupation was for only a short period, or temporary accommodation has been found for the scholars displaced. The number for whom at the present moment no provision exists is, approximately, thirteen thousand, all in England. Of these, the great majority belong to infants' or junior departments or classes. The number of schools still in whole or in part converted to the use of the military is 228 in England and five in Wales.

INTERNATIONAL CONGRESS ON SOCIAL WORK AND SERVICE.

The Executive Committee has issued the following resolution: "That in view of the situation arising out of the European War, the British Committee of the sixth International Congress on Social Work and Service, recognizing the impossibility of holding the Congress on the dates fixed by the International Committee for the Promotion of Congresses of Assistance, resolves that an announcement be made forthwith to this effect; with an intimation that due notice will be given by the competent authority of the resumption of the series of International Congresses and of the date and place of the next meeting."

THE JOINT SCHOLASTIC AGENCY.

The following report has been issued: "During the past eight years this Agency has been the means of successfully introducing 1,675 masters to various scholastic appointments, and the commission paid by these masters is less by £3,688

than it would have been had the same posts been obtained through the usual profit-seeking agencies. The total number of posts notified to the Joint Scholastic Agency during the year 1913-14 was 677. On an average a notice of each of these vacancies was sent to twenty suitable men, with the result that 272 out of the 677 posts were secured by candidates introduced by this Agency. The number of vacancies notified to the Agency during the last term of the year was 385, and, despite the large number of existing agencies and Appointments Boards, this Agency was successful in filling 147 of these. The number of men on the books at the present time, when there is an exceptional shortage of masters, is 669, the classification being as follows: graduates of Oxford and Cambridge, 181; of London, 157; of Dublin, 9; of other Universities, 210; of non-graduates, 60; of specialists for art, woodwork, or music, 52."

ATHLETIC MEMBERS OF PARLIAMENT.

The House of Commons, says the *Times*, took unusual interest in the swearing-in of Mr. F. S. Jackson, the former English Cricket captain. The House is very fond of its athletic members, three of whom—Sir Edward Grey, Mr. McKenna, and Mr. Pease—are in the Cabinet. The Foreign Secretary won the M.C.C. tennis prize, the Home Secretary rowed bow in the Cambridge boat, and the Education Minister played football and polo for Cambridge. Mr. Pease, too, is one of the Commons band of cricketers, as he captained Durham County for six years. Others of Mr. Jackson's fellow-cricketers are Mr. H. W. Forster, who played for Oxford, and Mr. S. Hill-Wood, who was in the Derbyshire eleven. Then Mr. W. Dudley Ward rowed for three years in the Cambridge eight, and Mr. Hemmerde has won the Diamond Sculls. Mr. Gaunoni is a member of the Sussex County lawn tennis team, and so far back as 1868 Mr. Eugene Wason won the Oxford University foils.

JUVENILE EMPLOYMENT.

Mr. Pease (answering questions by Mr. Whitehouse) said that since the outbreak of war the Board of Education had been in correspondence with a number of Local Education Authorities on the subject of the employment of children who would not, in normal circumstances, be exempt from school attendance. He had no power to suspend or to authorize Local Education Authorities to suspend the operation of their by-laws, and consequently an Authority, when considering the question of enforcing its by-laws, had no occasion to apply to him for sanction, though in some cases they might have done so under a mistaken impression. The industry in which the employment of children was contemplated was, in most cases agriculture, in one case the metal industry, and in some cases it was not specified. He would be prepared to lay on the table the chief correspondence which he had had on the subject with Local Education Authorities.

APPOINTMENTS.

Miss Ethel Steuart has been appointed Assistant to the Professor of Latin in University College, Cardiff. The post was vacant owing to the enlistment of the previous holder.

The Council of St. Hugh's College, Oxford, have appointed Miss Eleanor F. Jourdain to be Principal of the College in the place of Miss Moberly, who has resigned.

Miss Clara Lomas has been elected to the Leech Fellowship at the Victoria University of Manchester.

Prof. Foster Watson, of the University College of Wales, Aberystwyth, has been appointed Gresham Professor of Rhetoric in succession to Mr. J. E. Nixon, who has resigned after a tenure of the professorship of thirty-three years.

Dr. R. A. Williams, Professor of German in Dublin University, has been appointed Professor of German and Teutonic Philology in Queen's University, Belfast.

MORAL TEACHING AS LIFE-REVELATION.

By FREDERICK J. GOULD.

I.

THE cause of moral instruction, with which I have been associated for more than twenty years, has made progress in this country and elsewhere. I cannot, therefore, affirm that the reproach of "moralizing," so often levelled at it by ignorant critics, has hindered its spread. But perhaps the attempt to meet the ignorant criticism may assist a more liberal expansion of the work, and it may also correct misconceptions in the minds of some cordial supporters. Since, as just intimated, I offer my plea in the presence of both friends and opponents, it will be understood that I occupy the detached position expressed in the unambiguous phrase, "I speak only for myself."

What is meant by moral instruction? The aim of moral instruction is to develop good feeling, excite the imagination and train the reason on the subject of conduct, and to stimulate the will, so far as these purposes can be accomplished by teaching pure and simple. In order to clear the ground still further, I may also premise that, while I do not ignore the Kindergarten stage and the adolescent stage, the scope of my study is mainly confined to the period of seven to fourteen years of age, and it always includes both sexes. Yet another preliminary observation may be ventured, although I do not establish it as the pivot of the discussion, and it is this: that, after dealing with ethical topics in children's classes on many hundreds of occasions, I have come to recognize the age of eleven to about thirteen and a half as characterized by a certain quality of moral judgment, crude and juvenile, of course, but relatively clear and impartial. For the public demonstrations, to which I have devoted much effort for a long time past, I make it a rule to secure boys and girls of this age so far as possible, and at this level of mental development one can best illustrate methods of moral teaching. This statement must be taken with common-sense qualifications, for no habit can be worse in educational work than that of pouncing upon special stages—Kindergarten, sub-adolescent, adolescent, early prime—as the decisive crisis of character. As a citizen and a teacher, I attach no unique social value to any one of these phases, and I refuse to be bluffed even by that idol of the modern psychologists, the adolescent. So far as I am concerned, that precious youth is not going to be served at a separate spiritual table from the rest of us. In education we should all form a family, though our sizes may differ and our capacities vary.

Moralizing instruction is a truly odious compound of boredom and intellectual poverty, against which I have warned audiences in innumerable cities. The Nineteenth Century felt a sort of cunning joy in telling a more or less attractive anecdote to the young assembly, and then concentrating its ardour in the summons: "And now, children, what may we learn from this example?" The children's hearts sank in proportion as the didactic passion rose, and their leaden-eyed resignation touchingly indexed the teacher's stupidity. Of course, we want them to learn from examples. Life itself is one long example. But moralizing is a noisy, grinding process of digging and raking out a truth which ought to emerge, with the aid of a few skilful words, naturally and spontaneously.

One attribute of the moralizer is his mania for the everlasting No, and his path is marked by a melancholy trail of Don'ts. Broadly speaking, and without pedantry, it may be said that the ethical No belongs to antiquity, and the ethical Yes to the living present. Since antiquity was a necessary order from which to develop the modern spirit, it ill becomes us to scorn the negativism of the ancient codes and Torahs. For Sinai, or Thebes, or Babylon, or the Ganges Valley, or Peking, the *Thou shalt not* was a divine lightning and a veto that illumined the way of experience. For the modern day, however, the inspiration is breathed more by the positive call than the negative warning. The teacher whose moral instruction largely consists of prohibitions is, in a significant evolutionary sense, behind the times, and is treating his pupils as Assyrians. This is not to assert that one should never reproach, never forbid, and never allude to folly, vice, or crime. But folly, vice, and crime are never repulsive except by con-

trast with wisdom, virtue, and integrity. You may scold a child a thousand times for uncleanness, and he apprehends nothing of your objective, though he apprehends your displeasure, until you reveal to him the beauty and sanity of clean habits. Forced cleanliness may conceal a dirty soul. Dante, who was an excellent psychologist as well as poet, does not portray his repentance in the Inferno, where every circle preaches negations; but in the topmost region of Purgatory, where he sees descending Beatrice,

In a cloud
Of flowers that from these hands angelic rose,
And down, within and outside of the ear,
Fell showering, in white veil with olive wreathed,
A virgin in my view appeared, beneath
Green mantle, robed in hue of living flame.

It was then that Shame depressed his forehead. In the presence of purity he understood impurity. The teacher, therefore, who desires to arouse admiration for temperance must picture the temperate man as having in him something of the valiant and masterful. The ethical end will not be gained by dismal descriptions of alcoholic madness or foolishness. This positive method is difficult, but it is not surprising that good teaching should be difficult. One characteristic of the hortatory and negativist mode of instruction is its wonderful easiness. You can rattle off a list of "don'ts" without sitting up late to prepare the notes of the lesson. A moralizing negativism is popular with incompetent parents and teachers, and some lazy theorists love it, as you will see if you scan their essays on moral education.

Another attribute of the moralizer is his excessive fondness for the "ought." Probably some people would define moral instruction as telling children what they ought to do or ought not to do, or what ought or ought not to be done in general. Undoubtedly, for the purpose of textbook analysis, that is really what the instruction intends. But the "ought" need not announce itself in the fire, wind, or earthquake of solemn maxims; it may come in a still, small voice uttered through the admiration, hope, and love excited by a noble story. Perchance the loudest "oughts" (if one may speak in paradox) are never heard. I confess to feeling the greatest reluctance to imposing the strident "ought" upon children's delicate souls when addressing the ethical class. One winter I taught American children more than two hundred and fifty times on conduct subjects, and, as I was about to leave the scene of my last talk (in Washington, D.C.), I was able to say that I had given no good advice to my young American friends. I quite freely allow that my practice was needlessly tender, and that the explosion of a maxim now and then would not have hurt their feelings. Nobody complained, though I venture to suspect that, in many cases, this was because nobody noticed, and the recitals of stories of true hearts, beautiful lives, and good deeds were unconsciously accepted as admonitions to the true, the beautiful, and the good. I will, at least, hope so. And it may be advisable to say again that I have in mind, as a rule, the period seven to fourteen years of age. The "ought" has a very insistent and powerful part to play in the conscience of the adolescent. At that stage the Socratic method, in the strict sense of the term, may be employed to display, in letters of fire, the message and meaning of the moral imperative. I do not wish to enter on controversial fields with respect to what debating enthusiasts call "sanctions," but I humbly suggest that teachers and parents often lay a quite unnatural stress upon the explanation of why we should do right. Children may often ask: "Why should I do that particular thing?" But they usually mean no more than if they should ask why lunch is fixed for one o'clock: that is to say, they are merely inquiring for some casual or personal antecedent—a very different thing from propounding the question in the abstract: "Why should I, at any time, act rightly?" I have never met a child under the age of fourteen who wittingly framed that inquiry, though I have often encountered his ghost in the controversial circle.

As a matter of fact, the vast majority of human actions are not done because the doers deliberately decide that, on ethical grounds, they "ought" to be done. They are done from instinct, from habit, from training, from imitation, from obedience to custom and fashion, and the results are, on the

whole, excellent. Fussy moralizers quite overlook this elementary fact of daily experience when, for, instance, they tell children they ought to love their parents. The average child does actually love his parents, without any sage counsel and without the stimulus of maxims. Indeed, it is an insult to the average child to tender this silly advice, though it remains true that the natural instinct needs enlightenment and rationalizing. It is also true that, beginning at varying moments in the child's moral experience, the "ought" comes into consciousness as a magistral, and sometimes terrible, motive of action; and in the heroic crises of life the "ought" displaces habit, training, custom, fashion, and even instinct, and dominates the soul in supreme light and energy. In such crises the highest powers of character are realized, but these crises are not for childhood.

If we examine the history of the human soul—that is, the history of religion, art, manners, politics, industry—and seek to trace the process by which ordinary right willing and right doing are accomplished, and the supremacy of the "ought" established, we shall, of course, discover that at critical stages the moral law has been definitively proclaimed by great teachers in precepts and commandments and definitively accepted by their immediate hearers and disciples. Even in their case, it is a mistake to suppose they proceeded mainly by way of argumentation or direct exhortation. Jesus and Buddha taught by parables as well; and, indeed, it is reported of Jesus, when teaching the multitudes, that "without a parable spake he not unto them." If now we extend the term "teachers," as we quite legitimately may, to all those instructors who assisted in purifying manners and ennobling motives, we shall ascertain that what may be called the parable method has been the principal method of the moral instruction of humanity. In other words, humanity has received its moral instruction chiefly by means of poetry, drama, story (history), picture, allegory, apologue, fable, and legend. The proposition, observe, is not that these media of teaching were popular, but that they were the chief, and have always been the chief, and still are the chief, and are likely ever to remain the chief, mode by which the ethical message is imparted and the ethical tradition continued, and strengthened, and beautified from generation to generation. Plato's Dialogues are for the few, Aesop's Fables for the many; Paul's Epistles for the few, the Gospel stories for the many; Calvin's "Institutes" for the few, Bunyan's "Pilgrim's Progress" for the many; Comte's "Positive Polity" for the few, Maeterlinck's plays for the many; La Rochefoucauld's maxims for the few, Molière's comedies for the many; Montaigne for the few, Shakespeare for the many; the Vedantic philosophy for the few, the legend of Rama and Sita for the Indian millions. I shrewdly suspect that the "few" who nourish their spirits on philosophy and dialectic would join in a bread riot if a spiritual tyrant threatened to deprive the world of those charming legends and poems and novels which in their noblest forms—and the noblest are ultimately the popular—have supplied the moral food of our race from the primal ages to the newest moment in the world drama. It is worth while remarking that the mass of the people have not been altogether passive receivers of this instruction. In the case of myths and legends they have been co-operators and artists. The grand, typical legends, indeed, are what they are—touching, naive, dramatic—because of the good sense, the wisdom, and the aesthetic contributed by successive generations, as, for example, the tale of Savitri, the myth of Demeter and Persephone, or the stories in "The Little Flowers of St. Francis of Assisi."

The object of my present thesis is to apply this historical principle, of the revelation of life and right through the parable, to the moral instruction of children. In the second article I propose to reproduce an ethical lesson embodying this principle, and in the third, and last, to re-emphasize the principle.

MR. A. J. WATSON, assistant master at the Grammar School, St. Ives, Huntingdonshire, was drowned while attempting to rescue a girl who had fallen from her bicycle into the River Ouse at St. Ives. The river is greatly swollen by floods, and the girl, who was unable to swim, sank into a hole and disappeared. Her body and bicycle were recovered later.

THE STUFF OF DREAMS.

By JOHN HENDERSON.

If children of a tender age are, as we incline to believe, the best judges of what literature best suits them, a high place must be accorded to that now half-forgotten classic, Mrs. Molesworth's "Cuckoo Clock." The scramble up the chains and the discovery, inside the clock-case, of a handsomely upholstered apartment, lit by the soft, effulgent light of a single precious stone, are essentially childhood's imaginings.

Half an hour with a couple of five- or six-year-old children whose sensibility is not below average provides some instructive and interesting material for consideration—not, perhaps, as a branch of higher education, but as a peep into a world of fairy people who know not the harder ways of our mundane world. And if it be of importance for the adult to have a knowledge of men and things, of how much greater importance is it to have a knowledge of children and things.

Perhaps a day of cold rain in winter sends the imagination upon an exercising journey in search of warmth, but the point need not be insisted upon. What is remarkable is the simple fact that cold and wet may be transformed at will to warmth and sunshine. "Pretending" is the magic word that does this thing—pretending backed by a strong will to believe.

"It's a fine day, pretending," said Gerard, "and I shall take you for a walk. You must get ready at once, pretending, and clear up all these toys first." After a pause: "Pretending." There was no need to employ physical labour.

The reply from Lettie might have been disconcerting; certainly it was a complete *non sequitur*: "This is my palace, pretending, and I have let you come in because you are the Prince. You must put on your prince's clothes, pretending, and kiss my hand. And I will kiss you, Gerard, because I love you."

The last sentence was the real stuff of dreams. Pretending had no place in it.

Gerard changed his ground at once, and made wonderful sweeping evolutions which converted the nursery into a bathroom.

"Here is the bath, Lettie, and you are in it, pretending. Don't splash, or you will make the fire sing. It does sing, you know, when we splash it. I wonder why?"

This was too good an opportunity to miss, and Lettie ran to the door of the nursery and spoke naughtily: "I have run out into the garden with no clothes on, pretending, and you are very cross with me, and I shall have a bad cold, pretending. I shan't really have a bad cold though, Gerard, shall I?"

"Of course not. But you must be a good girl, pretending, and come and have your bath."

"I am always good."

The argument that followed need not be repeated. It was realism of the frankest description. To make amends for her desertion of the land of make-believe, Lettie saved the situation by a brilliant suggestion.

"This is a deep wood," she said; and so strong was the imaginative impulse that "pretending" was for once forgotten. "I am a witch, you know, a horrid old witch with a stick, and here is my cat. Only I'm not really a witch —"

"You can't really have my cat," said Gerard, clinging to his stuffed familiar. "Shippitaro* doesn't like witches. He told me so, pretending."

"It is very rude of little boys to interrupt older people, and I am older than you."

"Not pretending, though. I'm seventeen-one, pretending, and you are a tiny little baby in a cradle."

"No, I'm a witch, really, pretending."

The complication called for pause, and the pause gave Gerard time in which to grasp the spirit of the play.

"A bad witch made you a witch, Lettie, and you stand there and make tremendous faces, because all witches make tre-

mendous faces and ride on brooms. They go right over the moon on brooms Lettie. I know they do."

"Only pretending," said Lettie in a superior fashion which came near to wrecking things, and caused Gerard once more to shift ground, this time not so romantically, for he spoke of the War and killing and other gruesome things.

"I don't like playing at being dead," said Lettie, and waited while inspiration came. "Yes, I do," she added. "I know a beautiful game."

This game cannot be written down in childish language. The narrative might cause amusement of an uncomfortable sort, but nothing better worth having. It is preferable to pass on to the next romantic adventure of that crowded afternoon's employment.

Rain was beating lustily upon the window, obscuring the outside world, and Lettie, with sudden tenderness and self-pity, looked out into the deserted road.

"There are two poor children out there," she said, "two very poor children, pretending. They are quite blue with cold, and shivering, and they are very hungry."

"Where, Lettie?"

"Walking up the road, pretending. Coming to the gate. It's Lettie and Gerard, pretending, and they want to come in. We must let them in."

There was a rush for the nursery door, a ceremonious opening and welcome. Seats were placed beside the fire—four seats around a little table. Lettie brought out her tea things, and presided grandly over the improvised meal.

"You poor things, how wet you must be," she said. "Why ever didn't you take a taxi? We always take a taxi from the station when it is wet. It's such a long way, you know."

"I said to mother, I said," put in Gerard, "I said to mother, Lettie, I did—when we came from Grannie's—big Grannie's, I mean, and we came home nearly dark, you know—well, I said, 'Let's take a taxi,' and mother said 'Nonsense! it will do us good to walk.' So we did walk. . . . But"—triumphantly—"I took a taxi, pretending. I did, Lettie, really I did."

"I think they're dry now, poor things," said Lettie. "They'd better have a bath perhaps, and go to bed."

"It's too soon after tea," objected Gerard.

"Not pretending."

Oh, the convenience of it! Never too late to do the work one wants to do; never too early to indulge in play; never impossible to hold the far-removed thing in one's hands. I fancy there must be some connexion between the stuff of dreams and the faith that removes mountains.

But even childhood demands its realities as well as its dreams. There was a sudden desire to "tidy up," followed by a serious bout of knitting on the part of Lettie, and of paper-folding by Gerard. These occupations lasted until the real tea-time came. There was no pretence about that, except that Gerard made a subtle attempt on the sugar.

"I haven't had a piece of sugar," said he.

"Oh, but you have, Gerard," said one in authority.

"Not pretending," said he.

THE staff and students of the Imperial College of Science and Technology have presented to the War Office, through Sir Alfred Keogh, the Rector, who is now on active service with the troops abroad, a complete portable X-ray apparatus for use in temporary field hospitals at the front.

THE Girl Guides now number about 3,000 in and about London alone. Since the war began the number of girl guides has increased considerably. They are acting as hospital "orderlies," as voluntary messengers, and in doing such odd jobs as padding splints and making bandages, and acting as models in classes for first-aid and nursing. The head-quarters are at 116 Victoria Street.

ACCORDING to the *Lokalanzeiger*, Berlin school children are being induced to make the following resolution:—"From to-day, so long as the War lasts, we renounce sausages and meat for dinner, and bind ourselves to take to school when the class lasts till 1 o'clock not more than two slices of bread, and when the class lasts beyond 1 o'clock not more than four slices. That is quite sufficient to appease hunger, and meat and bread supplies will thereby be spared."

* Schippeitaro, the brave dog of the Japanese fairy story, has become a wonderful cat—pretending.

Clough's Correspondence College,

TEMPLE CHAMBERS, LONDON, E.C.

The following are a few of the letters received from some of **Clough's A.C.P. and L.C.P. successful Students** at the recent **Diploma Examinations, 1914-1915.**

St. Wilfrid's Home,
Exeter.
January 24th, 1915.

Dear Mr. CLOUGH,
I have just received from the College of Preceptors a statement of the results of my Examination for the Diploma of Associate at Christmas, 1914.

I have passed in Geography and Arithmetic, and have gained **Honours in French**. I am so glad that I have passed in Geography and Arithmetic, **as these have always been my weak subjects**. I ascribe my success **entirely** to your able tuition, and am very grateful to you for all the trouble you have taken.

Yours faithfully,
EMILY RUSHTON.

The School House,
Swannington,
Leicester.
24.1.15.

Dear Sir,

I heard yesterday morning that I have been successful at the recent A.C.P. Examination. I wish to offer you my heartiest and sincerest thanks for your valuable notes and most helpful correction of papers.

I trust your College will have every success in the future. Personally, I shall recommend your Classes whenever I have an opportunity.

Again thanking you,

I am,
Yours faithfully,
W. F. DURANT.

G. B. CLOUGH, Esq.

2 Newport Terrace,
Millbrook,
Plymouth.
Oct. 2nd, 1914.

Dear Mr. CLOUGH,

I heard the result of the A.C.P. Examination yesterday. I have passed in all subjects I took, viz., History, Arithmetic, and Mathematics. I got **Honours in Arithmetic**.

Thanking you for your course of work,

I remain,
Yours sincerely,
A. LANDREY.

Miles Lane,
Shevington,
Wigan,
Lancs.
23rd January, 1915.

G. B. CLOUGH, Esq.

Dear Sir,
The result of the A.C.P. Examination has reached me this morning.

I am pleased to inform you that I have been successful. (**Full Diploma**.)

Thanking you for the help afforded by your course of tuition,

I am,
Yours truly,
ELLEN BLIGHT.

57 Wards Road,
Seven Kings.
24th January, 1915.

Dear Sir,

I am pleased to inform you that I have qualified for the **full L.C.P. Diploma**, at my first attempt.

I must say that I found your tuition most helpful.

Yours truly,
GEORGE CLEVERLY.

G. B. CLOUGH, Esq.

Bryn Celyn,
Park Crescent,
Bargoed,
October 1st, 1914.

G. B. CLOUGH, Esq.

Dear Sir,

I am pleased to be able to inform you that I have completed the examination for the **Diploma of A.C.P. with Honours in Arithmetic**.

I must thank you very much for your valuable help, and I shall be very pleased to recommend your College to students requiring help.

I shall be joining again in the future to study for L.C.P.

I remain,
Yours faithfully,
J. S. PRENTICE.

1st October, 1914.

Dear Sir,

I am pleased to inform you that I have received A.C.P. result this morning. I have secured a "Pass" in all the subjects I took under you, and "**Honours**" in **Geography**. (*N.B.—The only Candidate to gain Honours at this Examination.*)

I have now completed the papers and am entitled to the **A.C.P. Diploma**.

I derived great help from your notes and hints, and they played a good part in my success.

Yours faithfully,

(*N.B.—The original of this letter, with name and address, can be seen at the College.*)

6 Dover Terrace,
Kensington,
Bath.
January 25th, 1915.

Dear Sir,

I have succeeded in gaining my **A.C.P. Diploma**.

Thanking you for your kind attention,

I am,
Yours faithfully,
I. WISCKWORTH.

G. B. CLOUGH, Esq.

Kinloch Villa,
Blairgowrie,
26.1.15.

Dear Mr. CLOUGH,

I have pleasure in informing you that I have obtained the **Diploma of A.C.P.**

I take this opportunity of thanking you for the excellent tuition received from you, to which I attribute my success.

Yours cordially,
J. L. DOBSON.

Dear Mr. CLOUGH,

I have just received the result of the recent summer examination of the College of Preceptors for the Diploma of Associate, and am pleased to inform you that I have passed in the Science Group in Botany and Physiology with **Honours in Physiology**. This was an agreeable surprise for me, and I am sure I owe much of my success to your most excellent tuition.

Yours faithfully,
THOMAS CLARKSON.

Morley House,
Chester Street,
Leigh,
Lancs.
24th January, 1915.

Dear Sir,

I received the result of the L.C.P. Examination yesterday, and am pleased to state that I was successful in passing the Science Group. This completes my **L.C.P. Diploma**, and I take this opportunity of thanking you for your kindness and the interest you have taken in my work.

I am,
Yours truly,
F. SMITH.

G. B. CLOUGH, Esq.

The Collegiate School,
Stanford-le-Hope,
25.1.15.

Dear Sir,

I have much pleasure in informing you that on Saturday I heard the results of the A.C.P. Examination. I have passed in Education and obtained **Honours in English**.

Again I must thank you for all your help, without which I am sure I could not have succeeded, owing to the very limited time I had for study.

Yours faithfully,
CLARICE E. HARKNESS.

G. B. CLOUGH, Esq.

22 Consett Road,
Castleside,
Consett,
Durham.
24.1.15.

Dear Sir,

I received the result of the A.C.P. Examination last night, and I am pleased to inform you that I have passed in the Theory and Practice of Education and hence have obtained my **Diploma**.

I found your course to be of great benefit to me in my studies, and if I should decide to take L.C.P. I will let you know.

Yours faithfully,
E. LOVETT.

G. B. CLOUGH, Esq.

The only **Honour** awarded in **French** at the January, 1915, A.C.P. Examination, and **one** of the two only **Honours** awarded in **History** at the same Examination, were gained by **Students of Clough's Correspondence College.**

Classes are now being formed for the September, 1915, and January, 1916, A.C.P. and L.C.P. Examinations. Intending Candidates should join at once.

For full particulars of any of CLOUGH'S CLASSES—

PUPIL TEACHER, PRELIMINARY CERTIFICATE, CERTIFICATE, MATRICULATION, OXFORD AND CAMBRIDGE LOCALS (Junior and Senior), A.C.P., L.C.P., L.L.A., HIGHER FROEBEL, PROFESSIONAL, COMMERCIAL, AND CIVIL SERVICE,

Write to—

THE SECRETARY, CLOUGH'S CORRESPONDENCE COLLEGE, TEMPLE CHAMBERS, LONDON, E.C.

THE COLLEGE OF PRECEPTORS.

TEACHERS' DIPLOMA EXAMINATION.—CHRISTMAS, 1914.

THE Christmas Examination commenced on the 28th of December, and was held in London and at the following Local Centres :—Belfast, Birmingham, Bristol, Cardiff, Cork, Dublin, Glasgow, Jersey, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Plymouth; Freetown (Sierra Leone); Cape Coast (Gold Coast); Cradock, Port Elizabeth (South Africa); Alwar (India).

LIST OF CANDIDATES WHO PASSED IN THE VARIOUS SUBJECTS.

(hon.) attached to a name, or to a letter denoting a subject, indicates that the candidate obtained Honours in the subject.

THEORY AND PRACTICE OF EDUCATION.

FELLOWSHIP.

Mathias, Miss S. Y.

Ornston, G.

Paynter, W. J.

LICENTIATESHIP.

Berry, F. G.
Betts, G.
Cleverly, G.
Cooper, L. W. T.
Emery, G. F.

Evans, W. A.
Faux, Miss L. B.
Hanson, J. E.
Heppleston, A.
Hudson, A.

Kershaw, W.
Ostick, E.
Parr, E. A.
Preston, H.
Reynolds, Miss R.

Rogers, J.
Stringer, N.
Tidman, C. F.
Wells, H. J.
Williams, E. J.

ASSOCIATESHIP.

Arthur, Miss K.
Bailey, A. E.
Barnes, Miss E. W.
Baskerville, Miss A.
Blanchard, R. A. W.
Blight, Miss E.
Bown, E. E.
Branch, Miss E. M.
Brown, T.
Calvert, G. W.
Chapman, C. H. V.
Cook, E. T.
Cowley, Miss D. F. H.
Cowley, Miss G. M.
Cresswell, J. J.
Curran, J.
Davies, J.
Desa, P. W. R.
Dobson, J. D.
Downes, D. W.

Doyle, J.
Eling, A.
Evans, J.
Fletcher, J. T. M.
Frampton, Miss K. H.
Gleaves, P.
Graver, A. J.
Haffner, C. L. R.
Harkness, Miss C. E.
Harris, A.
Hill, A. L.
Hinkson, Miss D.
Holden, A.
Howell, H. H.
Hutchison, Miss R. G.
Johns, T. D.
Johnson, J. R.
Jones, Miss F. K.
Jones, Miss M. A.
Keane, T.

Keegan, M.
Keelan, Miss C. E.
Kirby, E. H.
Laurence, G. W. M.
Lewis, C. P. G.
Lovett, Miss E. H.
Mann, W. A.
Martin, F.
McCubbin, P. G.
Mellor, Miss I. C.
Morgan, Miss M. E.
Nokes, Miss C. M.
O'Dea, J.
Park, W. C.
Pedelty, J. E.
Rees, T. W. E.
Reyneke, A. A. L.
Rhodes, N.
Richardson, Miss M.

Samuel, D.
Scholey, L.
Seymour, S. H. E.
Slee, A. H.
Smith, E. A.
Smith, F.
Smith, F. J.
Smith, H.
Smith, N. K.
Sporne, R. W.
Steel, Miss E. M.
Strawbridge, H.
Sturgeon, Miss J. E.
Thompson, Miss S. L.
Tonks, J. C.
Tuboku-Metzger, O. J. V.
Turner, F.
Walsh, T.
Winckworth, Miss I.

ENGLISH LANGUAGE.

(Subject No. 1.)

Aubrey, D.
Bailey, A. E. (hon.)
Baker, H. A.
Bates, E. G. J.
Blanchard, R. A. W.
Brannigan, T. J.
Brown, A. N.
Buisard, H. J.
Cartwright, C.
Cheney, J.
Clough, R. H. (hon.)
Conway, Miss M. E.
Cowley, Miss D. F. H.
Cowley, Miss G. M.
Cresswell, J. J.
Curran, J.
Davies, J.

Doyle, J. (hon.)
Durant, W. F.
Edwards, J. M.
Eling, A.
Fletcher, J. T. M.
Frampton, Miss K. H.
Gardiner, S.
Graver, A. J.
Hainsworth, Miss J.
Hall, J. N.
Harkness, Miss C. E. (hon.)
Harris, H. V.
Higgins, P. J. (hon.)
Hill, A. L.
Hinkson, Miss D. (hon.)
Holden, A.
Howell, H. H.

Hutchison, Miss R. G.
Iremonger, Miss E. J.
Jones, Miss J. L.
Keane, T.
Laurence, G. W. M.
Macreedy, H. J.
Martin, Miss D. G. (hon.)
Moore, M.
O'Dea, J. (hon.)
O'Leary, F. T.
Pobee, J. M. S.
Quinn, Miss S. M.
Read, Miss E.
Reece, W. J.
Rogers, T. J. A.
Ryan, J. J.
Salt, H. W.

Samuel, D. (hon.)
Scholey, L.
Seymour, S. H. E. (hon.)
Skyrnes, Miss A. O.
Smith, E. A.
Smith, F.
Smith, N. K. (hon.)
Smurthwaite, A. S. T.
Stokes, I.
Sutton, C. H.
Tuboku-Metzger, O. J. V.
Tyrrell, G. H.
Tyson, R. (hon.)
Walsh, T.
White, B. S.
Whitehouse, H.
Wray, Miss O. M.

ENGLISH HISTORY.

Bailey, A. E.	Dyer, Miss G. B.	Lewis, B. T.	Seymour, S. H. E.
Baskerville, Miss A.	Filmer, S. W.	Macready, H. J.	Sheahan, J. D. G.
Bates, E. G. J.	Hainsworth, Miss J.	Martin, Miss D. G.	Siddall, Miss G.
Brown, A. N.	Hall, J. N.	McNamee, Miss I. M.	Smith, F.
Clements, E.	Harris, H. V.	Medley, A. F.	Smith, N. K.
Clough, R. H.	Higgins, P. J.	O'Dea, J. (<i>hon.</i>)	Smurthwaite, A. S. T.
Cresswell, J. J.	Hill, A. L.	Quinn, Miss S. M.	Threadgold, W.
Davies, J.	Holden, A.	Reece, W. J.	Tuboku-Metzger, O. J. V.
Desa, P. W. R.	Horn, J. B.	Rees, W. H.	Veale, Miss F.
Doyle, J.	Hutchison, Miss R. G.	Salt, H. W.	Whitehouse, H.
Draper, C. T.	Iremonger, Miss E. J.	Scholey, L.	Wray, Miss O. M. (<i>hon.</i>)

GEOGRAPHY.

Bailey, A. E.	Eling, A.	Iremonger, Miss E. J.	Rushton, Miss E.
Bates, E. G. J.	Filmer, S. W. (<i>hon.</i>)	Lewis, B. T.	Salt, H. W.
Blanchard, R. A. W.	Fletcher, J. T. M.	Lumb, W.	Scholey, L.
Brennan, F.	Gardiner, S.	Macready, H. J.	Seymour, S. H. E.
Butt, H.	Glen, W.	Markham, E.	Shepherd, W.
Cheney, J.	Graver, A. J.	Martin, Miss D. G.	Smith, E. A.
Clark, P. L. (<i>hon.</i>)	Hall, J. N.	McDyer, A.	Smith, N. K.
Clements, E.	Harris, H. V.	Medley, A. F.	Stokes, I.
Cook, E. T.	Hill, A. L.	O'Dea, J.	Streeter, E. G.
Cowley, Miss G. M.	Holden, A.	O'Leary, F. T.	Sutton, C. H.
Cresswell, J. J.	Horn, J. B.	Parbery, W.	Treasure, Miss K. A.
Davies, J.	Howell, H. H.	Roberts, H.	Walsh, T.
Doyle, J.	Howells, W.	Rogers, T. J. A.	Whitehouse, H. (<i>hon.</i>)
Dyer, Miss G. B.	Hutchison, Miss R. G.	Round, E.	Wray, Miss O. M.

ARITHMETIC.

Anderson, J. B. (<i>hon.</i>)	Davies, J.	Lewis, B. T.	Scholey, L.
Argyle, A.	Desa, P. W. R.	Lumb, W.	Seymour, S. H. E. (<i>hon.</i>)
Arthur, Miss K.	Dyer, Miss G. B.	Macready, H. J.	Silk, W. E. (<i>hon.</i>)
Aubrey, D.	Eling, A.	Martin, Miss D. G.	Sindall, G. A.
Bailey, A. E. (<i>hon.</i>)	Filmer, S. W.	Moore, A.	Skvrmes, Miss A. O.
Bates, E. G. J. (<i>hon.</i>)	FitzGibbon, A. H.	Murphy, Miss H. A.	Smith, E. A. (<i>hon.</i>)
Blanchard, R. A. W. (<i>hon.</i>)	Fletcher, J. T. M. (<i>hon.</i>)	Page, Miss L. M.	Smith, F. (<i>hon.</i>)
Branch, Miss E. M.	Frampton, Miss K. H.	Parbery, W. (<i>hon.</i>)	Spiers, Miss L. C. E.
Brannigan, T. J.	Gardiner, S.	Phillips, H. A.	Stokes, I.
Brittain, Miss E. N.	Graver, A. J.	Pobee, J. M. S.	Streeter, E. G.
Buisard, H. J.	Hainsworth, Miss J.	Quinn, Miss S. M.	Sutton, C. H.
Butt, H.	Hanson, J. E.	Randles, C. J.	Threadgold, W.
Cartwright, C. (<i>hon.</i>)	Harris, H. V.	Read, Miss E.	Tonks, J. C.
Cheney, J.	Hill, D. R. S.	Reece, W. J.	Tuboku-Metzger, O. J. V.
Clark, P. L.	Higgins, P. J.	Rees, W. H.	Tyrrell, G. H.
Clements, E.	Hope, R. S. G.	Riley, Miss K.	Tyson, R.
Clough, R. H.	Horn, J. B.	Rogers, Miss A.	Veale, Miss F.
Cook, E. T.	Howard, R.	Rogers, T. J. A.	Ward, J.
Cowley, Miss D. F. H.	Howell, H. H. (<i>hon.</i>)	Round, E. (<i>hon.</i>)	West, W. N.
Cowley, Miss G. M.	Iremonger, Miss E. J.	Rushton, Miss E.	Whitehouse, H. (<i>hon.</i>)
Cresswell, J. J. (<i>hon.</i>)	Johns, F. W.	Salt, H. W. (<i>hon.</i>)	Wood, Miss D. P.
Davies, A. E. (<i>hon.</i>)	Jolly, Miss M. H. J.	Samuel, D.	

MATHEMATICS.

FELLOWSHIP.

Matthews, C. P.

LICENTIATESHIP.

Akroyd, J. E.	Cleverly, G.	Johns, F. W.	Smith, A. L.
Bonnet, A. E.	Cox, F. V.	Preston, H.	Wilson, A. E.
Buisard, H. J.	Handover, A. C. P. (<i>hon. trigonometry</i>)		

ASSOCIATESHIP.

Bailey, A. E.	Graver, A. J.	O'Connor, J. K.	Seymour, S. H. E.
Brown, T.	Hill, A. L. (<i>hon. algebra</i>)	Rhodes, N.	Silk, W. E.
Clewitt, N. E.	Hill, D. R. S.	Richardson, Miss M.	Smith, F.
Cresswell, J. J. (<i>hon. algebra</i>)	Keane, T.	Salt, H. W.	Tyrrell, G. H.
Edwards, Miss V. K.	Markham, E.		

LANGUAGES.

e. = Higher English. f. = French. g. = German. l. = Latin.

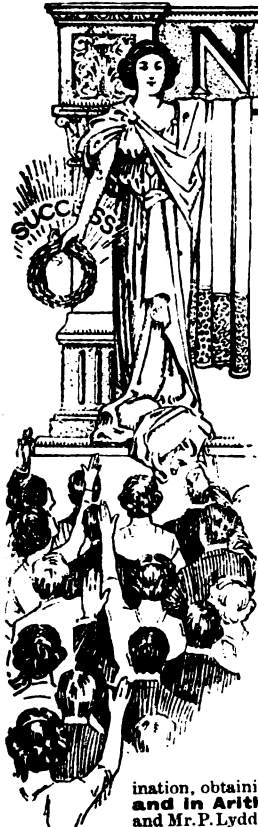
LICENTIATESHIP.

Akroyd, J. E. <i>e.f.</i>	Cooper, L. W. T. <i>f.l.</i>	McThomas, Mrs. D. <i>e.l.</i>	Parbery, W. <i>e.f.</i>
Bonnet, A. E. <i>e.f. (hon.)</i>	Faux, Miss L. B. <i>e.f.</i>	Murray, M. <i>e.f.</i>	Reynolds, Miss R. <i>e.g.</i>

ASSOCIATESHIP.

Aubrey, D. <i>f.</i>	Conway, Miss M. E. <i>f.</i>	Martin, Miss D. G. <i>f.</i>	Rushton, Miss E. <i>f. (hon.)</i>
Baskerville, Miss A. <i>f.</i>	Hinkson, Miss D. <i>f.</i>	Rees, H. G. <i>f.</i>	Scholey, L. <i>f.</i>
Brown, A. N. <i>l.</i>			

Continued on page 108.



NORMAL CORRESPONDENCE COLLEGE

THE MOST EFFICIENT AND MOST SUCCESSFUL CORRESPONDENCE COLLEGE.

(FOUNDED 1889.)

A.C.P. and L.C.P.

Results Just Issued.

IN ALL PARTS OF THE KINGDOM PUPILS OF THE NORMAL HAVE PASSED
A.C.P. AND L.C.P.

Testimonials from many other Pupils of the Normal who have passed the recent Examinations will be sent on application.

66 NANSEN ROAD, SPARKHILL,
BIRMINGHAM.
25th January, 1915.

DEAR SIR,

I have no doubt that you will be glad to hear that I have been quite successful at the recent A.C.P. Examination, obtaining **Honours in English Language and in Arithmetic**. My best thanks are due to you and Mr. P. Lyddon-Roberts for the excellent tuition received.

Yours very respectfully, A. N. BAILEY.

(Honours—Normal Silver Medal awarded.)

"SHALAMAR," LYNCHFORD ROAD, S. FARNBOROUGH, HANTS.
23rd January, 1915.

DEAR SIR,

I have received to-day the result of the recent A.C.P. Examination for which you prepared me. I am pleased to inform you that I have obtained the Diploma with **Honours in Algebra**. I feel that I owe this result to your tuition, and wish particularly to thank you for bringing me along so splendidly in my weak subjects—Psychology and English. Will you please send me particulars of your L.C.P. Classes?

I am, Yours faithfully, A. L. HILL.

(Honours—Normal Silver Medal awarded. Full A.C.P. Diploma granted.)

ALDEURIE SCHOOLHOUSE, DOBES, INVERNESS.
27th January, 1915.

DEAR SIR,

I have just been informed that I have been successful at A.C.P., gaining **Honours in Arithmetic**. The success that has attended me must be put down to the all-round excellence of your papers. The methodical arrangement of your tests could not be surpassed. I was a pupil of the Normal Correspondence College when a **Pupil Teacher**, and also when trying the **Certificate Examination**.

I remain, Yours respectfully, J. B. ANDERSON.

(Honours—Normal Silver Medal awarded. Full A.C.P. Diploma granted.)

12 STRATTON TERRACE, TRURO.
23rd January, 1915.

DEAR SIR,

You will be glad to hear that I have been successful in obtaining L.C.P. (with **Honours in English**). Mathematics was formerly my weak subject, but thanks to the very thorough work you sent me it is no longer so. I shall be pleased to recommend the Normal whenever I can. I was often told the Normal was a really sound Correspondence College, and now my experience has proved this to be the case. I have sent you the examination papers as you will probably find them useful. Most of the questions have come in your papers.

Yours faithfully, FRANCIS W. JOHNS.

(Honours—Normal Silver Medal awarded. Full L.C.P. Diploma granted.)

"SCARBOROUGH," REDBRIDGE, HANTS.
24th January, 1915.

DEAR SIR,

I beg to inform you that I have passed the A.C.P. Examination with **Honours in Arithmetic**. I should like to take this opportunity for saying that my success is entirely due to the excellent notes I received from you. Your notes are the best I have ever read and I can quite truthfully say that my distinction in Preliminary Certificate and my distinction in the Certificate Examination are entirely due to your notes. Like everything else that I have had from your College, this medal is superb.

I remain, Yours truly, E. G. BATES.

(Honours—Normal Silver Medal awarded. Full A.C.P. Diploma granted.)

GLENWYN VILLAS, SOHAM, CAMBS.
29th January, 1915.

DEAR SIR,

I beg to inform you that I was successful at the L.C.P. Examination and have qualified for the Diploma. I thank you for your assistance, and should like to state that I found the Model answers in Psychology particularly useful.

Yours sincerely, E. J. WILLIAMS.

(Full L.C.P. Diploma granted.)

HEAD OF LIST.

17 ASHVILLE, TREDEGAR, MON.
February 2nd, 1915.

DEAR SIR,

I am pleased to inform you that I have just received Official notice that I have passed the Senior College of Preceptors Examination with Honours and Seven Distinctions, and that I **Head the List**. Distinctions were gained in English Language, Arithmetic, Algebra, Geometry, French, Latin, and Chemistry, and I secured a total of 1,760 marks.

I have also obtained First Class Honours at the recent Oxford Senior Examination, passing ninth on that list, with first place in Latin and third in French.

I am certain my success is entirely due to your splendid system of instruction by correspondence. With grateful recollections of my tutors,

Yours faithfully, D. McKIE.

Normal Money Prize (£50) and Silver Medal awarded.

47 Melford Road, East Dulwich, London, S.E., and 110 Avondale Square, S.E.

SCIENCE.

a. = Astronomy. *ch.* = Chemistry. *m.* = Mechanics. *p.* = Experimental Physics.
b. = Botany. *g.* = Geology. *n.* = Natural Philosophy and Astronomy. *ph.* = Animal Physiology.

FELLOWSHIP.

Brown, F. G. W. *p.n.* | Ferraro, J. H. *n.ch.(hon.)* | Paynter, W. J. *p.n.*

LICENTIATESHIP.

Berry, F. G. *a.ph.* | Evans, C. G. *a.ph.* | Hughes, S. D. B. *ph.b.* | Preston, H. *p.ch.*
Cleverly, G. *m.ch.* | Faux, Miss L. B. *ph.b.* | Kenyon, E. *a.ph.* | Smith, F. *a.ph.*
Cox, F. V. *p.m.*

ASSOCIATESHIP.

Anderson, J. B. *ph.b.* | Davies, A. E. *ch.ph.* | Mellor, Miss I. C. *ph.b.* | Read, Miss E. *ph.b.*
Blanchard, R. A. W. *ch.ph.* | Drew, Miss E. B. *ph.b.* | Page, Miss L. M. *ph.b.* | Rogers, T. J. A. *ph.b.*
Cowley, Miss G. M. *ph.g.* | Eling, A. *ph.b.*

LIST OF CANDIDATES TO WHOM DIPLOMAS WERE AWARDED.

FELLOWSHIP.

Brown, F. G. W. | Mathias, Miss S. Y. | Ormston, G.

LICENTIATESHIP.

Cleverly, G. | Handover, A. C. P. | Preston, H. | Stringer, N.
Cox, F. V. | Johns, F. W. | Smith, A. L. | Williams, E. J.
Emery, G. F. | Kenyon, E. | Smith, F. | Wilson, A. E.
Faux, Miss L. B. | Ostick, E.

ASSOCIATESHIP.

Anderson, J. B. | Doyle, J. | Jones, Miss M. A. | Rees, T. W. E.
Aubrey, D. | Draper, C. T. | Keane, T. | Richardson, Miss M.
Bailey, A. E. | Drew, Miss E. B. | Keegan, M. | Scholey, L.
Baskerville, Miss A. | Durant, W. F. | Keelan, Miss C. E. | Seymour, S. H. E.
Bates, E. G. J. | Dyer, Miss G. B. | Lewis, C. P. G. | Shepherd, W.
Blight, Miss E. | Edwards, J. M. | Lovett, Miss E. H. | Sindall, G. A.
Bown, E. E. | Fitz Gibbon, A. H. | Mann, W. A. | Slee, A. H.
Branch, Miss E. M. | Gleaves, P. | Markham, E. | Smith, H.
Brannigan, T. J. | Haffner, C. L. R. | McCubbin, P. G. | Smith, N. K.
Brennan, F. | Harkness, Miss C. E. | McDyer, A. | Sporne, R. W.
Calvert, G. W. | Harris, A. | Morgan, Miss M. E. | Steel, Miss E. M.
Chapman, C. H. V. | Hill, A. L. | Murphy, Miss H. A. | Strawbridge, H.
Clewitt, N. E. | Holden, A. | O'Connor, J. K. | Thompson, Miss S. L.
Cresswell, J. J. | Hutchison, Miss R. G. | O'Dea, J. | Threadgold, W.
Desa, P. W. R. | Johns, T. D. | Page, Miss L. M. | Ward, J.
Dobson, J. D. | Johnson, J. R. | Park, W. C. | White, B. S.
Downes, D. W. | Jones, Miss F. K. | Rees, H. G. | Winckworth, Miss I.

PRIZE.

The Prize for NATURAL SCIENCES was awarded to John Henry Ferraro.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on January 30. Present: Mr. R. F. Charles, Vice-President, in the chair; Prof. Adams, Dr. Armitage-Smith, Mr. Bain, Mr. Brown, Mr. F. Charles, Mr. Cholmeley, Miss Dawes, Mr. Eagles, Miss Lawford, Mr. Longsdon, Mr. Maxwell, Mr. Morgan, Miss Punnett, Mr. Rawlinson, Mr. Rushbrooke, Mr. Storr, Mr. Thornton, Mr. Vincent, Mr. White, and Mr. Wilson.

Diplomas were granted to those candidates who had completed their qualification at the recent examination (for list, see above), and also to the following:—Licentiate-ship—Fernand Carlos Joseph Dhaze, Joseph Fridolin Ivon; Associateship—Anthony Lionel Sloggett. The Prize of £5 for Natural Sciences was awarded to John Henry Ferraro.

The Council were informed that Mr. Charles Francis Hodgson, the elder son of the late Secretary of the College, died in the service of his country on December 25 last. It was resolved that letters expressing the sympathy of the Council be sent to Mrs. Hodgson and Mr. T. T. Hodgson.

Miss Crookshank and the Rev. Dr. Nairn, Head Master of Merchant Taylors' School, were elected members of the Council.

The following persons were elected members of the College:—

Mr. L. A. Coles, B.Sc., L.C.P., 16 Eastwood Road, Muswell Hill, N.

Mr. C. T. Key, B.A., A.C.P., Boys' High School, Allahabad.
Miss Mary Singleton, A.C.P., Bryngola, Holmcliffe Road, Blackpool.

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

By A. & C. BLACK.—Burrows's Story of English Industry and Trade; Hoskyn's Stories of London.

By MACMILLAN & CO.—Barnard and Child's Elements of Geometry; Cathcart's First Book of Physiology and Hygiene; Smith's First Book of Commercial Geography; Wilmore's First Book of Geology.

By J. MURRAY.—Fletcher's Making of Western Europe, 1000-1190 A.D.; Thatcher and Schwilke's General European History, 1789-1900.

By the UNIVERSITY TUTORIAL PRESS.—London Matriculation Directory, January, 1915; Allcroft and Stout's Ovid's Metamorphoses, I and II, 1-400; Cracknell and Barraclough's Junior Algebra; Drennan's Chaucer's Proverbs; Fry's Junior Geography of Africa and Australasia; Goggin's Shakespeare's Merchant of Venice.

Calendar of Durham University.
Calendar of the University of Wales.
Calendar of the Pharmaceutical Society of Great Britain.

CLASS LISTS

OF CANDIDATES WHO HAVE PASSED THE CERTIFICATE EXAMINATION OF THE COLLEGE OF PRECEPTORS.—CHRISTMAS, 1914.

LIST OF SUCCESSFUL CANDIDATES AT COLONIAL AND FOREIGN CENTRES.

S.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

<i>a.</i> = Arithmetic.	<i>d.</i> = Drawing.	<i>f.</i> = French.	<i>l.</i> = Latin.	<i>s.</i> = Scripture.
<i>al.</i> = Algebra.	<i>do.</i> = Domestic Economy.	<i>g.</i> = Geography.	<i>ms.</i> = Mensuration.	<i>sc.</i> = Elem. Science.
<i>bk.</i> = Book-keeping.	<i>du.</i> = Dutch.	<i>gm.</i> = Geometry.	<i>mu.</i> = Music.	<i>ta.</i> = Tamil.
<i>ck.</i> = Chemistry.	<i>e.</i> = English.	<i>h.</i> = History.		

The signs * and † prefixed to names in the Junior and Preliminary Lists denote that the Candidates were entered for the Senior and Junior Grades respectively.

In the addresses, Acad. = Academy, Coll. = College, Conv. = Convent, Gram. = Grammar, R.C. = Roman Catholic, S. = School.

[Bracketing of names denotes equality.]

BOYS.

SENIOR.

Honours Division.

Pashupati, V.T. *al.gm.* Eton Coll., Colombo
Smith, L.J. *gm.* Marist Bros.' Coll., Uitenhage
Osman, M.L. *s.gm.* Wesleyan Central S., Batticaloa

SENIOR.

Pass Division.

Bouffe, V.A. *a.f.l.ch.* Marist Bros.' Coll., Uitenhage
Steyn, D.R. *s.* Marist Bros.' Coll., Uitenhage
Lwin, H.G. *s.* Norris Coll., Rangoon
Mayne, J.H. *gm.* S.P.G. Gram. S., Cape Coast
Johnson, J.W. *deG. s.* S.P.G. Gram. S., Cape Coast
Esin, D.E. *s.ch.* Private tuition
Elliott, E. Marist Bros.' Coll., Uitenhage
Lipschitz, A. *f.* Marist Bros.' Coll., Uitenhage
Allnutt, A.G. Marist Bros.' Coll., Uitenhage
Shepherd, C.H. Marist Bros.' Coll., Uitenhage
Upasena, E. Eton Coll., Colombo
Htoon, T. Norris Coll., Rangoon

JUNIOR.

Honours Division.

Brereton, H.L. *s.a.d.f.* Gram. S., Kingstown, St. Vincent
Rajaratnam, E.P. National Christian Acad., Manepay
Albury, C.E. *s.ch.g.d.f.* The High S., Harbour Island
Sagoe, C.E. *al.* S.P.G. Gram. S., Cape Coast
Johnson, A.H. *s.al.* The High S., Harbour Island
Clarke, T.L. *McI. s.* Gram. S., Kingstown, St. Vincent
Prescott, G.T. *s.* Private tuition
Husemeyer, F. *e.al.d.* Marist Bros.' Coll., Johannesburg
Tejoso, E.A. *s.al.* Abeokuta Gram. S.
Coombs, C.A. *s.ch.* Gram. S., Kingstown, St. Vincent
Tonkyns, H. *al.* Marist Bros.' Coll., Johannesburg
Curry, C.H. The High S., Harbour Island
Brereton, R.M. *s.* Private tuition
Kathirithamby, C. *al.ta.* National Christian Acad., Manepay

JUNIOR.

Pass Division.

Saunders, R.A. *F.M. du.* Private tuition
Ajala, S.A. Abeokuta Gram. S.
*Anonoo, R. *s.al.* S.P.G. Gram. S., Cape Coast
Fletcher, J. *ms.* St. David's R.C. School, Grenada
Pitt, B. *al.* Beaulieu R.C. School, Grenada
Roberts, J.E. *a.* The High S., Harbour Island
Ingraham, P.A. *s.* The High S., Harbour Island
*Abraham, H.K. Private tuition
Leigertwood, S. *s.* Gram. S., Kingstown, St. Vincent
Manning, M.C. Private tuition
Barnes, P. *al.ms.* Marist Bros.' Coll., Johannesburg
Fernandopulle, I.M. Private tuition
Mahon, A.W. *s.ms.* River Salle Government S., Grenada
Jayawardene, C.W.H.P. Eton Coll., Colombo
*Lucas, J.O. *s.* Private tuition
Von Below, H. *ms.* Marist Bros.' Coll., Johannesburg
*Hunter, H.R. *f.* Marist Bros.' Coll., Uitenhage
Perera, K.P. Eton Coll., Colombo
*Joseph, E. St. Andrew's Anglican S., Grenada
Viechweg, W. Hermitage R.C. School, Grenada
Zinn, I. Marist Bros.' Coll., Johannesburg
*Fernando, W.S. *a.al.* Eton Coll., Colombo
*Krishnan, M. *e.* Eton Coll., Colombo
Connelly, J. Marist Bros.' Coll., Johannesburg

[DonAlban, R. Eton Coll., Colombo
Jeevanayagadas, J.V. Wesleyan Central S., Batticaloa
Henwood, B. *al.* Marist Bros.' Coll., Johannesburg
*Thomas, G.H. Gram. S., Kingstown, St. Vincent
*Atkinson, C.G. *f.* Marist Bros.' Coll., Uitenhage
Gyi, K. Eton Coll., Colombo
*Humphrey, A.H. *s.e.* Private tuition
Lipede, A.A. *s.* Abeokuta Gram. S.
Vanderpuye, C.I. Acera Gram. S.
*Albury, C.F. *al.* The High S., Harbour Island
*Horwitz, H. *du.* Marist Bros.' Coll., Johannesburg
*Johnson, G. Marist Bros.' Coll., Johannesburg
*Casimador, C.B. *s.ta.* Wesleyan Central S., Batticaloa
*Dick, W.R. Private tuition
*Mendis, J.H.V. *f.* Private tuition
*Nicholas, D. *al.* Marist Bros.' Coll., Johannesburg
*Goetze, P. Marist Bros.' Coll., Johannesburg
*Mullen, L.A. *s.* S.P.G. Gram. S., Cape Coast
*Peiris, E.A. Central Coll., Colombo
*Subrahmanya Iyer, G.A. Wesleyan Central S., Batticaloa
*Oduunlami, B.A. *s.* Abeokuta Gram. S.
*Asai, E. *al.ta.* Private tuition
*Brayant, A.R. National Christian Acad., Manepay
*Jayatilake, A.W. Eton Coll., Colombo
*Tricker, M. Marist Bros.' Coll., Johannesburg
*Williams, R.R. S.P.G. Gram. S., Cape Coast
*Sobranaman, P. Private tuition
*Forde, A.W.C. *s.* Gram. S., Kingstown, St. Vincent
*Keegel, A.A. The Academy, Kandy, Ceylon
*Fernando, N.I. Eton Coll., Colombo
*Cramer, C.I. *al.* Private tuition
*Croos, V. *de* Private tuition
*King, F. St. Andrew's Anglican S., Grenada
*Wickramasinghe, W.A.H. Eton Coll., Colombo
*Mutu Kanaru, K. National Christian Acad., Manepay
*Nunperumal, R.N. Eton Coll., Colombo
*Kanapathipillai, T. Wesleyan Central S., Batticaloa
*Kotzen, M.S. Johannesburg Business Coll.
*Henshaw, L.R. Private tuition
*Naikwara, M.H. Norris Coll., Rangoon
*Welsh, F.W. Marist Bros.' Coll., Uitenhage
*Nair, M. Norris Coll., Rangoon
*Buxton Forman, C. Marist Bros.' Coll., Uitenhage
*Anderson, F.O. S.P.G. Gram. S., Cape Coast
*Bloch, J. Marist Bros.' Coll., Johannesburg
*Fernando, L.M. Eton Coll., Colombo
*Hershowitz, A. Marist Bros.' Coll., Johannesburg
*Tetty, T.B. Acera Gram. S.
*Abdul-Azeez, S.M. Eton Coll., Colombo
*Blanchette, E.B. Gram. S., Kingstown, St. Vincent
*Stein, S. Norris Coll., Rangoon
*Morel, S. Marist Bros.' Coll., Johannesburg
*Cole, A.B. The New High Class S., Lagos
*de Pinto, A.A.P. Eton Coll., Colombo
*Parumparetnam, S. Wesleyan Central S., Batticaloa
*Cooniaswami, K. Wesleyan Central S., Batticaloa
*Dedde, N.S. Abeokuta Gram. S.
*Wijegunawardena, H.P. Eton Coll., Colombo
*Keyser, C. Eton Coll., Colombo

PRELIMINARY.

Honours Division.

Walker, E.O.C. *e.al.* Gram. S., Kingstown, St. Vincent
Stokes, R. *e.gm.sc.* Marist Bros.' Coll., Uitenhage
Vieyra, H. *e.al.gm.du.sc.* Marist Bros.' Coll., Johannesburg
Ginsberg, E. *h.g.d.gm.* Marist Bros.' Coll., Johannesburg
Caesar, N. *h.a.* St. George's R.C. Boys' S., Grenada

Fisher, M. *a.al.sc.* Marist Bros.' Coll., Johannesburg
Marecheau, A.B. *s.al.d.* St. George's Anglican S., Grenada
Werry, R. *e.al.gm.du.d.* Marist Bros.' Coll., Uitenhage
Rattray, H. *al.gm.* Marist Bros.' Coll., Uitenhage
Suzman, S. *a.al.* Marist Bros.' Coll., Johannesburg
*Golub, D. *a.al.sc.* Marist Bros.' Coll., Johannesburg
*Rose, E.C. *a.* St. John's Anglican S., Grenada
*Hart, H. *e.o.gm.sc.* Marist Bros.' Coll., Uitenhage
*Hind, M. Marist Bros.' Coll., Johannesburg
*Levy, H. *a.al.* Marist Bros.' Coll., Uitenhage
*Creany, N. *g.al.* Marist Bros.' Coll., Johannesburg
*O'Reilly, Justin Marist Bros.' Coll., Johannesburg
*White, C. *a.sc.* Marist Bros.' Coll., Johannesburg
*Cleare, V.P. *s.a.al.* The High S., Harbour Island
*Hurwitz, C. *a.al.gm.* Marist Bros.' Coll., Johannesburg
*Bleckman, K. *a.al.* Marist Bros.' Coll., Johannesburg
*Clark, D. *e.al.d.* Marist Bros.' Coll., Uitenhage
*Anonoo, E.N. *s.al.* S.P.G. Gram. S., Gold Coast
*Haynes, G. *s.* St. Andrew's R.C. School, Grenada
*Belcher, H. *g.al.* Marist Bros.' Coll., Johannesburg
*Beechan, F.W. *al.* Cape Coast Government Boys' Primary School
*Combrinck, W. *a.gm.du.* Marist Bros.' Coll., Uitenhage
*Smith, W. *al.d.* Marist Bros.' Coll., Johannesburg

PRELIMINARY.

Pass Division.

*McDonald, G.Z. Private tuition
*Jack, S.O. Gram. S., Kingstown, St. Vincent
*Thompson, E.R. Acera Gram. S.
*Mendis, A. Eton Coll., Colombo
*Ratnayake, T.B. Private tuition
*Sinniah, V. National Christian Acad., Manepay
*Anussah, E.A. *s.al.ms.* S.P.G. Gram. S., Cape Coast
*Dunleavy, J. *a.al.* Marist Bros.' Coll., Johannesburg
*Fry, J.C. S.P.G. Gram. S., Cape Coast
*Rowe, A. *a.al.* Marist Bros.' Coll., Johannesburg
*Ashun, W.E. *e.al.* S.P.G. Gram. S., Cape Coast
*DuPlessis, P. *a.du.sc.* Marist Bros.' Coll., Uitenhage
*Aberdeen, J.E. Mount St. Evans R.C. School, Grenada
*Aggrey, T.P. *h.k.d.* Cape Coast Government Boys' Primary S.
*Fernando, S.E. Eton Coll., Colombo
*McCormick, H.A. *al.* Marist Bros.' Coll., Johannesburg
*Allpass, G. *al.* Marist Bros.' Coll., Johannesburg
*Sturcliffe, J. Marist Bros.' Coll., Uitenhage
*Lewis, A. *a.du.* Marist Bros.' Coll., Uitenhage
*Aggrey, J. *a.* S.P.G. Gram. S., Cape Coast
*Mensah, A.M.E. S.P.G. Gram. S., Cape Coast
*Ayensu, J.B. Cape Coast Government Boys' Primary S.
*Benjamin, H.A. *H.* S.P.G. Gram. S., Cape Coast
*Fotheringham, H. Marist Bros.' Coll., Uitenhage
*Lindsay, H. *al.du.* Marist Bros.' Coll., Uitenhage
*McMillan, C.C. *a.* St. David's R.C. School, Grenada
*Plasket, G. *o.al.* Marist Bros.' Coll., Johannesburg
*Bellad, Ellis, A. *a.* Marist Bros.' Coll., Uitenhage
*Fernando, G.T. *e.* Eton Coll., Colombo
*Sodeinde, E.O. Abeokuta Gram. S.
*Weidner, P. *al.* Marist Bros.' Coll., Uitenhage
*Stowe, S.O. *s.al.* Private tuition
*Levy, N. Marist Bros.' Coll., Johannesburg
*Awir, J.K. *s.* Private tuition
*Cully, M.E. Private tuition
*Curnow, J. Marist Bros.' Coll., Johannesburg
*Duncan, J.A. *a.hk.* Cape Coast Government Boys' Primary S.

BOYS, PRELIMINARY PASS—continued.
 Herman, D. Marist Bros.' Coll., Johannesburg
 Jacob, P.S. Central Coll., Colombo
 Roberts, J.O. The New High Class S., Lagos
 Tatz, A. Marist Bros.' Coll., Johannesburg
 Nicholas, S.R.S. S.P.G. Gram. S., Cape Coast
 O'Neill, F. Marist Bros. Coll., Johannesburg
 Martins, I.O. The New High Class S., Lagos
 Mitchell, R.F. Gram. S., Kingstown, St. Vincent
 Pettit, W. a.d.u. Marist Bros.' Coll., Uitenhage
 Ellis, F.M. Gram. S., Kingstown, St. Vincent
 Euslie, D. a. Marist Bros.' Coll., Uitenhage
 Greenberg, H. Marist Bros. Coll., Johannesburg
 Alexander, P.D. St. Patrick's R.C. School, Grenada
 Gunawardane, A.G. The Academy, Kandy, Ceylon
 Long, A.J. Marist Bros.' Coll., Uitenhage
 Molenaar, J.P. S.P.G. Gram. S., Cape Coast
 Mortimer, W. Marist Bros.' Coll., Johannesburg
 Raab, N. Marist Bros.' Coll., Uitenhage
 Watt, W. a. Marist Bros.' Coll., Uitenhage
 Forder, H. Marist Bros.' Coll., Uitenhage
 Hnat, M. Private tuition
 Hutchison, F.C.G. S.P.G. Gram. S., Cape Coast
 Prah, J. Cape Coast Government Boys' Primary S.
 Whittaker, C. Marist Bros.' Coll., Johannesburg
 Basomb, M. Private tuition
 Bown, S. Marist Bros. Coll., Uitenhage
 Celestine, D. b.k. Crochu R.C. School, Grenada
 DeLacy, Q. Marist Bros.' Coll., Johannesburg
 Douglas, M.E.S. Gram. S., Kingstown, St. Vincent
 Gilbert, J. Private tuition
 Savage, G.P. s. S.P.G. Gram. S., Cape Coast
 Davis, A. a.d. Marist Bros.' Coll., Johannesburg
 Regis, H.E. Private tuition
 Gliceroux, A. Marist Bros.' Coll., Uitenhage
 Brvar, F. a. Marist Bros.' Coll., Johannesburg
 Burley, E. a. Marist Bros.' Coll., Johannesburg
 Du Plessis, J. du. Marist Bros.' Coll., Uitenhage
 Maasch, A. Marist Bros.' Coll., Johannesburg
 Majekodunmi, J.B. Abeokuta Gram. S.
 De Silva, R.M. Eton Coll., Colombo
 Erlank, D. Marist Bros.' Coll., Johannesburg
 Gray, H. a. Marist Bros.' Coll., Johannesburg
 Gunaratne, W.T. National Christian Acad., Manipay

Perera, R.A.C. Private tuition
 Ackon, R.G. Cape Coast Government Boys' Primary S.
 Taylor, E.O. Abeokuta Gram. S.
 Appiah, A.W. S.P.G. Gram. S., Cape Coast
 Keating, E. S.P.G. Gram. S., Cape Coast
 Mann, J.R. Private tuition
 Silva, J.B. Private tuition
 Grant, A. McG. Gram. S., Kingstown, St. Vincent
 Addo, B.A. Private tuition
 Laing, T. Accra Gram. S.
 O'Connor, J. Marist Bros.' Coll., Johannesburg
 Tampimuttu, S. Private tuition
 Thomson, G. Marist Bros.' Coll., Johannesburg
 Albury, G.L. The High S., Harbour Island
 Allen, E.A. Hope Institute, Lagos
 Johnson, H.Q. Private tuition
 Kulasekara, D.T. Private tuition
 McCartan, A. a. Marist Bros.' Coll., Johannesburg
 Roberts, A. Marist Bros.' Coll., Uitenhage
 Senanayake, D.S. Eton Coll., Colombo
 Akah, J. Cape Coast Government Boys' Primary S.
 Ekambaram, S. Private tuition
 Ehatamby, M.E. National Christian Acad., Manipay
 Fleischer, F.H. Private tuition
 Ogunmekan, G.A. s.d. Abeokuta Gram. S.
 Savage, D.A. s. The New High Class S., Lagos
 Dawson, L. Marist Bros.' Coll., Johannesburg
 Hmail, M. Wesleyan Central S., Batticaloa
 Mills, E. S.P.G. Gram. S., Cape Coast
 Tun Hla, B.M. Private tuition
 Fihrer, N. a. Marist Bros.' Coll., Johannesburg
 Graham, A. Marist Bros.' Coll., Johannesburg
 Morgue, H.P. Cape Coast Government Boys' Primary S.
 Mnrugupillai, V. Wesleyan Central S., Batticaloa
 Peters, E.O. Abeokuta Gram. S.
 Sayer, W. Marist Bros.' Coll., Johannesburg
 George, A.F. St. Patrick's R.C. School, Grenada
 Botcu, W.T. Eton Coll., Colombo
 Curry, T.C. The High S., Harbour Island
 Majekodunmi, S.O. Abeokuta Gram. S.
 Shivashambu, N. National Christian Acad., Manipay
 Yarney, S.M.H.B. Private tuition
 O'Reilly, James Marist Bros.' Coll., Johannesburg

Savage, B.K. The New High Class S., Lagos
 Valley, W.E.C. S.P.G. Gram. S., Cape Coast
 Huoru, A. The New High Class S., Lagos
 Page, C. Marist Bros.' Coll., Uitenhage
 Scipio, C.A. Private tuition
 Shin, M.B. Eton Coll., Colombo
 Akiyumi, S.A. Hope Institute, Lagos
 Coker, F.A. Abeokuta Gram. S.
 Guy, E.L. Carriacou Primary S., Grenada
 Layeni, T.B. The New High Class S., Lagos
 Fadase, S.O. Abeokuta Gram. S.
 Yin, M.B. Eton Coll., Colombo
 Bastians, H.S. Eton Coll., Colombo
 Cole, C.P. The New High Class S., Lagos
 Jager, L. Marist Bros.' Coll., Johannesburg
 Perera, A.W. a. Boys' English S., Biyanuilla, Colombo
 Thomas, J.O. The New High Class S., Lagos
 Walker, J.A. Private tuition
 Lino, F.A. A. Abeokuta Gram. S.
 Sackey, J.E.M. S.P.G. Gram. S., Cape Coast
 Kulandavelu, N. Wesleyan Central S., Batticaloa
 Taylor, J.O. Abeokuta Gram. S.
 Wickramasinghe, S.P. Private tuition
 Darke, T. Marist Bros.' Coll., Uitenhage
 Jibokun, J.P. Abeokuta Gram. S.
 Abrahamson, M. a. Marist Bros.' Coll., Johannesburg
 Lufora, M.P. Hope Inst., Lagos
 Suppiah, K. National Christian Acad., Manipay
 Coker, G.O. Abeokuta Gram. S.
 Saheed, I. M.M. Eton Coll., Colombo
 Wilkin, K.V. Eton Coll., Colombo
 Kandyah, A. National Christian Acad., Manipay
 Perera, S.R. Eton Coll., Colombo
 Tun, B. Norris Coll., Rangoon
 Vythilingam, S. Wesleyan Central S., Batticaloa
 Alexander, D. Marist Bros.' Coll., Uitenhage
 Levin, I. Marist Bros.' Coll., Johannesburg
 Aina, J.O. Abeokuta Gram. S.
 Rodrigo, E. Boys' English S., Biyanuilla, Colombo
 Chelliah, A. Private tuition
 Ratnayake, R.W.M. The Academy, Kandy, Ceylon
 Saenger, J. Marist Bros.' Coll., Johannesburg
 Sansooleden, M.A. Private tuition
 Fatunwa, A. The New High Class S., Lagos
 Levy, N. Private tuition

JUNIOR.

Honours Division.

Crichton, E.M. s.f. Girls' High S., Kingstown, St. Vincent
 Higgs, O.G. s. z. d. u. The High S., Harbour Island

JUNIOR.

Pass Division.

Trimble, E.M. ms. Parktown Conv., Johannesburg
 Searie, P. Conv. of Holy Family, End St., Johannesburg
 Permal, L. Norris Coll., Rangoon
 Roberts, R. Parktown Conv., Johannesburg
 Sweeting, A. The High S., Harbour Island
 Jensen, M. Conv. of Holy Family, End St., Johannesburg
 Seales, C. Southern Girls' High S., San Fernando
 Cowie, N. Conv. of Holy Family, End St., Johannesburg
 Bacchus, L.C. Girls' High S., Kingstown, St. Vincent
 Clave, I. A. The High S., Harbour Island
 Sylvia, L. F. de Private tuition

GIRLS.

PRELIMINARY.

Honours Division.

Farmer, E. Southern Girls' High S., San Fernando
 Brouse, F. e. a. l. m. u. Parktown Conv., Johannesburg
 Philip, A. P. s. o. St. Moritz Anglican S., Grenada
 Reason, S. s. a. St. Patrick's Anglican S., Grenada
 Donald, A. E. g. a. l. St. George's R.C. Boys' S., Grenada
 Ireland, O. J. Constantine Wesleyan S., Grenada
 Paynter, I. Southern Girls' High S., San Fernando
 Kerr, E. L. e. a. l. St. George's Middle Class S., Grenada

PRELIMINARY.

Pass Division.

Klomfass, M. a. l. Parktown Conv., Johannesburg
 Richards, A. e. a. l. m. u. Parktown Conv., Johannesburg
 Poitte, R. E. J. Private tuition
 Rattray, V. d. Parktown Conv., Johannesburg
 Wharton, E. Southern Girls' High S., San Fernando
 Hutchinsson, M. M. Private tuition

Cockran, P. J. Grenada High S.
 Sachs, J. a. l. Parktown Conv., Johannesburg
 Darius, J. Poinne Rose R.C. School, Grenada
 Rosenberg, K. Conv. of Holy Family, End St., Johannesburg
 Albertyn, M. Conv. of Holy Family, End St., Johannesburg
 Honeywill, M. Conv. of Holy Family, End St., Johannesburg
 Ricketts, E. Conv. of Holy Family, End St., Johannesburg
 Quartey-Papafio, R. L. Accra Gram. S.
 Graves, C. Private tuition
 Wolfowitz, G. Conv. of Holy Family, End St., Johannesburg
 Blank, M. Conv. of Holy Family, End St., Johannesburg
 Abrahamson, S. a. Conv. of Holy Family, End St., Johannesburg
 Ranger, M. E. The High S., Harbour Island
 James, R. Conv. of Holy Family, End St., Johannesburg
 Levy, D. L. Conv. of Holy Family, End St., Johannesburg

LOWER FORMS EXAMINATION — PASS LIST.

BOYS.

Barrett, B. Marist Bros.' Coll., Johannesburg
 Benjamin, S. Marist Bros.' Coll., Johannesburg
 Bernstein, C. Marist Bros.' Coll., Johannesburg
 Brenning, V. Marist Bros.' Coll., Johannesburg
 Burger, C. Marist Bros.' Coll., Johannesburg
 Bush, G. Marist Bros.' Coll., Johannesburg
 Chellatamby, V. Wesleyan Central S., Batticaloa
 Christensen, H. Marist Bros.' Coll., Johannesburg
 Clarke, F. R. Eton Coll., Colombo
 Cohen, R. Marist Bros.' Coll., Johannesburg
 Denby, R. Marist Bros.' Coll., Johannesburg
 Duckworth, H. Marist Bros.' Coll., Johannesburg
 Dundevy, C. Marist Bros. Coll., Johannesburg
 Ewulomi, G. Abeokuta Gram. S.
 Fernandes, M. Marist Bros.' Coll., Johannesburg
 Finlayson, A. Marist Bros.' Coll., Johannesburg

Flynn, U. Marist Bros.' Coll., Johannesburg
 Hankin, F. L. Marist Bros.' Coll., Johannesburg
 Harsveldt, W. Marist Bros.' Coll., Johannesburg
 Hartley, G. Marist Bros.' Coll., Johannesburg
 Hayes, J. Marist Bros.' Coll., Johannesburg
 Henwood, D. Marist Bros.' Coll., Johannesburg
 Hornby, E. Marist Bros.' Coll., Johannesburg
 Inglis, P. Marist Bros.' Coll., Johannesburg
 Johnson, S. A. New High Class S., Lagos
 Liberty, L. Marist Bros.' Coll., Johannesburg
 Ljajid, J. A. Abeokuta Gram. S.
 Lipman, B. Marist Bros.' Coll., Johannesburg
 Majekodunmi, I. Abeokuta Gram. S.
 Mazell, J. Marist Bros.' Coll., Johannesburg
 McCaragher, G. Marist Bros.' Coll., Johannesburg
 McErlain, D. Marist Bros.' Coll., Johannesburg

Murphy, C. Marist Bros.' Coll., Johannesburg
 Ogun, O. Abeokuta Gram. S.
 Ozundipe, A. Abeokuta Gram. S.
 Okanlawon, S. Abeokuta Gram. S.
 Papadoulambakis, C. Marist Bros.' Coll., Johannesburg
 Pattison, W. Marist Bros.' Coll., Johannesburg
 Peters, D. O. Abeokuta Gram. S.
 Rathouse, B. Marist Bros.' Coll., Johannesburg
 Roberts, J. Marist Bros.' Coll., Johannesburg
 Robinson, I. A. Abeokuta Gram. S.
 Schlyer, H. Marist Bros.' Coll., Johannesburg
 Scott, G. Marist Bros.' Coll., Johannesburg
 Sule, Y. Abeokuta Gram. S.
 Vogl, F. Marist Bros.' Coll., Johannesburg
 Wells, A. K. Grenada High S.
 Wilson, S. Marist Bros.' Coll., Johannesburg

GIRLS.

Baile, E. Parktown Conv., Johannesburg
 Denby, A. Parktown Conv., Johannesburg
 Eisenhoffer, D. Parktown Conv., Johannesburg
 Grant, M. E. Grenada High S.
 Honeywill, E. Conv. of Holy Family, Johannesburg
 Johnson, W. Conv. of Holy Family, President St., Johannesburg
 Johnstone, M. Parktown Conv., Johannesburg

Jones, G. Conv. of Holy Family, Johannesburg
 Jooste, Y. Parktown Conv., Johannesburg
 Klomfass, L. Parktown Conv., Johannesburg
 Kusel, E. Conv. of Holy Family, Johannesburg
 Kuy, C. A. Private tuition
 Maneta, I. Conv. of Holy Family, Johannesburg
 Michel, L. Parktown Conv., Johannesburg
 Pollock, F. Conv. of Holy Family, Johannesburg

Richards, N. Parktown Conv., Johannesburg
 Rodgers, E. Conv. of Holy Family, Johannesburg
 Rowley, E. A. Grenada High S.
 Schocher, F. Conv. of Holy Family, Johannesburg
 Thomas, F. O. Private tuition
 Thompson, J. Conv. of Holy Family, President St., Johannesburg
 Tin, M. T. Norris Coll., Rangoon

CORRESPONDENCE.

IS OUR ENGLISH PRONUNCIATION "CARELESS, SLOVENLY, AND SLIPSHOD"?

To the Editor of "The Educational Times."

SIR,—The problem of improving the pronunciation of English is being raised on many sides. The highly satisfactory results of applying phonetics to the teaching of French and German have suggested that similar methods might well be adopted in the teaching of English; reformed spelling has shown many, for the first time, how their speech looks when rationally represented; Mr. Bernard Shaw has changed a dustman's daughter to a duchess—in speech at least—through the agency of a professor of phonetics; and the Poet Laureate has discovered Mr. Daniel Jones's transcriptions.

It is only natural that all this should stimulate interest, but it requires some study of the history of the language and of its spelling before that interest can be turned to account.

In the first place we have to make sure what is meant by "careless, slovenly, and slipshod" pronunciation. Is it careless to reduce the vowels in unstressed syllables? From pre-historic times it has been a marked feature of the Teutonic languages to fix the stress on an early (usually the first) syllable of a word, and as a natural result the vowels of the unstressed syllables have been reduced or have disappeared. We notice this in many words in Old English, but we do not call it careless; the spelling of those days, being phonetic, did not attempt to represent vowels that had disappeared. At a later date words were borrowed from French, and after a time these yielded to the general Teutonic tendency, and shifted their stress from the last full vowel to one earlier in the word, and the now unstressed vowels became reduced; but the spelling had ceased to be phonetic, and was not influenced by the change. Hence a discrepancy between the written and the spoken word, in this as in many other respects, and a feeling on the part of some that our pronunciation is slipshod. Hence, too, the suggestion that we should pronounce these unstressed syllables in full, which is entirely opposed to the genius of the language. Something may be said in favour of encouraging the adoption of the Elizabethan pronunciation in reading Shakespeare; but the pronunciation of unstressed vowels as the modern spelling suggests they should be pronounced is not a restoration but a freak.

Mr. A. Millar Inglis suggests that the "carelessness" is in part due to the presence of "weak" forms in the language, and suggests that, for instance, "was" should have one pronunciation only. I submit that this would restrict the resources of our language. There is as much justification for the "strong" (stressed) and the "weak" (unstressed) forms in English as for *moi* and *me* in French. It is no doubt true that in public speaking "strong" forms will be more common than "weak," and that in reading aloud a poem we may well speak more deliberately than in ordinary conversation; but to demand the same punctilious care in conversational speech as in dramatic or oratorical elocution is parallel to suggesting that we should, in ordinary life, make up our faces and use sweeping gestures in the way appropriate to the stage. "Clearer and better speech is a matter of articulation, rather than of any stressing of unstressed syllables," is what I said at the meeting of the English Association; but it is also a matter of voice production and orthoepy. This last is of some importance, and we need to consider the problem of a standardized pronunciation. We are much nearer a standard now than even one hundred years ago; our speech is more "careful," if we so regard (as most people do) the now usual pronunciation of *-e.g.*, "education" with "edyu-" in place of "eju-," or of "humble" with "h" no longer silent; but a good many variations remain in educated speech, which are of no advantage whatever, and the removal of which would be a manifest gain. Improved voice production, too, will tend to make our speaking voices better; unfortunately the specialists in this work are, as a rule, so much taken up with the singing voice that they care little for speech. At a recent conference of teachers of voice production, the speakers did not make a very favourable impression as far as pronunciation goes.

As regards articulation, a great deal remains to be done. At present only a few of the most enlightened schools make use of phonetics in the teaching of English; but the results already obtained show that much good will come from its general adoption.

I must confess that Mr. Caldwell Cook's pronunciation and that of the three schoolboys who exemplified his teaching, did not impress me. The voice production was not effective; the articulation was, in several respects, poor—anyone with even an elementary knowledge of phonetics would have cured one boy of his bad *r*, and another of his nasalized vowels; and as for the orthoepy, the essential feature of the display, it did not serve to redeem this "reconstructed" speech. From the interesting phonetic record I made, I pick out only two, rather amusing, examples of how not to pronounce: "twopence" was given as "tupens" (rhyming with "hence"), and "breakfast" as "breckfast" (rhyming with "last"). If we are going to reduce stressed syllables and pronounce the unstressed in full, the language will be "reconstructed" with a vengeance. It reminds one of the "restoration" of some churches.

I am sorry that Mr. Caldwell Cook should have gone astray: one may well hope that his distinguished colleagues at the Perse School who make such admirable use of phonetics in teaching foreign languages will persuade him that a scientific study of speech sounds is essential for any one who undertakes to teach, let alone to reform, our pronunciation. Then there will be nothing to detract from our admiration of his work as a teacher of English, which has already produced some very valuable first-fruits.—I am, yours faithfully,

WALTER RIPPMANN.

To the Editor of "The Educational Times."

Between spelling and pronunciation there is a mutual attraction, inasmuch that when spelling no longer follows pronunciation, it is hardened into orthography, the pronunciation begins to move towards spelling.—EARLE, "Philology."

SIR,—A question of great interest was raised in a letter which appeared under the above heading in your issue of February 1. Though not by any means an expert, I venture, at the writer's invitation, to express my own opinion on the point.

Mr. Inglis asserts that the pronunciation of a great many Englishmen has become careless and incorrect. Evidently he is not referring to dialectical speech, but to that of the average educated Englishman, whose pronunciation, from whatever part of the United Kingdom he may hail, is free from regional peculiarities.

Now if we are to speak at all of carelessness and incorrectness, where are we to look for a standard to which all who claim to speak English should conform?

To those who have ever given any thought to the subject it must be clear that this standard can only be general usage. When a certain peculiarity of pronunciation runs counter to the pronunciation of the majority of English speakers it is to be considered incorrect: if such a peculiarity spreads and is adopted by the greater part of the community it ceases to be so and becomes sanctioned by general usage. In the province of language rules are valid only in so far as they are derived from the practice of the majority of speakers and writers: the individual has to conform to the rule, but the rule to the community.

Now I think that an Englishman who has, in many instances, two different ways of pronouncing the same word, one applying to the word by itself, and the other to the word as used in ordinary conversation, i.e. in a sentence between other words, does not thereby commit any offence against the King's English, but is simply following a well established rule. Prof. Rippmann says: "The use of strong forms for weak ones in ordinary conversation is undoubtedly a fault, and should be avoided,"* and gives a list of thirty-six words which, in standard pronunciation, have from one to four weak forms by the side of the strong one. In Sweet's "Primer of Spoken English" the list is still longer, comprising fifty-two words with their forms in current usage. It is only in "the

* "The Sounds of Spoken English," page 73.

sublimest kind of poetry, and in very elevated prose" that it is "permissible and even desirable to introduce certain features which are to some extent artificial, inasmuch as they would not naturally occur to one who was speaking without taking heed to his pronunciation."*

That the phenomenon is not the exception, but the general rule, I do not suppose Mr. Inglis will deny. And if it is true that he speaks correctly whose pronunciation is in accordance with that of the great majority of educated Englishmen, it is quite out of the question to call the use of weak forms incorrect.

Whether on other grounds reform would be desirable seems doubtful. That foreigners have much difficulty over weak and strong is no reason for condemning the weak forms; every language offers its own particular difficulties to students of different nationalities.

There is, however, another aspect of the question, not only of weak and strong forms, but of many other phenomena of speech, which is described in the quotation at the head of this letter. Many people seem to be of opinion that it is the spelling which ought to determine the pronunciation. But this theory is absolutely hopeless and unworkable. English spelling has ceased long ago to be representative of pronunciation, for the reason that, while pronunciation went on its way of natural evolution, spelling became fossilized, and is at present in such a condition that many despair of its ever being transformed into anything like a reasonable orthography. To apply spelling as a test to pronunciation is, therefore, an entirely arbitrary proceeding.

It is absurd to insist on the *h* being pronounced in "what," simply because it is written (why not demand a *w* in "who," or an *h* in "that"?), and there is no reason why Scottish practice should be imposed on Southern English pronunciation. The same applies to the *r*. While allowing the two pronunciations of *wh*, phoneticians are agreed that "in Standard English the written *r* is only pronounced initially (as in 'red'), between a consonant and a vowel (as in 'bread'), and between vowels, the second of which is not only written, but actually pronounced (as in 'very'). It is not pronounced between a vowel and a consonant (as in 'arm'), nor when it is final in the spelling or followed by a vowel which is only written and not actually pronounced (as in 'bar,' 'bare'). Its place is in many cases taken by the neutral vowel (ə).† Final *r* is pronounced when the next word begins with a vowel. There is, however, nowadays a tendency to leave even this *r* unpronounced."‡

Of course, as regards the substitution of *n* for *ng* ("goin', comin'"); *w* for *r* ("vewy"); the dropping of the *h*, &c., everybody will admit that these are still peculiarities that we must disapprove of. We should not forget, however, that it is owing to modifications like these, that we speak present-day English, and not Anglo-Saxon or Indo-Germanic.—I am, Sir, yours faithfully,

R. W. ZANDVOORT.

To the Editor of "The Educational Times."

SIR,—Before writing any further on this question, Mr. A. Millar Inglis should study English phonetics. English pronunciation, at its best, is the speech of the most cultured members of our nation when they are making their most careful efforts in reading, recitation, or public speaking. And, if Mr. Millar Inglis will take the trouble to study that speech, he will find that, in the pronunciation of every individual of the class specified, there are *weak and strong* forms of a large number of common words. The word "was," for instance, is, by the most careful exponents of our pronunciation, rendered in two ways, according as it is the most important or one of the comparatively unimportant words in a sentence. In the former case it is strongly emphasized; in the latter it receives little stress. And it is one of the pecu-

liarities of the pronunciation of our language that the vowels in many syllables vary in pronunciation according to changes in the stress laid upon them.

Take the sentences: (1) "It was at *eight*, not at *nine*, that the deed was done." (2) "He *was* there; I saw him myself." All the most careful speakers in England will give to the word "was" in the second sentence a pronunciation (the *strong* form) different from that (the *weak* form) which it has in both instances in the first sentence. It should be noted that we have the same variations with the syllables of longer words. Compare, for instance, the pronunciations of "companion" and "company." Both *com-* and *pan-* change in pronunciation according as they are or are not strongly stressed.

Mr. Inglis asks, among other questions, "why the *h* should be missing in 'w(h)ich' and 'w(h)at.'" If he studies the sounds involved, he will find that nobody ever pronounces an *h* in such words. Here, as in many other instances, there are two pronunciations, both of which are recognized in some quarters. In the one complained of by Mr. Inglis we have a voiceless *w*. In the one which he prefers, though he has evidently never examined its real nature, we have a voiceless *w*. What Mr. Inglis really wants, though his ignorance of sounds prevents him from specifying it, is *not the putting in of h*, but *the taking away of voice*, with the *w*.

It is a pity that letters on English pronunciation should be written by people who have never studied it.—I am, Sir, your obedient servant,

BENJAMIN DUMVILLE.

To the Editor of "The Educational Times."

DEAR SIR,—I agree with your correspondent Mr. A. Millar Inglis in both his contentions: (1) that conversational English is careless, slovenly, and slipshod, and in need of improvement; and (2) that direct training in phonetics as illustrated by the English speech of foreigners is apt to produce a stilted and artificial style; but to my mind there is no reason why phonetics should be imparted only by the direct method. With a phonetic spelling as, for example, in Italian, learning to read would be an indirect and therefore more successful training in phonetics. Prof. Rippmann, whose name is so closely associated with the work of the Simplified Spelling Society, has done more than any other man to bring this end within sight, but education in England is very conservative and apt to resist changes whether beneficial or otherwise.

I have used simplified spelling for several years and have found how potent is its influence on speech. The sound of the word is continually in one's sub-consciousness as one writes. This, I venture to affirm, is very different from being in one's *consciousness*. In the latter case affectation and pedantry can only be the result.

It seems to me to denote wastefulness when I hear of board-school children requiring courses in phonetics to eradicate a pronounced local accent. Use a phonetic spelling such as devised by the Simplified Spelling Society, and this training can be imparted by the way. It is because I am interested in beautiful speech that I am a member of the Simplified Spelling Society. A good speaking voice can give as much pleasure as a beautiful face. Those interested in the movement to preserve our national speech from deterioration, should write for literature to the Secretary, Simplified Spelling Society, 44 Great Russell Street, W.C.—Yours faithfully,

Z. LOCKE.

No. 3 Beaumont House, 205 North End Road,

West Kensington, W.

February 13, 1915.

MR. G. F. DANIELL, Chief Examiner for the London County Council Junior Scholarship, is able to note a marked improvement this year in English Composition. He says: "I am profoundly impressed by the freshness and spontaneity of expression, the humour, poetic fancy, dramatic sense, the range and variety of conception, the initiative and resourcefulness of the young essayists whom my colleagues and I have had the good fortune to examine."

* Prof. Wyld, "The Teaching of Reading," page 32.

† I.e., the vowel heard in the weak pronunciation of the (the man), a (a man), -er (greater), &c.

‡ Prof. Rippmann, "The Sounds of Spoken English," page 45.

PRIZE COMPETITION.

Prizes are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE FEBRUARY COMPETITION.

The most appropriate quotation from any well known author as applied to the title of any book mentioned in this (the February) number of THE EDUCATIONAL TIMES, whether in the text or in the advertisements.

In quantity, at any rate, this competition has been perhaps the most satisfactory that we have had. Maybe it is that there was less writing required than usual. In any case, more of our readers felt tempted to respond than on previous occasions. The title that attracted by far the most attention was that of Prof. Welton's recent book, "What do we Mean by Education?" The very wording is provocative, but most of those who sent in quotations confined themselves to passages that answer the question in a more or less satisfactory way. The result was that we had an abundant supply of definitions of education. But these had no special appropriateness. Had any of the definitions had a special bearing on the view adopted by Prof. Welton, that might have had a determining influence. But none of them had any such special application. One competitor raised our hopes by his *nom de guerre* "Weltonian," but we fail to detect in the following anything specially entitled to this adjective: "The true purpose of education is to cherish and unfold the seed of immortality already sown within us, to develop to their fullest extent the capacities of every kind with which the God who made us has endowed us" (Mrs. Jamieson in "Studies and Summer Rambles"). Another competitor made an "outer" with a quotation from Thomas Love Peacock in which education is held up to reprobation as the prime bore among subjects. But the remark has been already used as a quotation by Mr. P. A. Barnett at the beginning of one of his books, and is, therefore, a little shop-soiled. On the whole the happiest suggestion sent in is the brief "Aye, there's the rub" ("Hamlet, Act III, sc. i). This is appropriate to the question in general, and in view of Prof. Welton's erudite analysis is certainly not less appropriate to the particular case, so it gets the first place.

"The New Parent's Assistant" attracted a fair amount of attention, but the various quotations about the rod, while interesting in themselves, were obviously ruled out of court by the word "New" in the title. However useful the instrument may be to parents it has no longer any claim to rank as a novelty. More has to be said for the competitor who sends a well known couplet on the power of love, but though the rule of love is becoming more common than it once was, it can hardly be recognized as anything specially modern. "An Introduction to Plato" calls forth the well known Tennysonian passage about the "flower in the crannied wall." This is a rather interesting reference. It certainly can be brought into a very close relation to Platonism, if we approach it from the point of view of Caird and Green. But on its face value the title hardly justifies the quotation.

In some cases the experience of the teacher comes out in the quotation that the competitor regards as appropriate. Thus "A History of England and the British Empire" calls forth the couplet from Browning's "Protus":

Stop! Have you turned two pages? Still the same,
New reign, same date.

All that another competitor has to say about "A Shilling Arithmetic," by Baker, is Thoreau's two words of exclamation, "Simplify! Simplify!" Mr. Baker will no doubt be glad to learn that this is not considered appropriate enough to deserve more than mention. "Fabulae," by R. B. Appleton, suggests to another competitor the couplet from Dr. Richard Garnett's "William Shakespeare, Pedagogue and Poacher":

But most we do applaud the vast reform
Made in our classical curriculum.

Hall and Stevens's "School Arithmetic" suggests, perhaps because it is published "with answers," the following from a book of college poems called "The Scarlet Gown":—

It is the little error in the sum
That by and by will make the answer come
To something queer, or else not come at all.

A half guinea prize is awarded to Mr. William H. Pick, Queen's School, Basingstoke. The prize last month was awarded to "Grammaticus," whose name and address are Miss G. C. McCombie, County School for Girls, Durham.

SUBJECT FOR MARCH.

The most suitable story to be told to a class up to a certain point and then left to be completed by the class as an exercise in composition. The story should be completed by the competitor, but a line should be drawn at the exact point at which the teacher should stop in telling the story to his class. The kind of story wanted is one that will interest the pupils and make them anxious to supply a proper ending.

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I. (Feb. 11.) *The Problem of Psychology.*—Claims of psychology to rank as a science: peculiar nature of its subject-matter: consciousness: the inner and the outer world: the ego and the non-ego: essential bipolarity: the unity of experience: relation between body and mind: consciousness as epi-phenomenon: the relation of education to psychology: place of the educational expert between the pure psychologist and the practical teacher.

II. (Feb. 18.) *Experimental Methods.*—Value of the different kinds of psychology (a) old-fashioned descriptive, (b) empirical, (c) rational, (d) genetic: introspection: need for an objective standard: statistical method: correlation: different kinds of development of psychology in the school, the study, and the laboratory: use of apparatus: combination of rational and experimental psychology: various kinds of experiments: danger and difficulties of experimenting by teachers: need for "controls" of experiments: what the teacher may legitimately demand from the psychologist.

III. (Feb. 25.) *Sensation and Perception.*—Both sensation and perception are direct and deal with stimuli here and now present: limitations of pure sensation: the threshold of sensation: the introduction of meaning marks the emergence of perception: the so-called *training of the senses*: the theory of the fixed coefficient: prodigality of sense stimuli and the need for selection: "the preferred sense": common misunderstanding of the term: substitution of one sense for another: interpretation.

IV. (March 4.) *Ideas.*—The passage from perception to apperception: ordinary psychological meaning of *conception*: resulting abstraction: the "faculty psychology": ideas as modes of being conscious: idea as specialized faculty: presented content and presentative activity: interaction of ideas: fusion, complication, and arrest: place and function of each of these in the teaching process: the dynamic and the static threshold: the conscious, the unconscious, and the subconscious in relation to ideas: apperception masses and soul building.

V. (March 11.) *Memory.*—Retention and recall: mediate and immediate recall: association, convergent and divergent: use of suggestion: native powers of retention and recall: "brute" memory: possibility of "improving the memory": purposive element in memory: need for selection of material to be memorized: mnemonics and the educational applications: learning "by rote": attempted distinction from learning "by heart": verbal, pictorial, and rational memory: memory by categories: personal identity and memory: connexion between memory and reality.

VI. (March 18.) *Imagination.*—Interpenetration of memory and imagination: literal meaning of imagination: the series—*percept, image, generalized image, concept*: manipulation of images: unintelligent limitation of the term *imagination* to the aesthetic aspect: suspicions of serious-minded persons: the use of the imagination in science: its place in the formation of hypotheses: clearly imaged ends: imagination as an aid and also as a hindrance to thinking: imagination should not be limited to the pictorial: nature of ideals: the case for day-dreaming.

VII. (March 25.) *Instincts and Habits.*—Nature of instinct: prevailing misconceptions: order of development of the human instincts: atrophy of

instincts: basis of habit: association as a general principle of organic development: relation of habit to instinct: racial and individual habit: formation of habits: the elimination of consciousness: turning the conscious into the unconscious: the upper and the lower brain: the breaking of habits: the possibility of habit forming being abused apart from the quality of the habits formed: accommodation and co-ordination: the growing point.

VIII. (April 29.) *Attention.*—The manipulation of consciousness: the prehensile attitude: state of preparedness for any one of a limited number of contingencies: the mechanism of attention: the vaso-motor, respiratory, and muscular elements: the span of attention: field of attention: distinction between area and intensity of attention: physiological rhythm of attention: psychological rhythm—alternation of concentration and diffusion beats: unsatisfactory classification of the kinds of attention: passing from the voluntary to the non-voluntary form: interaction between interest and attention: absorption.

IX. (May 6.) *Judgment and Reasoning.*—The narrower and wider meaning of *judgment*: distinction between understanding and reason: logical aspects of judgment: connotation and denotation: the laws of Thought as Thought: the syllogism: meaning of reasoning: relation between form and matter in thinking: the need for internal harmony: exact nature of thinking: the purposive element: fitting means to ends by the use of ideas: the two recognized logical methods—deductive and inductive: their interrelations: their special uses in teaching: analogy.

X. (May 13.) *The Emotions.*—Various theories of the nature of the emotions: evil reputation of the emotions among the philosophers: relation of the emotions to the intellect: Macdonnell's theory of the relation between the instincts and the emotions: Shand's theory of the relation between the emotions and the sentiments: educational importance of this theory: Lange-James theory of the relation between the emotions and their expression: the mechanism of the emotions: the vascular theory and the nerve theory: manipulation of this mechanism by the educator.

XI. (May 20.) *The Will.*—Fallacy of the popular demonic view: unity of the ego and the will: unsatisfactory nature of the view that the will is "the choice between alternatives": nature of motives: fallacy of the popular view of "the strongest motive": relation between desire and will: the evolution of the will: relation of the will to the circle of thought: possibility of training the will of another: explanation of the phenomena of indecision: psychological meaning of the freedom of the will: the meaning of *aboulia*: fallacy of "breaking the will."

XII. (May 27.) *Character and Conduct.*—"Conduct is character in action, character is the accumulated capital of conduct": man's whole spiritual nature is involved in character: distinction among the terms *character, personality, individuality*: temperament and its relation to character: types of character: various classifications of characters by the French psychologists: mutability of character: views of Schopenhauer and others: examples of modification of character under external pressure: the sanction for such pressure: the conditions under which the educator may conscientiously seek to modify the character of the educand.

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By the Rev. A. NAIRNE, D.D.

I.

THERE is a passage in Romans (vii, 15-24) which ends, "O wretched man that I am! who shall deliver me out of the body of this death? But thanks be to God through Jesus Christ our Lord." It is a passage which moves every one who reads it to the very heart. It is the bitter cry of one who has been through intolerable bondage; the deep thanksgiving of one who has found release. Yet we are moved less by our sympathy with him than by his with us. We know that bondage and long for that release; and this writer is thinking of others even more than of himself. The context shows it here, and the rest of his writings proves it abundantly. Look, for instance, at 2 Cor. v, 14-21: "The love of Christ constraineth us. . . . We are ambassadors on behalf of Christ. . . . we beseech you on behalf of Christ, be ye reconciled to God." The whole chapter is an appeal, an outpouring of love, and withal a great piece of theology.

This rescued bondman, overflowing with gratitude and love, creating theology, is Paul of the Epistles. What are they? What is their place in the New Testament? What were the events out of which they spring? And what was his purpose in writing them?

There is no sign in these letters that the author had read any of the four Gospels. Indeed, his interest in the course of our Lord's life before the Crucifixion seems to be slight. Whatever he may have meant in 2 Cor. v, 16 by not knowing Christ after the flesh, his general thought is that which is expressed in Col. iii, 1 ff.: "If then ye were raised together with Christ, seek the things that are above, where Christ is, seated on the right hand of God. Set your mind on the things that are above, not on the things that are upon the earth. For ye died, and your life is hid with Christ in God. When Christ, who is our life, shall be manifested, then shall ye also with him be manifested in glory." This Christ is for him certainly the same Jesus who ministered in Galilee, but his main thought is of Him as dying, risen, exalted, and about to come in glory; meanwhile the true life of the faithful is with Him, or in Him, in heaven. We may infer that the

* Lectures delivered at King's College, London.

Epistles of St. Paul were written before the Gospels became current; perhaps before any of them were written.

The Acts of the Apostles is in great part a history of St. Paul's life and work. Comparing the Epistles with this narrative, we can, more or less precisely, fit them in with places or stages in the narrative. We read how Saul, a Jew, of a family of Roman citizenship, was educated at Tarsus (where there was a Greek University), and at the feet of the Rabbi Gamaliel; how he lived according to the strictest party of his religion, a Pharisee; how he persecuted the nascent Christian Church, was marvellously converted outside Damascus, while on a persecuting expedition; how he spent years in what we should call meditation, though he would prefer such a word as "revelation"; how he was summoned to take part in the work of the Church, and how he soon gave new scope and character to that work. For Saul, who is henceforth known as Paul, determined (he would say was constrained by the Spirit) to carry the Gospel to the Gentiles. There was difficulty and opposition, but he persevered. He made three missionary journeys in widening circles—in Asia Minor; Asia Minor and Greece; Asia Minor and Greece again, but this time with a perilous continuation. Returning to Jerusalem he was nearly killed by the Jews, rescued and arrested by the Roman soldiers, imprisoned and tried at Caesarea; then he appealed to Caesar, and, after great adventures by sea and land, reached Rome. At Rome he was kept under arrest two years, and at this point the narrative in Acts breaks off.

In this brief sketch we have followed the narrative in Acts, filling up a little from the Epistles. The Epistles may be fitted in thus: 1 and 2 Thessalonians belong to the period of the second journey; Romans, 1 and 2 Corinthians, Galatians to the third; Ephesians, Philippians, Colossians, and the short private letter to Philemon belong to the time of captivity at Rome. Since Acts tells the story up to that point, it must have been written somewhat later; Acts is, moreover, a continuation of the second Gospel; these letters, therefore, were written before Acts.

There is some doubt about the date of the Apocalypse, but no one thinks it earlier than the war with Rome which ended with the taking of Jerusalem, A.D. 70. The tradition of the Church puts the other writings which bear the name of John (including the fourth Gospel) at the close of the apostolic age, and the whole character of their thought and theology agrees with this tradition. St. Paul's Epistles, therefore, are earlier than these writings. The like may probably be asserted with regard to the rest of the shorter Epistles, though some think that the Epistle of St. James is quite early. Allowing for the possibility of that exception, we may say with fair confidence that St. Paul's Epistles are the earliest books in the New Testament.

If, therefore, we would study the New Testament historically—as is done, for instance, in that vivid and delightful book, "The Historical New Testament," by Dr. Moffatt—we should begin with these Epistles. In another vivid and delightful book, Dr. E. A. Abbott's "Silanus the Christian," we read, through the medium of romance, how certain well born Romans of the early Empire were brought to or towards Christianity by falling in with some of these Epistles. That shows how theologically, as well as historically, it may be a good way to begin with St. Paul. Fired by his enthusiasm, surprised at his earnest conviction and deep theology, we should then go to the Gospels to learn more of this Lord who has inspired the Apostle with such thoughts, joy, and hope. And thus going, we should be prepared to estimate the difficulties as well as the simplicities of the Gospels aright.

There is much to be said for such an order. But it is hardly possible for an Englishman in the twentieth century to follow in the steps of Silanus. We may refresh, test, enlarge our faith by studying the New Testament historically. But we can no longer go from St. Paul to the Gospels for the first time. Wherever we start, we start with some knowledge of the Gospels. And it must be noted that even with regard to the historical order of composition there is an important sense in which the Gospels may be said to come first. Whenever they were written (and it is possible that St. Mark may be

quite early) the characteristic of the three first Gospels is that they preserve, largely unmodified, the Galilean tradition. In a literary section cut across the New Testament (so to speak) we get Paul, Gospels, Acts, John; in a theological section we get Gospels, Acts, Paul, John. Sometimes we may desire to clear our historical view by starting from St. Paul; sometimes to simplify our theological reflection by starting from the earlier Gospels. But we still have to remember that "the days of the flesh" of our Lord did lie behind St. Paul's theology; and that the wonder of the Gospel has been interpreted by that theology. Certainly we can never leave that interpretation out. It is an idle fancy to suppose that we can start afresh and make a new Christianity from the Gospels alone. The eternal value of the Gospel involves its need of interpretation from age to age. St. Paul's is the first of these interpretations and partakes of the eternal value of that which it interprets. So far as any later interpretation has like value, it must lay hold of all that has gone before. Never has a good theology, or even (if the paradox may pass) a good heresy, been independent of the stream of tradition.

St. Paul's Epistles, then, we may say, stand first in the making of the Canon of the New Testament; in the development of New Testament theology they stand in the second place. But this assertion cannot be made unless we have a certain confidence in our authorities for St. Paul's life and teaching. These authorities are Acts and the Pauline Epistles. The trustworthiness of both these authorities has been questioned. It is necessary to spend at the beginning of our study a little time on this critical question; yet it need be but a little time, since we do not approach the study as exact critics but as plain men who will be satisfied with a rough working explanation of the facts.

We shall not, for instance, be too particular about the date of the composition of Acts. Even if it were not written by a companion of St. Paul, but in a later generation, the question we should really care about would be: Is it drawn from good material or tradition; does it give a fairly accurate account of his career? And if we found, as we read it, that it was in substantial harmony with the Epistles, that would be good reason for trusting both it and the Epistles. But that harmony is just what many have denied. Here comes in our less scrupulous epithet, "substantial." It may be that St. Paul in Galatians and the author of Acts do not agree very well about what happened on an important occasion when St. Paul visited Jerusalem. But it might be possible to understand both better if we knew all the circumstances. We still observe even to-day that a certain amount of discrepancy is quite the rule when two people give an account, say in two letters, of some event; it is only when they are cross-examined by a third person that these quite honest variations are adjusted. A certain amount of such discrepancy in Acts is perhaps a sign of the author's good faith and independence; if he was St. Paul's friend, he used a friend's privilege of not reading his companion's books. Nor is it to be expected that a friend will show a man's innermost mind just as the man himself would reveal it. This will be even less likely if he is telling a story with a broad scene and many actors, spending a large proportion of his space on action, and indicating the movement of minds rather than analysing them.

It has been objected that Acts fails more seriously in this respect. The author "indicates" St. Paul's mind by giving sermons and speeches of his in which St. Paul's theology does not appear, but another theology, the more colourless theology of the later Church. One answer to this objection will be better understood after we have made our second study in St. Paul, and have seen how he inherited the early Jewish-Christian idea of the Kingdom of God and the expected advent of our Lord as Christ in Glory. Enough for the present to point again to the passage from Colossians quoted above, and then to the speech at Athens, Acts xvii. 22-31. This speech has been sometimes appealed to as expressing later and wider ideas than the Epistles; but it will be noticed that the main stress is there, too, laid on just that thought of the great advent.

It is only of late that attention has been redirected to the

predominance of this thought in the Gospels and in the Epistles of St. Paul, and this renewed attention removes a good deal of the objections which have been raised to Acts. Of late, too, it has been shown by observation of a wider range of facts that from the first there must have been what may be called "laymen's theology" in the Church behind the personal theology of a Paul or a John. It is not "colourless" so much as "simple." It is the theology of Acts. It points not to a late date, or to ignorance about St. Paul, but to a "layman" as author. Thus when St. Paul speaks of the Eucharist or Supper of the Lord he penetrates deep into the doctrine of that sacrament. The author of Acts often speaks of it, but with a devout simplicity and nothing more. That is typical of his whole attitude towards the Apostle's teaching.

We must not pursue the inquiry. It may be hoped that what we have noticed is enough to satisfy us that on the whole, without guaranteeing strict accuracy in detail, we may accept as trustworthy the account of St. Paul given in Acts. We may go a little farther and suppose either that the book was written by a companion of St. Paul, or that the author has drawn upon the testimony of such a companion.

That St. Paul wrote—or dictated—Romans, 1 and 2 Corinthians, and Galatians, has hardly ever been doubted. Doubts have been expressed about the Epistles of the Captivity. We should perhaps be little impressed by any of these doubts except with regard to Ephesians and Colossians, concerning which a remark will presently be made. Nor should we be much interested in the questions which have been raised about 1 and 2 Thessalonians. All these ten appear in the earliest list we have of Pauline Epistles, that of Marcion at about A.D. 150. But Hebrews and the Pastoral Epistles (1 and 2 Timothy, Titus) are not in Marcion's list; and, heretic though Marcion was, there is a significance in the omission which corresponds to other observations that force themselves upon us.

As for Hebrews it might be almost said that there never has been a time when the earliest opinion of the Church—that it was not St. Paul's—has been quite forgotten. Origen said in the third century that no one who really knew Greek could think that St. Paul wrote this Epistle, and almost everyone would agree with him to-day. It had been associated with the Pauline Epistles at Origen's City, Alexandria; and by degrees people left off talking about the critical difficulty and quoted it as St. Paul's. So in our English Bible it is printed with St. Paul's name at the head of it, but is placed last as though in the margin of the collection. If we were to accept it as St. Paul's, we should be obliged to add a fourth to our three studies of the Apostle: its doctrine is in so many respects so different from the other Epistles.

As for the Pastoral Epistles, it will be noticed that we found no place for them in the narrative of Acts. That narrative leaves St. Paul in captivity at Rome. To account for the Pastorals we are obliged to suppose that he was released from that captivity, spent more years in active ministry, and was again arrested; 2 Timothy shows him in this second and last imprisonment, expecting death. There is a tradition to this effect, but it cannot be traced to a very early source. There is nothing to make the tradition impossible, and the whole question is complicated and difficult. We will not go into it more deeply, for in three short lectures we must confine ourselves to the great main lines of St. Paul's teaching, and the peculiarity about the Pastorals is that they pass away from those main lines: they deal chiefly with details of Church order; they breathe but very little of the passionate faith of the converted Apostle. We shall have little occasion to refer to them, and it will therefore affect our study very little if anyone chooses to strike them off our list of authorities. At least, we might be content to say so, if it were not for one passage, 2 Tim. iv, 6 ff.: "For I am already being offered, and the time of my departure is come. I have fought the good fight. . . . Only Luke is with me. . ." Every one remembers the great words, and every heart insists that they are Paul's. Reason, I believe, has the right to side here with the heart. The words are surely Paul's, even though we be not sure how far his own words continue through the rest of the passage.

What is the explanation of this riddle—the reconciliation of this conviction and this doubt?

We spoke just now of an early list of St. Paul's letters. That particular list did not include the Pastorals, but another, almost as early, does. These lists represent collections of the letters themselves in manuscript copies. How were these collections, or, if there was one original collection, how was that collection made? Neither St. Paul, nor the people who considered his letters knew that they would presently become sacred documents, like the Old Testament Scriptures which were their Bible. It is probable that St. Paul wrote some letters which have altogether disappeared. When his words began to be considered sacred, and churches began to collect and preserve them, it is likely that few of his autographs could be produced. There would be some scraps of the Apostle's own handwriting and a quantity of copies, many of them worn or mutilated. Editing would be necessary; sometimes combining, patching, or even extensive filling up of contexts. It is almost certain that two letters are combined in our 2 Corinthians. It is not improbable that part of another letter is joined with the Epistle to the Romans as we now read it. Many of the puzzles about Ephesians and Colossians might be explained as due to editing of imperfect documents. And we might (without forgetting the many serious difficulties which criticism points out) venture to surmise that the Pastorals are a boldly handled edition of fragmentary "remains" of St. Paul. Thus, at least, the suspicion of "forgery" would be removed; and that is worth noticing, because the explanation "forgery" is the least possible of all. Consideration, not merely of the character of the New Testament writings, but of the literary habits and ideas of those times, puts deliberate fraud out of the question.

This discussion has been too brief to satisfy scholars. We must always remember that criticism is the attempt to clear up all the difficulties, and that there are many real difficulties in the tradition of these ancient documents. Those who care to pursue this part of our subject further will find help in Dr. Moffatt's "Historical New Testament" (mentioned above), and in his more elaborate later book, "Introduction to the Literature of the New Testament" (both published by T. & T. Clark). But it may be hoped that, though brief, the discussion has not been too superficial to be honest. It was meant to answer the questions which would occur to the common sense of careful readers. A fuller answer of the same kind will be found in Dr. Headlam's "St. Paul and Christianity" (Murray). This book is short, clear, and eminently strong; and it gives a straightforward, well considered account of St. Paul's teaching. To that part of the subject we must now pass, laying down some general lines which may be followed up in two further lectures.

It has been said that the Epistles do not give merely Paul's theology: they give theology itself. At any rate, all will agree that they do give theology; they are difficult; they are sometimes contrasted with the untheological simplicity of the earlier Gospels. Yet everyone who has read them in church knows that they are more attentively listened to than any other part of the Scriptures. One reason for this may be that they are so closely in touch with the ordinary life of men. Not only do they generally end with plain directions about conduct: in the argumentative body of the Epistles theology is always passing into conduct, conduct into theology.

Yet "passing into" is too cold a term. Fused, like white-hot metal, would better express the process. This fire, this energy, is the most surprising characteristic of St. Paul. This, more than his position in the development of the faith, distinguishes him from all the other writers, and gives an impulse of its own to his theology. "Energy," "energize," are favourite words in his Greek; our English translation "working," "work," loses not a little of the original vigour. He looks at everything from the point of view of pressing onward. What Christ has done, and will do, is his thought; it is left for St. John to answer the later question, what Christ is. "Nothing is calculation; all is adventure": that aphorism might be used to illustrate both his missionary labours and his ever-growing consciousness of God. If we try to analyse

his faith, and set it out in a stationary diagram, we take the life out of it: we only grasp it when we share its swift forward motion. It is analogous to "the philosophy of change."

This must be so, for St. Paul's faith is his passionate affection towards a person—his Lord, Jesus Christ. It grows as he enters more and more deeply into union with his Lord. The Christ Himself, he finds, is still growing; still, therefore, in a real sense changing: this is a great thought in Ephesians which we shall consider in the third lecture. For the present it is enough to notice that the vividness of personal affection gives a wonderful life to these Epistles, and is perhaps the truest cause of our attentive listening when they are read. Here is certainly the reason why that controversy of his about the Law, which might seem worn out to-day, does not weary us. It is but the first step to his enthusiasm for Christ. Matthew Arnold, in "St. Paul and Protestantism," says that desire for righteousness is the key to his character and faith. The Law could not satisfy that desire: Christ did. But in seeking righteousness he found much more. When he found Christ, or rather when Christ found him, he was mastered by an overwhelming gratitude and love which changed the whole world, the whole of life for him. What happened then to him has in varying measure happened to others since then, and perhaps before. "And thee—all of a sodent the Lord found me! Yes, pair Reuben Judge, as dawn't matter to naebody, the Lord found un. It was like as thoo His fecace cam a-glisterin' and a-shinin' through t' mist. An' iver sence then aa've jist felt as thoo aa could a' cut an' stackt all t' wood on t' fell in naw time at a'." That is fiction, from "Robert Elsmere," but it is a picture of what does happen. St. Paul is a deep thinker and no pains of scholarship can be dispensed with in our continually renewed attempt to understand him. The Reuben Judges have often some twist of mind or temper, some narrowness, that obscures much of what St. Paul has to teach them. Yet it may be doubted whether any one will really understand St. Paul who has not learned the lesson in one class or another of their school.

The outburst of faith in St. Paul was a new life which came through death. It was a repeating in himself of the dying and resurrection of the Lord. So it was union with Him. Not the following of Christ, but the being one with Christ is Pauline religion, Pauline joy. He flashes out the idea which he cannot describe in Gal. ii, 20: "I have been crucified with Christ; yet I live; and yet no longer I, but Christ liveth in me: and that life which I now live in the flesh I live in faith, the faith which is in the Son of God, who loved me, and gave himself up for me."

Later in the same Epistle, iv, 19, he says in like manner to the Galatians: "My little children, of whom I am again in travail until Christ be formed in you." Still more frequent is the complementary idea that the believer lives "in Christ." That phrase "in Christ" is a "token in every epistle," as he speaks somewhere of his signature. The Revised English Version recognizes that. In the version of 1611 it was sometimes altered; as in Rom. vi, 23, where the rendering, "through Jesus Christ our Lord," witnesses to the ease with which the central things in this Apostle may be missed.

For most men and women perhaps—certainly for him who writes this paper—it would be quite impossible to claim understanding of St. Paul; yet we may love and honour him with all our hearts, and modest study of his writings may be one of the means by which we may be brought nearer to understanding him as years go on. Some words just uttered were perhaps a misrepresentation of St. Paul's mind: "the believer lives in Christ." St. Paul would have preferred the plural number: "You all," or oftener "we all," so live. For him this large life overflows. What he has received he henceforth lives to give to others. There is no private property in that divine richness. "And Paul said, I would to God, that whether with little or with much, not thou only, but also all that hear me this day, might become such as I am, except these bonds" (Acts xxvi, 29). . . . "And I will very gladly spend and be spent for you, though the more abundantly I love you, the less I be loved" (2 Cor. xii, 15).

APPRECIATION AND INTERPRETATION, ESPECIALLY WITH REGARD TO MUSIC.

By HERBERT ANTCLIFFE.

THE words "appreciation" and "interpretation" are very often wrongly defined, and are nearly always employed in a limited sense, if not in a wrong one. The appreciation of a work of art is the taking it into and making it part of one's self. Literally, it is the grasping, or taking hold of it. We employ the term rightly when we speak of appreciating the irony of anything, just the same as when we speak of appreciating a compliment or the benefit of anything pleasant or good.

Interpretation, on the other hand, is the action of one who goes between. The most familiar example of this is that of language. To interpret a language we must have a full knowledge of it, and very often the knowledge of another, or of some other subjects. We can frequently translate, with only a slight knowledge of a language, with the aid of a good dictionary; but we cannot interpret the language without a wide and deep knowledge of its idioms. Also, we can appreciate without being able to interpret. For instance, we can appreciate our own language, very often in its most refined and subtle forms. We cannot interpret it to foreigners without knowing something of their language, nor to our fellow-countrymen without knowing something of the subject upon which it is used, and of the limits of their appreciation and understanding.

And so it is with music. Beethoven said that his music must speak "from the heart to the heart." But the heart of the composer may be a long way from the heart of the hearer, and therefore the message must pass through the intermediate stations of the senses and imagination. The ultimate aim of all art is to stir the imagination, and where an art falls short of this it fails of its purpose. A train journeying from one important centre to another must pass through other places, though without necessarily stopping at any of them. Neither does the best music stop at pleasing the senses, but travels right along through the senses to the imagination, and thence to the heart.

This being so, much the same analogy may be employed on another side of the subject. We cannot get to appreciation except by passing first to liking and thence through different kinds of knowledge to the ultimate end of being moved to joy or sorrow, to mirth or martial ardour, or to whatever sentiment the music is capable of evoking. Now each person has his or her own individual likings, and each person has likings of various kinds and degrees. Some people enjoy tune alone, or at least more than any other characteristic of music; others like something in which rhythm is the dominant feature; while tone-colour and varied harmony are what others prefer; and humour, sadness, sentiment, appeal each to the special likings of others according to their temperaments. The road to appreciation lies through the preferences of each person, and it is rare indeed that a full appreciation can be taught except by a primary appeal to them. It is by realizing these preferences, these likings, and passing through them to something higher or more complete, that the best kind of teacher achieves success.

The different kinds of knowledge which are necessary before we can get a full appreciation of music vary considerably according to the class of work to be appreciated, and to the circumstances which are to lead to its appreciation. A simple slumber song or *morceau de salon*, for instance, does not require the same amount or the same kind of knowledge as does a symphonic poem, or even a large descriptive piece. For descriptive and program music (which have actual as well as theoretical differences of a vital nature) some direct knowledge of the composer's intentions is requisite, while for a symphony some small amount of knowledge of the general principles of musical architectonics is desirable.

Of course, for all music as full a knowledge as is obtainable is to be desired, and the fuller it is the more likely is our

appreciation to be full. One warning in this matter may be advisable, however. It is a knowledge of the music itself, and not of the accidents and incidents of the music, nor even always of its technical structure, that is required. All the anecdotes in the world will not help unless they have some direct bearing on the general form or emotion of the music itself.

Knowledge which is necessary for the appreciation of music may be divided into two main classes. The first of these is what we may call continuing knowledge, or, as we usually say, education; the other is the immediate knowledge in respect of each separate work. To obtain these two kinds of knowledge we must employ not only our intellects but also our emotions; which again divides knowledge into two further classes, to which reference is made at the close of this article. We get automatically and as a matter of course some education in all subjects with which we come into contact, and as a rule the best education is that which is obtained without any formal attempt to develop it.

In the matter of art we obtain education for the emotions through the intellect. That is, to put the matter in commonplace language, we learn what to like by being told or by discovering for ourselves what is good. Therefore in matters of artistic education, as soon as we are in a position to learn anything at all about definite art works, we learn something of the Classics, and from them proceed by slow degrees to what is modern or new.

It may be asked in this connexion quite pertinently, What is a classic? A classic is not necessarily classical in form or substance. There are many definitions of the word "classical," both in relation to music and to other matters, but none of them necessitates the inclusion of every classic under such definition. A classic is merely something which is generally acknowledged as a model, in principle or in construction, upon which other works may be based. The reason, then, why we proceed from the Classics to modern and unestablished works is that in the former are exemplified certain principles of beauty or effective expression which are in no way in dispute.

In modern work there is always an uncertainty whether what we most admire at present will be acknowledged as good by the next generation or its successors, or whether even we ourselves may not find reasons for changing our views with the change of feelings which years bring upon us. When we have realized the principles of beauty and expression which have made these works continue and become classics, we are more or less in a position to appreciate, to grasp, what is good and what is bad in more modern and less known works; though we can never absolutely judge for ourselves.

The two kinds of knowledge which have been spoken of as being necessary, are so for quite different reasons. Intellectual knowledge is necessary because "emotion creates, while intellect selects and shapes." We all from time to time have some emotion which we wish to express to others. And it is this emotion and the desire for its expression which brings into being the thought and the matter of the expression. But it is the intellect, the power of ordering and controlling the thought, which decides how much of the emotion is such as may be expressed and what is the best medium of its expression. That is the whole case with regard to the necessity of knowledge in the interpretation of thoughts which may in themselves be musical through the medium of music.

When we turn to the question of appreciation in its relation to interpretation, as well as in its relation to enjoyment, we find that knowledge is necessary to enable the interpreter or listener to get into complete sympathy with the composer. It has been pointed out that there is an intellectual understanding and there is an emotional understanding. The intellectual understanding is useful in directing the emotional understanding; the understanding of the mind may aid the understanding of the soul. A great work of art will always, in time, compel the emotional attention towards its main characteristics, and will "speak for itself." To the artistically uneducated, however, it will

take longer in doing so than to the artistically educated. We nearly always find that those who have little or no understanding of art, though they may like pictures, music, or other forms of æsthetic expression, grasp at unimportant details rather than at the complete work. They may find interest and amusement in such details, but they avoid the main issue, or narrow it down to a mere portraiture, or to an expression which is only incidental to, and sometimes quite beside, the artist's intention. A great work of art makes all its details, however many or few, lead up to its main issue. If it has many details the uneducated observer sees some of them and is distracted at first by those which he sees. The educated observer sees more of these details, but is not distracted because he can correlate them with each other and with the central feature of the design, whether that design be in line, colour, or sound. He is thus able to understand the art work more readily than the one who has not been educated to do so, even though proportionately to his education he may have a smaller capacity for understanding.

It is evident, therefore, that the person who teaches art in any of its forms has a very complex task. He may teach all the technicalities of form, perspective, colour, or of prosody or harmony, or whatever may be the particular subject required, without arousing the understanding—that is, without creating an appreciation. And, of course, those who would learn an art may acquire all these and lack the necessary capacity for grasping the subject. We have to teach or to learn so much of these as will enable us to "get beneath the surface." It is only when technique helps us to appreciate the fullness of idea or feeling that it is an aid to understanding in its real sense. If a knowledge of "how it is done" does not help us to know "why it is done," we are better without it. Properly imparted and applied it does so help; but for that proper imparting and application many considerations are necessary, the chief one being a real knowledge and appreciation on the part of the teacher. The different forms of knowledge, its different details, are such as are included in the ordinary artistic or musical education, and the relation they bear to one another forms the basis of all the textbooks and technical articles of the higher types which are penned.

CURRENT EVENTS.

A MEMBERS' MEETING will be held at the College of Preceptors on Wednesday, March 17, at 5.15, when Prof. A. F. Pollard will lecture on "The War and its Prospects."

THE London Study Circle of the Montessori Society was opened on February 19, by a lecture on Dr. Montessori's conception of liberty, given by Mr. C. A. Claremont.

WE report with deep regret the death of Mr. Charles Francis Hodgson, the elder son of the late Secretary of the College of Preceptors, who died on Christmas Day. He was shot in action two days previously and did not recover consciousness.

THE Head Mastership of Saham College, Norfolk, is vacant, the Rev. C. P. Hines being on active service.

PROF. T. P. NUNN, Vice-Principal of the London Day Training College, has been granted permission by the London County Council to accept the position of External Examiner in Pedagogy, to which he has just been elected by the London University.

THE following scholarship dates at Oxford are announced for 1915:—I. Classics, Magdalen College (March 16) and Pembroke College (May 11); II. Mathematics, Magdalen and Brasenose Colleges, Christ Church, and Worcester College (March 2); III. Natural Science, University, Oriel, Lincoln, Magdalen, and St. John's Colleges (March 2) Keble College (March 9), Merton, Exeter, New, and Brasenose Colleges (June 15); IV. History, Christ Church (June 1), Non-Collegiate Students (June 8); V. Music, Keble College (March 16).

ESQUISSES FRANÇAISES.

By MARION CAHILL.

THE following little sketches of Gallic thought and manners may, at such a time as this, be interesting to English readers:—

I.

My little French girls were, one afternoon, looking over a copy of *Punch*. Many of the cartoons, particularly those dealing with the present crisis, they enjoyed hugely.

"Ah, Mademoiselle! never your English fun hurts. In France in every cartoon there is a sting. Always to make laugh in England, never to hurt."

I thought this showed some penetration, as French humour is notoriously "biting." My little girls are merciless in their criticism of each other, and regularly sharpen their wits at the expense of their neighbour.

Their mentality is so different from ours—a Gallic "salt" so far removed from English wit that I wished to test how far their appreciation of English humour extended. So, as an experiment, I told them of *Punch's* historic advice to those about to marry—"Don't."

"They listened attentively, and then, as I stopped, "Continuez, Mademoiselle, je vous prie," politely.

"That is all—there isn't any more."

"But, Mademoiselle, pardon—'Don't' what?"

"Marry."

"But you said it was an advice to those about to marry themselves. If they 'don't,' then there is no marriage! And that is not a joke. For, see you, Mademoiselle, there will be enough 'old girls' to make cry, in France, after the War! And your *Pouche* 'e like that! *Ma foi!* He is not a Frenchman."

I agreed that *Punch* was incorrigibly British, and in an eminently subtle degree. Almost at the first encounter he had fallen foul of that subject so sacred to the *jeune fille de France*—matrimony.

Only the other day, Lucie, aged ten, was brooding darkly in a corner. And, when I asked her of what she was thinking, she replied, piously, "I thank *le bon Dieu*, Mademoiselle, that I am not of an age marriageable. Figure to yourself that thousands of Frenchmen are dying for *la patrie*, and every moment it becomes more difficult for the *jeune fille* to marry herself. Without doubt, when I am of a ripe age, the War will be over, and I shall find a husband. Already I have in my eye a brave *garçon*. He has only twelve years, so he does not fight."

Still desirous of experimenting with British humour, I proceeded with *Punch's* other classic—"Go and see what Baby is doing and tell him not to."

Again they listened politely. They felt uneasily that here was another cryptic joke made in allusion, and they laughed uncomfortably. And I heard Marcelle, in a loud whisper to Suzanne, ask eagerly: "What is it that the English *bebé* do that is so *chic*?"

II.

Armande has just returned from Brittany, where she has been spending a long holiday. Her father's military duty took him there, and the family migrated with him, until he was ordered to the front. It is touching to see how the Frenchman's family cling to him until the last bitter moment of parting.

"We went to the station, Mademoiselle, to say good-bye! But how could I speak with my swallowed heart and *les larmes aux yeux*? It was not possible, and now, *mon âme est en tourmente*, since eight days he has been fighting near Soissons. *Mon Dieu!* will it never end, this so dreadful war? Not till every Frenchman is dead, I fear."

The general impression among the Bretons appeared to be that the War would end in the Spring! But surely in the Spring!

"What does Lor' Kishenaire say, Mademoiselle. Does he think it will end *lorsque le printemps entre*?"

Without making myself responsible for the hermetically sealed opinions of Lord Kitchener, I said I was afraid such a rapid end was impossible.

It may be mentioned in passing that the English, much as they grumble at the Censor, and because no war correspon-

dents are allowed to witness engagements, know infinitely more of what is happening in France than the French themselves. The latter have often to be content with reading letters from the soldiers, which are, they say, with pardonable pride, *assez édifiantes*.

The average Frenchwoman is deeply depressed at every temporary reverse. At every success, she is correspondingly elated, and sees in imagination the enemy goose-stepping back to Berlin, aided in their rapid march by the persuading bayonets of the Allies.

"And," proceeded Armande, with unconscious humour, "my uncle he is in a *souerrain*, and never 'e see no Germans, nothing to shoot at all, not even a rabbit, Mademoiselle! And it is so dull, so dull. But, *le bon Dieu*, 'e give 'im and 'is men a great consolation! My uncle 'e write to my aunt, 'Figure to yourself, *chérie*, we are here shut up in a *souerrain* with the chef of the hotel X. (mentioning a famous hotel in Paris, of world-wide repute). And our only pleasure, it is to eat! Send at once, *ma bien-aimée*, the *recette* for the *croquettes de chocolat*, for he is of a marvel, and I embrace this unique opportunity to profit of it.'"

III.

Two little brochures, compiled from papers found on the German prisoners, have been published in Paris. One is entitled "Quelques papiers trouvés sur des Prisonniers Allemands," and the other, "Ils sont toujours les mêmes!"—for the French have by no means forgotten 1870. A French lady said to me, recently, with tears in her eyes, "Mademoiselle, for eighteen months after the war, we had the army of occupation in France. Only *le bon Dieu* knew what we endured. Boxes were put in the public streets for contribution, that the indemnity might be paid off, and the country set free as from a pestilence. And at night, the peasants with their hard-earned sous in their hands, and curses in their hearts, would steal out and drop their money into the box."

And anyone who knows the frugality of the French peasant will realize what a pass France was reduced to, when Jacques Boulhomme took his pittance, earned in the sweat of his brow, to swell the vast hoard that was to go to alien hands.

The little pamphlets are, of course, published in French, and interest because they throw light on the French mind, the compiler giving various alluring titles to the different chapters, and making comments when moved to the same. The Frenchman is a born *moqueur*, and is incapable of resisting the temptation to a *bon mot*.

One faithful German Frau writes to her Fritz (not the least entertaining portion of these booklets is to read German sentiments—often of a most homely and intimate character—expressed in the elegant language of Gaul):—"N'oubliez pas de m'envoyer des vêtements, du linge, des objets de toilette, appartenant à des Belges ou à des Françaises qui sont toujours si bien mises." This the editor styles *recommandations pratiques*, and is part of a chapter indulgently headed "Leurs Fidèles Epouses."

Another section, sympathetically entitled "Leurs Souffrances," contains the following extracts from a singularly naïf diary.

"10 Octobre. Nous avons trouvé un plat du harengs; j'en ai mangé quatre.

"14 Octobre. Nous logeons chez un marchand d'œufs. J'en ai gobé 3, mangé 8 ou 9 en omelette, et 3 durs. C'était un bon diner."

And the Frenchman adds admiringly:—"Pour gober 3 œufs, en manger 9 en omelette et 3 durs, il faut avoir un fameux estomac."

One good lady is evidently anxious concerning her husband's "culture," for she writes to him, that as he is so near to Paris he really *must* learn the Tango. She appears to be much in earnest, for a few days later, she writes again: "Il faut que tu apprennes le tango, pour pouvoir nous l'enseigner quand tu rentreras."

And the compiler remarks slyly: "On peut se figurer d'ici Messieurs et Mesdames les Boches en train de danser le tango. Ou ils s'attendent un peu: nous nous chargerons de fournir la musique."

IV.

There is the swish of skirts upon my stairs, some suppressed laughter, and a whisper, "Frappez, Marcelle,

dépêchez-vous." There is a timid knock, followed by a louder, more determined one. I open the door, and see a crowd of laughing eager faces, and they all begin to talk at once.

"Marcelle —"

"a vu —"

"un soldat anglais —"

"in a —"

"PETTICOAT!"

It is out. They have seen a Scotchman in a kilt. I did not dream that the national dress of Scotland could have created such a sensation. I explain to them that it is not a petticoat, but a kilt.

In the meantime Marcelle is giving a lively demonstration of the peculiar lilted walk of the Highlander and the rhythmic swing of his "petticoats." It is somewhat interfered with by an ultra-fashionable skirt.

"Ah! I like eet! I like eet! Dites donc, Mademoiselle, s'il vous plait—'keelt, keelt'; c'est drôle-ça."

"Pas du tout," from Yvonne. "Know you not that *la reine* Marie Stuart wore the kilt at the Court of France, and she was called *la belle Ecossaise*?"

"But she was a girl! Say then, Mademoiselle, are the 'Chocks' as you call them, those whom Napoleon called the 'men in petticoats, and they fight like the devils.'"

"Napoleon did not say that," interrupts Gisèle, "it was an officer who said it to him. And *les Boches*, Mademoiselle, what think they of your Scotch soldiers. We see they wear the 'plitted' skirt still, and do they still fight *comme le diable*?"

And I informed them that so unsullied was the reputation for martial ardour of the Highlanders that the enemy had called them *les dames de l'enfer*.

I said it in French, as I find one can say anything in that wonderful language. "Ladies from hell" sounds truly awful in English, but there is nothing startling in *les dames de l'enfer*.

V.

I saw in an English paper an article on William II of Germany, in which it was suggested he was suffering from megalomania. Such a word suggests unutterable things. If, on the other hand, you say with the French, "*Il a, la folie de la grandeur*," really it sounds very pleasant. Every day I realize the possibilities of French more and more. Anything unpleasant, wrapped up in French, becomes quite palatable. To-day Juliette was looking very pale.

"Qu'y-a-t-il, Juliette?" I said, sympathetically.

"Ah, Mademoiselle! j'ai mal à l'estomac." And, it being the hour when they are obliged to talk English, she was faithfully beginning to translate when I assured her, somewhat hurriedly, that it was quite unnecessary.

"See you, Juliette," said Marcelle, maliciously, "never the English mention *l'estomac*. It is 'shokin,' n'est-ce pas, Mademoiselle?"

"Mais, comment?" said the bewildered Juliette.

"Ah, my child!" said Yvonne; "thou hast much to learn. Always the English say 'J'ai mal-à-la-tête' or 'J'ai mal-aux-dents.' What a sensation wouldst thou have created, in thy innocence, in an English society!"

VI.

Their patriotism is of a very vital quality and intensely emotional. Madeleine Roch, their great *tragédienne*, recited "*La Marseillaise*" at the Comédie Française. With true Gallic instinct, she was draped in the Tricolour, and her impassioned declaration was like a match set to gunpowder before such a highly strung audience. Those of the children who heard her cannot speak of it without tears.

They hear much of the terrible sufferings in Alsace at the present time—sufferings both of civilians and the Army. And it always unnerves them. Their imagination is so vivid that their mental suffering is very great. This intense feeling for their country and their soldiers is reflected down to the youngest child in the school.

Solange, who is little more than a baby, nearly made herself ill with weeping because, having had a present of a box of German prunes and very naturally beginning to eat them, someone remarked, casually: "Oh, Solange! Fancy a little French girl eating German prunes!" She was found, hours afterwards, lying on the floor of an empty classroom, with the

prunes scattered and the word "German" erased from the box. I believe it was made up by a box of the very Frenchest of all French nougats, with a brilliant "Marianne" on one side and the Tricolour on the other.

Of course, the ideal form of conduct at such a time as this would be to taboo the War as a topic of conversation. But who can do it? Certainly not these children, whose hearts never leave the battlefield.

One remarked, just before Christmas: "They say the 'Olympic' only just escaped a mine by a miracle."

"Comment?" said Suzanne, turning pale. "My brother is on the 'Olympic.' He returns to France for his military duty. *Mon Dieu!*"

The mischief has been done, and Suzanne goes about white and shaken for the rest of the day.

"They fight in the cemetery at Arras! *Quel sacrilège!*"

"The grave of my mother is at Arras," sobs Anne Marie, and refuses to be comforted.

No one who does not know the French can imagine the love and veneration of the French for their dead—*nos chers morts* they say, tenderly. To them a cemetery is a holy of holies; and I shall never forget the children's faces when they heard the condition of the cemetery at Arras after the bombardment. They looked stricken.

Reims, too, is an open wound in the bleeding heart of France. As a nation they are intensely proud; and now, from the North Sea to the Vosges, fair France lies spoiled and devastated under an alien foot. Nothing will ever wipe the memory of it out of the hearts of Frenchmen.

VII.

My pupils love to hear stories of the "derring-do" of our sailors and soldiers. They were immensely taken by the cartoon in *Punch*, "Will you have your bath before or after the engagement, sir?"

It was British nonchalance in *excelsis*. And they eagerly annexed snapshots of our "Tommies" playing football between the engagements, which they found in the illustrated papers.

"Tommy" is loved and respected by the French. His professional excellence, his modesty, good temper, his chivalry, and, last but not least, his generosity have captivated their warm and appreciative hearts. My little girls have a truly magnificent idea of Englishmen, from the Lord High Admiral of the Fleet down to the policeman on point duty at Charing Cross.

Lucie made a first visit to London when she was six, and she has never forgotten it. She was carried across a muddy street by a Bayard in Blue, who wished to save her pretty little white shoes. She rewarded him, much to his surprise I fancy, by a warm embrace. And, for his sake, all Englishmen are *prenez chevaliers* ever since. I am not sure, but I rather fancy she has an idea that St. George, the Champion of Christendom, still walks abroad in the land looking for little maidens in distress.

VIII.

It is interesting to see the attitude of thoughtful Frenchmen towards the War. The French are much given to introspection. Here is an extract from a letter written by a young officer to his little cousins. He is lying wounded in a hospital in La Vendée, and he says that he expects the events of to-day are making a great impression upon their youthful minds:

"Songez seulement que ce n'est pas tant le Kaiser allemand qui a voulu cette guerre, car il est conduit lui-même vers une destinée qu'il n'avait pas prévue, c'est Dieu qui a voulu sauver la France en lui faisant exprès ses crimes, son impiété, ses mauvais mœurs. C'est vous, les jeunes filles, d'aujourd'hui qui devrez régénérer la famille française si vous ne voulez pas voir un jour un nouveau massacre de vos fils et de vos maris."

And I think this is the attitude of all serious-minded Frenchmen—and which of them is not serious to-day? They regard this as the "day of visitation" for France—proud France—whose once glorious boast was that her most brilliant deeds of daring were *gesta Dei per Francos*. To-day, her magnificent vitality restored, her genius and heroism as great as ever in her history, she fights side by side with "unshakable England." And—who knows?—may not the glorious feats of the Allies be *gesta Dei per Francos Britannosque*?

THE PRACTICE OF SILENCE.*

THE practice of silence is without question one of the best means of gaining self-control. That silence is an important factor in the spiritual strengthening of man was already believed by the Greeks; we see this in the rules of the Pythagorians which demanded from the disciples several years' testing in silence. This was not only because silence is the resting place of thought, but also because it is the most difficult and most decisive exercise of self-control—that reign of the spirit over the world of stimuli and distractions. The first reaction on all attacks from without shows itself always by means of the vocal organs. It is through them that the first discharge of a disturbed and excited organism is enacted. Silence is, therefore, the greatest victory of the spirit over natural desire: it is the beginning of all liberation from the power of the outer world. Man learns thereby to withdraw his speech from the reign of external stimuli and to make it the servant of his innermost and quietest self-reflection. Thomas à Kempis had realized the educative and quietening influence of silence when he says: "The silence of the mouth is a great means for attaining to peace of heart."

It is advisable, when listening to opposing opinions, not to attack and remonstrate at once, but to listen quietly and with sympathy and then to try to find out their genesis. This does not mean that we are always to remain silent in regard to those opinions, but that we are to be enabled to oppose them in a collected manner and meet them in such a way as to convince and win. But how can this be achieved without practice in unselfishly listening to others? We can only convince or be convinced by those whose reasons we have carefully thought out. He who cannot listen without immediately replying will never be delivered from his own narrowness and short-sightedness. By keeping silent we frequently gain insight into the fact that we have to deal with people who lack certain experiences of life without which the most persistent speech remains unconvincing.

Silence and waiting make us realize that we are confronted by problems which can only be solved by a living example, and that the rigidity of opposition cannot be overcome by argument; and lastly, we often meet with talkers who are only rendered more flippant by a serious reply, and who might perchance be brought to a true self-valuation by a polite or pitying silence (if still capable of development).

With great severity we must train ourselves in discretion, in the absolute silence about secrets which have been entrusted to us, or about facts which come to our knowledge only by reason of special relationships of trust, and which, if given away, might cause others inconvenience and pain or might even place people in a wrong light. It is not by accident that we have instinctively confidence in truly discreet people, but it is due to the fact that they exercise that severest test of self-discipline—silence. We are so often tempted to speak of things which we have no right to mention, yet do so from sheer talkativeness, or because we aim at being entertaining or witty. Hearts are broken and destinies destroyed for the sake of an amusing conversation. The verdict of the listeners, however, will be that one is not safe with such a person. And that is true in even a deeper sense, for we are justified in assuming that such a person has no serious sense of responsibility, no command over himself, no power of resisting impulse and opportunity. From the lesser we draw our conclusions to the greater; we know that, where morality is concerned, all that is great depends on severe self-control in little things. Training in trustworthiness begins with learning to be silent. But we need not wait till a special occasion arises and a secret is confided to us to begin with the exercise of silence; we can acquire it more easily and more quickly by trying from time to time to keep to ourselves some news which we are burning to impart to others, and more especially by training ourselves in great restraint in personal criticisms on our fellow-men.

* Translated by Mrs. Howe from the German of Prof. Förster.

Few things are more helpful or more effective in generating and strengthening true manliness than an energetic struggle against the desire to gossip. Equally there is no firmness more necessary and becoming to true womanliness than the linking of the vocal organs with the centres of thoughtfulness and love. But the temptations to give way to unguarded speech do not come only from without. There are strong inward temptations which lend themselves pre-eminently to self-discipline, which, if it is disregarded, only too often causes us to say things which our better judgment condemns; for instance, the promptings of wit and humour which can arise from idle imagination, from the craving of ribald laughter, from satiation of life or from wickedness.

The practice of keeping to ourselves witty ideas and amusing imaginations is a very difficult but fruitful sphere of activity for our will, and the more so if we utilize the silence gained to consider our joke more closely. We shall then find how much desire there is in it for our own aggrandisement and the belittling of others; how much desire to please and how much lightness is at the bottom of most jokes, and that much sympathy in us towards others is thereby checked.

Schooling in silence—what a fine training school for will and love; what an opportunity of preparing for truly life-giving speech and acts.

REVIEWS.

Ad Lucem. By Mary A. Woods. (6s. Grant Richards.)

This, a novel by Miss Mary A. Woods, will be warmly welcomed by all her old pupils, old staff, and friends new and old. Our first impression is likely to be one of disappointment, for we expected a story that would teach, enlighten, and inspire us more than this one does, and some of us may have hoped for a tale dealing with the educational world, of which we know the author to have such an intimate knowledge. But a more careful perusal of the book makes us realize that we have before us an extremely interesting study in characterization.

The originality of the work lies mainly in the fact that our author's careful observation of life has led her, probably quite unconsciously, to give us an excellent example of one of Mr. Edward Carpenter's "unknown people"—i.e. one of the new type of human kind supposed to be slowly evolving as an "intermediate." The story is of a small circle of ordinary men and women, all of whom are, in their different ways, striving towards the light, which no one reaches, unless indeed it be through death. The action is set in London Gardens, in Eastbourne, and in a journey down the Danube, all most vividly described in clear, flowing style, the high standard of English never failing from the beginning to the end of the book.

The chief interest lies in the character of Elma, the heroine, who has been brought up by a cousin, Mrs. Conway, in company with her own son Harold. As Elma passes from girlhood to womanhood, it is clear that she is of no ordinary type. Her whole nature yearns for beauty. She turns aside from the narrow religious teaching of Mrs. Conway. She has a passion for work, and devotes her wealth to the establishment of art classes in Chesterton Gardens, in the hope that, through the study of the beautiful, she may help the fashionable and the money-seekers to rise above the sordid round of their daily lives. A young Jewish artist, whom she employs as master of the art classes, Hubert Levison, falls in love with Elma, as also does Harold, and it is in her relation to these two that her "intermediate" nature comes out. She never divines her cousin Harold's love for her, nor does she see that her great friend Adah is in love with Hubert. She realizes Hubert's attachment, which is too plainly shown to be mistaken, and, in considering whether or not she should consent to marry him, she entirely overlooks the importance of genuine love, and thinks that admiration, friendship, and true sympathy are sufficient basis for a marriage which would, in her estimation, be a great help to the development of her art classes and an interesting experiment in life.

No ordinary young woman of Elma's intelligence and warm-heartedness would have been likely to make the mistake of

not knowing that she did not truly love Hubert. The standpoint of her friend Adah—that she could forgive a man anything if only she loved him—is incomprehensible to Elma. Life to her means friendship, affection, work, the search after everything that is high and beautiful, and there is no room in it for the love of man. Elma makes the fatal mistake of not realizing that her mission in life is not marriage, but the quest of beauty, and so she marries Hubert and finds that she is not satisfied and that the light has not dawned for her. It is not her husband who appeals to her on her wedding trip, but gipsy music, the beauty of the Danube, the glories of sunrise and sunset, and she longs for solitude. She is dismayed to find that the thought of Hubert's absence in America is a delight to her. There is no sadness in the parting on her side. When he has gone she expects joy, but finds instead that her sense of freedom and initiative has left her. She knows that her marriage has been due partly to a "fancy for experiment," and, through a courageous self-analysis, she comes to the conclusion that marriage is not her vocation and that she has failed in her search for light. Her nature is too strong and too dutiful to allow her to seek freedom from the union, so she decides to make the best of it, but to do her utmost to save other women from falling into so dire a mistake.

In all this Elma's nature as an "intermediate" is worked out with much skill; but we cannot but demur when our author makes her heroine die after the birth of her child because she is unable to get over the shock of finding that Hubert has, as she imagines, grossly deceived her. Surely Elma had too strong a nature to succumb so readily. The fact that her husband had failed her should have been a relief, under the circumstances of the story, and restored her to complete health.

Of the other characters in the book, Adah is a fine example of the beautiful side of the Jewish nature. She is the embodiment of faithfulness. Her allegiance to Elma never falters, and her unselfish desire for her friend's happiness makes her ready to forward her marriage with the man she herself loves. She is patient and loyal. Hers is a nature "whose one aim is to serve." To many readers it would have been more satisfactory had she been left unwedded to devote herself to the little Irene instead of becoming Hubert's third wife.

The women of the story are far more real than the men, but Harold Conway is a very natural, though not a prominent, character. He, perhaps, draws nearer to the light than anyone else in the book. He is passionately attached to Elma, but determined to turn his disappointment into the service of others. He will not allow a hopeless love to spoil his life. Harold's mother is a delightful woman, whose like we have all met, and she is allowed to reveal herself to us by her words and deeds more than anyone else, for most of the characters are interpreted for us by the author, because, perhaps, the circle of characters is too small for them fully to reveal each other. There are some charming touches in the description of Mrs. Conway—e.g. she is said to be "naturally prepared to believe any evil of a man who could marry his wife before the Registrar," and she objects strongly to her clerical son's introduction of "pulpit talk into her own little domain, . . . where she scolded him for getting his socks wet." Altogether she is a very lovable creature.

It is a flaw in the book that the illustration, to our thinking, fails to throw light on the picture which it is supposed to represent, giving us a wrong impression of it. The plot may not be altogether satisfactory, and is, in some respects, lacking in point, but we never lose interest in the development of the story, and are inclined to discuss the actions of the various characters as of living acquaintances. Details of the plot have been omitted, as their mention might spoil the interest of the story for the reader.

Essays on the Life and Work of Newton. By Augustus de Morgan. Edited, with Notes and Appendixes, by Philip E. B. Jourdain, M.A. (5s. net. Open Court Publishing Co.)

Doubtless there are some among us to whom the mention of the immortal name of Sir Isaac Newton merely conjures up a vision of legendary apples, or nebulous notions regarding his famous enunciation of a law concerning the forces of

gravity. By such, equally well as by others more immediately interested in the history of mathematics and the physical sciences, this annotated reprint of De Morgan's three remarkable essays will be read with considerable profit.

The essays originally appeared in "The Cabinet Portrait Gallery of British Worthies" (1846). "The Companion to the Almanac" (1852), and *The North British Review* (1855), respectively. In the first, entitled "Newton," De Morgan, without in the least degree endeavouring to tarnish either his fair name or his reputation as a great philosopher, was constrained, in fairness to Leibniz, Flamsteed, and others, to expose certain weak traits in Newton's character. He appears to have had every justification for so doing, for one reads of jealousies and of geometry; of *suppressio veri* and *suggestio falsi*; of unadulterated partisanship and the theory of fluxions, yet one feels bound to confess, after all, that the great mathematician and physicist was an ardent seeker after the truth which he loved.

In the second essay, "A Short Account of some Recent Discoveries Relative to the Controversy on the Invention of Fluxions," the origin of the infinitesimal calculus is discussed in terms which admit of ready comprehension by the reader of average mathematical attainments. The last is a critique of Sir David Brewster's volume, published in the same year, entitled "Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton," and was called into existence by the evident hero-worship into which Sir David had fallen. His attack upon the character and merits of Leibniz was vigorously combated by De Morgan, who can hardly be accused of any motive other than a genuine love of fair-play as his reason for thus taking up the cudgels. As appendixes to this review are added two further extracts from De Morgan's writings—a short biography of Leibniz, and a note concerning the character of Newton and the action of the Royal Society.

As to the life of Newton, we are not deprived of anecdotes concerning this student who in his early years threw aside Euclid as "a trifling book," "finding the truths therein enunciated so self-evident that he expressed his astonishment that any person should have taken the trouble of writing a demonstration of them." On page 14 we read:

In 1692 occurred the curious episode of his history which produced abroad, as has recently appeared, a report that he had become insane. Most readers know the tradition of his dog Diamond having upset a light among the papers which contained his researches, and of the calmness with which he is said to have borne the loss. The truth, as appears by a private diary of his acquaintance, Mr. de la Pryme, recently discovered is, that in February, 1692, he left a light burning when he went to chapel, which, by unknown means, destroyed his papers, and among them a large work on optics, containing the experiments and researches of twenty years. "When Mr. Newton came from chapel, and had seen what was done, everybody thought he would have run mad; he was so troubled thereat that he was not himself for a month after." Such phrases, reported, gave rise to a memorandum in the diary of the celebrated Huygens (the first foreigner who understood and accepted the theory of gravitation), stating that he had been told that Newton had become insane, either from study, or from the loss of his laboratory and manuscripts by fire—that remedies had been applied by means of which he had so far recovered as to be then beginning again to understand his own "Principia." That Newton was in ill-health in 1692 and 1693 is known, but his letters to Dr Bentley on the Deity, written during that period, are proof that he had not lost his mind.

The editor's task has not been one of criticism: such would be almost entirely unnecessary. His work in the direction of illumination of the text by means of explanatory and bibliographical notes has been of particular value.

"The Cambridge History of English Literature." Edited by Sir A. W. Ward, Litt.D., F.B.A., Master of Peterhouse, and A. R. Waller, M.A., Peterhouse. — Vol. XI: *The Period of the French Revolution.* (9s. net. Cambridge University Press.)

The volume covers an important and interesting period, though the writers of first calibre are comparatively few. Of these, Burke takes the foremost place chronologically, and his outstanding characteristics are very carefully and soberly examined by Prof. Grierson. Burke is "the great champion of the control of politics, domestic and foreign, by moral considerations," however he may have at times been misled by

his passionate sensibility, or by erroneous apprehension of facts or of theories, into factious and unjust proceedings. His "unique power as an orator lies in the peculiar interpenetration of thought and passion." "The splendour of his imagery, the nervous vigour of his style, its pregnancy, connect his prose with that of the great sixteenth and seventeenth-century writers, Hooker and Milton and Browne and Clarendon." "Alike the substance and the form of his works have made him the only orator whose speeches have secured for themselves a permanent place in English literature beside what is greatest in our drama, our poetry, and our prose." Bentham is treated by Prof. Sorley, mainly from the philosophical standpoint: the practical effect of Bentham's criticisms on the reform of the English law, though fully acknowledged, is given summarily in a single sentence. Prof. Sorley, of course, points out the true history of the phrase "the greatest happiness of the greatest number"; and he does well to go a step further and to remark that the "greatest happiness principle," or principle of utility, "was arrived at by Bentham, in the first instance, as a criterion for legislation and administration, and not for individual conduct—as a political, rather than ethical, principle." As to style, "his early writings were clear and terse and pointed, though without attempt at elegance. Afterwards, he seemed to care only to avoid ambiguity." Yes; but think what an important quality that is! *O si sic omnes!* Wordsworth falls to Prof. Legouis, of the Sorbonne, and thus obtains an European rather than an insular estimate. "Wordsworth's surprise and resentment would surely have been provoked had he been told that, at half a century's distance and from an European point of view, his work would seem, on the whole, though with several omissions and additions, to be a continuation of the movement initiated by Rousseau." Prof. Legouis's appreciation is reasoned and not ungenerous, though the details leave an impression of reserves that will scarcely be welcome to true Wordsworthians. Burns is dealt with by Mr. T. F. Henderson, an eminently capable expositor of his theme, perhaps especially through his intimate knowledge of Scottish literary history. "Apart from the burden, or the fragments, or the title, or the air, much of Burns's direct lyrical inspiration was derived from, or modified by, the past." Burns had a comprehensive knowledge of the old minstrelsy and was pervaded by its spirit. On other points, too, Mr. Henderson's criticism is amply informed and modestly independent. Prof. Saintsbury sends three contributions—on Southey and some lesser poets of the time, on the prosody of the eighteenth century, and on the growth of the later novel—all in his accustomed breeziness of style and incisive criticism. We may also mention a very interesting chapter on book production and distribution, by Mr. H. G. Aldis, the Secretary of the Cambridge University Library; and the closing chapter on Children's Books, by Mr. Harvey Darton, which indicates the comprehensiveness of the survey of the literature of the period. The usual bibliographies, &c., are present in full force.

The Making of the Roman People. By Thomas Lloyd.
(4s. 6d. net. Longmans.)

Mr. Lloyd seeks to establish as his main thesis that the Romans—or more particularly the dominant part of the Roman community, the patricians—were of Celtic origin, and that Latin is descended from Gaelic. His view of the course of events is as follows:—The Gauls, advancing from the North, came into collision with the Etruscans and drove them back into modern Tuscany. During the struggle bands of Gauls passed down the peninsula at the eastern side of the Tiber; where Rome now stands they again came into conflict with the Etruscans and, after a protracted struggle, managed to establish themselves in considerable numbers in Central Italy. Thus they and their descendants formed the population not only of Latium, but also of the other little States which spoke dialects or languages akin to Latin. The Gaulish conquerors, however, were small in numbers, and found the territory inhabited by the Brown Race, with a considerable admixture of Etruscans, who were the nobles and landowners. For reasons that cannot now be discovered, the Roman Gauls came to be separated completely from the Cis-Alpine Gauls. As a result, the Roman Gauls, who were subsequently known as patricians, who had the whole power of government as well

as of the rights of citizenship in their own hands, courted the support of the subject population, and in the process of time the Roman people were evolved. The Latin language emerged partly through the natural development all languages are continually going through, but very largely also through its adoption by the subject-people and by their bringing into common use vast multitudes of words from their own ancient tongue. This account, which is little better than a series of arbitrary hypotheses, entirely rejects tradition and is in every respect highly improbable. Of a number of points which challenge criticism, we will deal briefly with the chronology. The traditional date for the sack of Rome by the Gauls is 390 B.C., and there is no reason for doubting the approximate accuracy of that date. It is from this event that Mr. Lloyd dates the conquest of Rome, of which he says: "After the death of the Brennus, who effected all this, or it may be after two or three of his immediate descendants had passed away, his Empire fell to pieces, Latins, Sabines, and so on asserting their independence." Clearly this would take some time, and Mr. Lloyd himself is forced to allow two or three generations. Yet from the time of the sack of Gaul we have a body of tradition gradually acquiring the authority of history, which is entirely at variance with such an assumption.

The remainder of the book is taken up with chapters on the affinity of Latin and Gaelic, and evidence is brought forward which certainly seems to show some relation between the two languages. The inquiry, however, is loose and unscientific, and the facts stated quite insufficient to warrant the inference that Latin is derived from Gaelic. We noted not a few errors of fact. On the survival of Celtic in Gaul, for example, the author remarks: "Celtic must have continued to be known, at all events, by all classes, to the very last. If the higher classes had all become Roman both in feeling and in speech, it is incredible that *capal* or *cabal*, meaning a horse and its derivatives, *chevalier* and *cavalerie* could have displaced the Latin words and established themselves permanently in French." *Cheval* and its derivatives are derived from the Latin *caballus*, whatever the relation of that word to Gaelic may be. The author addresses his book to "the newer generation of students," and says that he does not venture to hope that the evidence brought forward will be found convincing to many who have attained a certain age. With the estimate implied we are in substantial agreement. The book is original and does not lack interest, but will not, we think, impress competent judges as sound.

The War and Democracy. By R. W. Seton-Watson, J. Dover Wilson, Alfred E. Zimmern, and Arthur Greenwood.
(2s. Macmillan.)

The ideal school is a place where each individual pupil can develop his or her own personality in freedom and confidence, under the best safeguards and guidance that the elders can provide. Similarly the ideal State is that political organization under which the citizens can develop freely their own personalities and activities. We dare not say that in the British Empire this ideal goal has been reached; but we can say that the aim exists, not only in the minds of leading statesmen but also in the minds of all thinking men and women. The German ideal of culture—or rather of education: for it may be pointed out that the official known in England as the Minister of Education, in Germany receives the title of the Minister of Culture—is external compulsion exercised upon all citizens by the State to make them conform to the State conception of education. This external compulsion produces obedience for just so long as the citizen is within its jurisdiction; but it entirely fails to produce that power of self-control that in England we understand by the word "character." This, as Mr. Zimmern points out in a masterly analysis of the present situation, is the basis of the struggle that is now going on. The response to the call to arms has been remarkable for its unanimity and its completeness in all parts of the Empire. We believe we are fighting a just and inevitable War; it is an easy matter to convince the heart of what we want to believe. But it is well to convince the intellect as well as the heart. And no better volume could be desired for this end than this collection of essays, dedicated to the Workers' Educational Association and written by five members of its experienced staff of lecturers.

Mr. Dover Wilson deals with the growth of the national idea in Europe during the last one hundred and twenty-five years. The same writer, in a chapter on Russia, shows us the significance of the revolutionary movement in that country. Mr. Zimmern contributes a chapter on Germany, and also writes the final chapter on German Culture and the British Commonwealth. The name of the writer who deals with the thorny matter of Foreign Policy is not revealed. Dr. Seton-Watson deals with Austria-Hungary and the Southern Slavs, and also writes a chapter on The Issues of the War. Social and Economic Aspects are treated by Mr. Arthur Greenwood. There are several maps: one of particular importance gives the racial boundaries of the States in Central Europe, which are, of course, greatly varied from the State boundaries. The education of this country will be largely affected by the War, and we confidently recommend this book to teachers who wish to read a well-informed, impartial, and clear statement of modern tendencies. The writers are tried lecturers, accustomed to intelligent audiences who accept nothing until they are convinced. The views put forward are not those merely born of study by the midnight lamp, but are the result of study tested by actual contact with the world of living men and women. The very moderate price should enable the book to find a place in every teacher's library.

University Life in the Olden Time, Monasticism, and Other Essays. By Rev. J. O. Bevan. (5s. net. Chapman & Hall.)

Let us have the preliminary growl that we always keep in stock for the benefit of those who persist in publishing a book of essays under the title of one of them. We wanted a book on the attractive subject suggested by Mr. Bevan, and instead of that we get nine essays on such diverse matters as "Limitations," "Humour and Sarcasm in the Bible," and "The Beautiful." With regard to the treatment of the individual subjects we have no fault to find; indeed there is much to praise. Mr. Bevan has the commendable habit of making things perfectly clear. Without being pedantic he takes the trouble of supplying his readers with all the facts necessary to understand the matter under discussion. The reader anxious for information could not apply to a better source. Women novelists, for instance, who want to write a story with an Oxford or a Cambridge setting will find it to their advantage to consult the first essay. The prevailing tone of the book is religious, but the teacher will not find himself neglected. We are not quite sure whether the elementary teacher will welcome the attention he receives in the section headed "An Address to Teachers in Elementary Schools." Mr. Bevan is perhaps a little too faithful in indicating lines of weakness. But, after all, the thing is kindly done, and we seldom take offence at a critic who has our good at heart. The book is full of individuality, and will repay the reader by suggesting many new and unexpected ways of looking at things.

OVERSEAS.

To most people the great advantage of education is that it enables one "to get on in the world." They agree with the young Aberdonian who in his school essay on "The Advantages of Education" wrote with some bitterness: "If you have not a very good education you will not make much money in this town." It is an agreeable variation, therefore, to find in the *American Educational Review* for February an article on "Education for the Control and Enjoyment of Wealth." One is apt to think that the audience to which such an article appeals must be limited even in America, till one reflects that the writer is not committed to any limitation of the wealth that is to be controlled and enjoyed. The common people may be educated to control, and to some extent enjoy, the wealth of others. In any case, the author raises a question that is of the utmost importance in a democracy that has immense segregations of wealth. We are likely to hear more of the subject on which Witt Bowden here writes. In the same magazine we have an account of a curious development of the activities of the University of Wisconsin. On January 22, 1914, it established a Bureau of Visual Instruction, under the control of Prof. Dudley. When he took charge he found

that the University had 1,200 slides and 6 films. By June 1 he had sent out 19,080 slides and 220 films to no fewer than seventy schools. For in America the University is taking a very definite part in the work of the schools of its district. It is a new thing, however, for a University to present the schools with an abundant supply of moving pictures at no further cost for their use than providing the light and paying some eightpence for carriage to the next school. We are told that the expense of working the scheme in the schools is negligible, and certainly the entertainment and instruction suggested in this article appear to be worth the money spent on the scheme. Most of the films are of a highly informative character—mainly on the lines of biology. But other equally important and more entertaining subjects are not neglected as the following indicates: "A lesson in Etiquette made at the University of Minnesota, in which a group of eight students at one table are observing all the rules of etiquette, while at another, eight other students are breaking every rule known to refined people." The same University supplies a reel on "How to Cook a Wholesome Meal." A gruesome film is that in which Dr. Lewis Gregory by the help of the X-ray shows the whole process of indigestion in a diseased stomach, from the time food enters. The French, it appears, are not behind in this matter, for they have supplied a reel on the work of the heart, in which one sees the blood pumped through the body. The writer of the article is enthusiastic on the merits of the scheme, and proclaims that since the Americans are an "eye-minded" people, it looks as if there was going to be at last a royal road to learning for their youngsters.

Apparently the Americans cannot let the problem of feminism alone, at any rate in connexion with education. In the February *Popular Educator* Prof. O'Shea returns to the subject under the title of "Masculine Influence in the School-room." He quotes with approval from a long letter from a schoolmistress who is evidently very well pleased with herself. She gives a case in which a very capable man teacher failed in maintaining order in a class which was at once reduced to submission by his successor, "a slip of a girl, who had never weighed more than ninety pounds." So heartened is Prof. O'Shea's schoolmistress by this appeal to avoidupois that she complacently goes on to proclaim: "I have not had personal knowledge of a man who had the combination of firmness and patience necessary to handle children of elementary-school age, and have never heard anyone else claim to have such knowledge." This lady badly needs a trip to Europe. Her education requires for its completion a visit to a certain committee room in Russell Square.

In the January number of the *School Review* (Chicago), Mr. Fred Newton Scott, of the University of Michigan, has an outspoken article on "Efficiency for its Own Sake." It appears that the system of plotting curves of efficiency is becoming a sort of disease in the United States. The teacher is having his efforts tested all along the line by scientific makers of curves, and if his curve deviates from standard he is at once pulled up and warned that he must not wander too far out of the recognized types of results. Mr. Scott appeals for the retention of the humanity of the teacher. An educator, he tells us, is ceasing to be a man in America, and is being reduced to a mere curve. In illustration of his thesis he personally vouches for the truth of the following: "In one case an instructor deliberately added the name of a fairly good student to the list of failures just in order to bring up what I am tempted to call his batting average—that is, to fill out the normal 10 per cent. of failures. In another case the instructor announced at the beginning of the semester that owing to the presence of several mature professional students who had already been over the subject, the grades of all the rest would be materially reduced." In further illustration Mr. Scott refers to Mr. Cooke's elaborate "Report on Academic and Industrial Efficiency," prepared for the Carnegie Foundation, and, after pointing out its power of doing infinite harm, says that the only rational way to regard it is as a huge joke, "a sort of Gulliverian travesty of the whole effi-

ciency idea." When the president of an important association of secondary schools and colleges can write in terms like these of serious official reports, there must be some genuine danger ahead, and it will be well for us on this side to keep a careful eye on the curve-makers.

GENERAL NOTICES.

ENGLISH.

Shakespeare's Stories. By Constance and Mary Maud.
(1s. 6d. E. Arnold.)

It is, no doubt, an open question whether or not it is desirable to "prepare" children for Shakespeare by putting first into their hands the stories of the plays in narrative form. There can, however, be no difference of opinion as to the importance of a good literary style in the stories so substituted for the originals. The "Shakespeare Stories" under consideration consist of portions of dialogue taken verbatim from the plays, and placed in a setting of narrative whose style is not only lacking in any fine quality, but is marred by frequent colloquialisms which often even cross the border-line into slang. Hamlet, in conversation with Rosencrantz and Guildenstern, "told them straight what he thought of them," and a little later on one of his remarks leaves "the rose-wreath [Rosencrantz] feeling rather faded." Ariel boasts of "the jaunt he had led the conspirators"; Orlando "was in an awkward fix"; and Celia wondered what Rosalind "would be up to next." The result must produce upon pupils whose literary taste is presumably in process of development an effect hardly less than lamentable.

A First English Grammar. By J. E. W. Wallis, B.A. (1s. Bell.)

This book is intended for beginners in grammar. It follows the time-honoured but hardly satisfactory plan of treating first the parts of speech *seriatim*, basing the study of each on a definition, and then proceeding to analysis of sentences. The plan carries with it the inevitable difficulties and weaknesses. The definitions are often such as to "darken counsel"; for example, "an adverb is a word that goes with or modifies a verb, an adjective, or another adverb." To the pupil's native common sense the chief word that "goes with" a verb is surely a noun or pronoun, its subject; and the word "modifies"—almost certainly new and strange in this connexion—hardly throws more light upon the matter. Moreover, the classifications are often logically unsatisfactory; e.g. nouns are "common, proper, abstract, or collective." The postponement of analysis of sentences to the second part of the book leads to fresh difficulties. For example, in the chapter on the noun the author finds himself unable to explain "case" without defining briefly and, as it were, surreptitiously, the terms "subject," "predicate," and "object"—a most pointed though unconscious criticism of the method of arrangement and treatment adopted.

Exercises in English. By Fred. W. Bewsher, B.A.
(1s. net. G. Bell.)

These exercises are intended as a sequel to the same author's "Aids to the Writing of English Composition." Their aim is to provide practice in command of words and in framing sentences and to give familiarity with the material required for the questions in composition, grammar, &c. in the London Matriculation, the Cambridge Local, and other examinations. The pieces, which are by standard authors and are well chosen, serve as exercises either in dictation or reproduction, and each is followed by questions on meanings of words, constructions of sentences, parsing, &c. Exercises in paraphrasing and occasionally in letter writing or in expanding a given outline are suggested, which are appropriate and useful. It would, perhaps, have added to the value of the book if more exercises had been included which give scope to the pupil's inventive powers—e.g. developing a story in a different setting or under different conditions from those of the original narrative, instead of always merely reproducing it. Chapters on parsing and analysis are included, as well as an index. The terms used are those sanctioned by the Joint Committee of Grammatical Terminology.

A Primer of English Literature. By W. T. Young, M.A.
(2s. net. Cambridge University Press.)

This book is intended rather to stimulate the student's desire to extend his knowledge of English literature than to furnish a complete history of that literature. It is meant to serve as an introduction to "The Cambridge History of English Literature." It is concerned rather with the literature itself than with the writers, biographical details being seldom given, and then only when they throw direct light upon the writer's work. A brief but very readable and interesting account is given of the works of the chief English writers from the earliest times to the present day, and is throughout well calculated to fulfil the aim the author has set before him. As a companion to a study of our literature it could hardly fail to increase

the student's interest in what he has already read and to stimulate him to further reading.

Lectures on Dryden. By Dr. A. W. Verrall. (7s. 6d. net. Cambridge University Press.)

The subject-matter of this book is that of the twelve lectures on Dryden delivered by Dr. Verrall at Cambridge in the autumn of 1911, arranged and prepared for publication by Mrs. Verrall from her husband's notes. The first chapter deals with Dryden's work, character, and influence, the remaining eight chapters with the "Epistles," "Absalom and Achitophel," the quatrain poems, literary criticism in the age of Dryden, the religious poems, the development of the English ode, "The State of Innocence," and "All for Love; or, The World Well Lost." It would obviously be superfluous to spend many words in pointing out the great value of this book to the student of Dryden.

A Book of English Prose. By Percy Lubbock, M.A. (Part I, 1s. 6d.; Part II, 2s. Cambridge University Press.)

This book consists of a selection of prose passages—Part I for use in preparatory and elementary schools, and Part II for secondary and high schools. The extracts are all from well known standard authors. They are well chosen, interesting, and, on the whole, suitable, though possibly one or two of them are somewhat too advanced for the pupils in question. For example, it may be doubted whether boys and girls of the preparatory-school age are old enough to appreciate "Vanity Fair." The notes are few and clear and really throw light upon the text.

A Practical Course in Intermediate English. By Edward Albert, M.A.
(2s. Harrap.)

Here is a clearly written and well printed manual by one of the joint authors of "A Practical Course in Secondary English." It covers the work usually done in the middle forms of secondary schools, and is an improvement on most of the textbooks of a similar scope. The large number of exercises will be a boon to many busy teachers, as also will the clearness of exposition. But it has all the defects of its genre. A section usually begins with a definition printed in thick type, and the deductive arrangement is largely followed. The author admits that the inductive method has many advantages, and favours a wise admixture of the two. But if the book is in the hands of the scholars they will choose the easier way, and the reality of the inductive method will not be gained.

How to Speak and Read. By J. Bruce Alston. (1s. 6d. net. Blackie.)

Mr. Alston gives some capital advice in this easily read manual. He has reduced the dry-as-dust analysis of the vocal organs and vowel sounds almost to zero, and emphasizes everywhere the living voice and the factors that give charm to speaking and reading. Primarily addressed to clergymen, it is very suitable also for teachers. But in some ways the book is irritating. Illustrations abound, but they are generally so flippant and so laboured that they give the idea that the author intended to drag them in somehow, whether they were wise or not. What excuse can there be for such stuff as: "Even the lawyer can make those fat, stolid jurymen take out their handkerchiefs on behalf of the fair, suffering plaintiff, as a preliminary to a verdict which will award substantial damages by way of solatium for the good time she enjoyed when she looked forward to spending her life with the defendant, twice her age"? Yet it is inserted to illustrate the statement that "eloquence has still a spell which it can cast over the multitude"! The chapters on Emphasis, Quality, Pause, and Gesture deserve attention.

FRENCH.

A French Picture Vocabulary. By J. H. B. Lockhart. With upwards of 360 illustrations by George Morrow. (1s. Bell.)

There are 39 pages of illustrations, 14 of French vocabulary with phonetic transcript, 14 of German vocabulary with phonetic transcript, and 6 pages of phonetic drill. The pictures illustrate nouns, verbs, and adjectives. There are few adjectives in the vocabulary. Each picture is meant to represent one word as unmistakably as possible. After a long and pleasing experience of picture vocabularies, the reviewer still asserts that no mistake is impossible; but mistakes will lead on to that sentence-building and conversation which the author also aims at. Some gradation of difficulty is attempted, and though the German vocabulary is an afterthought, it is a valuable addition. There is a misprint on page 51, but the book is carefully done. The artist of *Punch* is too famous to need commendation. Only one criticism is needed. A pear or the moon look much the same in France, England, and Germany; a policeman does not. The national accent is neatly, though conventionally, indicated on page 37, and if the Irish brogue is the dominant note it is accompanied by a rich Irish humour. This is a good book; the most attractive of its kind the reviewer has seen.

Balzac's Eugénie Grandet. Edited by A. G. H. Spiers.
(2s. Harrap.)

The Introduction is a fair piece of work. The text (160 pages) has been reduced by nearly one-fifth, and judiciously reduced. The re-

viewer believes, however, that a better plan is to give the whole text and indicate what passages may well be omitted in class. This will give students a better idea of Balzac's strength and weakness. The omission of the vocabulary (39 pages) would allow this without an increase of price. The notes (35 pages) contain satisfactory historical and descriptive notes, and the help given with law and business terms is to the point. The reviewer would ask the editor to consider whether translation is a satisfactory method of explanation (and remember the 39 pages of vocabulary): e.g. page 33, "s'il lui prenait fantaisie d'aller et de venir": if an English as well as an American equivalent should not be given sometimes—e.g. page 94, "rouge liard"; and if more information is not required for the "Légion d'honneur," page 5, and the "Garde Nationale," page 9.

Ninette. By A. Melandri. Edited by C. W. Bell. (1s. 3d. Harrap.) The book contains 8 pages of introduction, 86 of text, 16 of notes, 8 of retranslation, and 34 of vocabulary. Note the proportion of vocabulary to text! Two corrections will no doubt be made: the note to page 10 calls August 15 "Ascension Day," and that to page 53 repeats the hourly mistake, "Emperor of Germany": neither before nor after 1871 is that the correct title. That it is derived from French does not make it less serious. The strength of the notes lies in the illustration of construction; the method might be further extended at the expense of the explanation by translation (and remember the 34 pages of vocabulary!).

A Reform First French Book. By J. Stuart Walters. (Mills & Boon.) This book is designed especially for adult students. It contains four photographs and the usual direct method apparatus, but does not disdain a French-English vocabulary.

GEOGRAPHY.

A Little Book on Map Projections. By Mary Adams. (2s. net. Philip.)

Many teachers have felt the need for a book which will deal with certain aspects of map projections in a non-mathematical manner. We cannot recommend too highly Miss Adams's interesting production with its modest title. Starting from first principles, the reader is carried steadily through practically the whole of that part of the subject which is essential to ordinary geography work. Not only will this book prove of value to the senior pupils, but many teachers will welcome it for their own use as an introductory manual to the more technical works of Col. Close and Mr. Hinks. The diagrams are clear and the examples of networks are with one exception all on the same scale, and so can readily be compared with one another. An interesting feature of the book is the introduction of facts usually considered as belonging to mechanics, geometry, or physics in illustration of certain points. This is cleverly done in the present instance, but in less capable hands the experiment is likely to result in obscuring the issue rather than in revealing it.

Economic Geography. By John McFarlane, M.A., M.Com., Lecturer in Geography, University of Manchester. (7s. 6d. net. Pitman.)

A reference book of some 550 pages, which should be added to the school library. The opening pages deal with preliminary considerations of climate and vegetation, and then the world areas are treated in their major political divisions, but these are subdivided into natural regions of well recognized types or in some cases the natural regions have been suggested by the author. It is easy to appreciate the difficulty of this subdivision, and, though the suggested regions of the author are more or less tentative, yet they prove an admirable working basis in the present volume. The book is well balanced, facts are lucidly and pleasantly expressed, and the statistics, though very complete, are not so unpleasantly prominent as is usually the case in works dealing with this branch of geography. The data throughout are recent, generally 1906-1911. Eighteen illustrations are given, seven of them being photographic reproductions of the Oxford Wall Maps showing rainfall; others indicate the natural regions employed.

RELIGION.

"Home University Library."—*Religious Development between the Old and the New Testaments.* By R. H. Charles, D.Litt., D.D. (1s. and 2s. 6d. Williams & Norgate.)

Within the limits of this little volume, Dr. Charles has concentrated the main thought of his work on the Old Testament apocryphal writings. It is a book of the greatest interest, both popular and scholarly. The author aims at disproving, once and for all, the traditional view that the four and a half centuries between the events recorded in the Old and the New Testaments were barren of religious thought and inspiration in Palestine. He shows that, far from this being the case, these centuries, especially the last two, represent "in one of its main aspects the consummation of the spiritual travail of Israel's seers and sages." In consecutive chapters he sets forth the relation between prophecy and apocalyptic and the development in this period of the conceptions of the Kingdom of God and the Messiah. Thence he passes to the great original doctrine of these centuries—that of a blessed future life, the hope

first definitely expressed in the Daniel Apocalypse. A specially interesting section is that dealing with "man's forgiveness of his neighbour," in which the transition from the few isolated precepts in the Old Testament recommending magnanimity towards offenders (e.g. Leviticus xix. 17-18), and the many inculcating an implacable hatred (e.g. the Imprecatory Psalm) to the Sermon on the Mount is found in the beautiful book of the XII Patriarchs written at the end of the second century B.C. The vitality of this period is specially shown in its reinterpretations of Old Testament prophecy and doctrine, and this in the face of the orthodox priestly teaching of the unconditional and final authority of the Law (Chapter V). The most suggestive chapter, however, is certainly that entitled "Comprehension." Here the moral to be drawn from an age which did not scruple to reinterpret and readapt its rich legacy of religious ideas from the Old Testament is pointed at the Catholic Church of to-day, and Dr. Charles's views on modernism incidentally become clear to us. A very useful account of the chief apocryphal and pseudepigraphical literature of the period ends this stimulating book.

The Religions of Antiquity as Preparatory to Christianity.

By Charles N. Scott. (2s. Smith, Elder.)

This is a recast of the author's earlier work, "The Foregleams of Christianity." Mr. Scott is evidently well versed in the varying forms that religion has taken in different times and countries, and has a wide acquaintance with foreign, especially French, literature on the subject. It is not the book of an impartial scientist, but of a scholar definitely concerned to vindicate the claims of Catholic theology and practice. This is frankly avowed and entirely legitimate. Unfortunately, it leads him to make such sweeping, and in the nature of them quite unprovable, statements as the following:—"In our country it is easy to see that nine-tenths of the culture and refinement that any class can boast of is directly or indirectly due to our clergy, whether engaged, as at our ancient sites of learning, once entirely ecclesiastical institutions, in forming the most polished gentlemen of the Anglo-Saxon race, or scattered over the length and breadth of the land in organizing and directing guilds, parish libraries, and the like. . . ." To illustrate his interesting conclusion that "the culminating periods of intellectual and aesthetic culture have been . . . generally connected with the ascendancy of a clerical order," he uses one questionable example—that of Israel in the last three centuries B.C. Of this period Dr. Charles tells us that all real progress came about "not through the efforts of the official religious leaders of the nation, but mainly through its unknown and unofficial teachers, who issued their writings under the names of ancient worthies in Israel." This unduly personal attitude seems to us to mar what would otherwise be a useful book. The long quotations, especially those from French scholars, are a particularly interesting feature.

"Murby's Smaller Scripture Manuals."—*The Acts of the Apostles.*

Part I: Chapters i-xvi. By Chas. Knapp, D.D. (Cloth, 1s.)

This book is frankly written for the use of pupils working for the Junior Oxford, Cambridge Local, and College of Preceptors' examinations. There is a long, clearly arranged introduction, in which everything such pupils might be required to know is set forth. The fittest examiner could not plough a boy or girl who had thoroughly "done" these pages. To an overworked teacher such a book will come as a godsend. We venture to think, however, that to put it into the hands of the pupils, who should make their own lists, résumés, and analyses of the text, would be a grave pedagogic error, though we repeat that such a course would probably ensure their passing their examinations.

Notes on the Gospel of St. Matthew, with Questions and Concordance, for the use of Schools and Young Students. By C. R. Gilbert, M.A. (Mills & Boon.)

A useful companion to the study of the text. The synopsis, in which most of the various sections are related to the Doctrine of the Kingdom of Heaven, is arresting, and makes for orderly thinking about the text. The lists and questions at the end will make it a useful book for teachers whose pupils are taking the usual school examinations.

"Cambridge Bible for Schools and Colleges."—*Genesis.* With Introduction and Notes by Dean Ryle. (1s. 6d. net.)

The scope of this book makes it an intermediary between the larger work of Canon Driver and such smaller handbooks as "The Century Bible." The author tells us that the book has been ten years in the making. The scholarship and labour which its pages reveal make us only wonder how a busy Church dignitary could have compassed it even in that time. The already high standard of these manuals is raised by its appearance.

MATHEMATICS.

The School Algebra. By A. G. Cracknell, M.A., B.Sc., F.C.P. (5s. Clive.)

This book comprises the material given in the author's "School Algebra" (Matriculation Edition)—of which a notice appeared in

our March number—with additional work on Indices, Logarithms, Interest, Variation, Gradients, Permutations and Combinations, and Binomial Theorem (positive index). Tables of logarithms and anti-logarithms are appended. A high standard of usefulness is maintained throughout.

Solutions of the Exercises in Godfrey and Siddons's Shorter Geometry. By E. A. Price, B.A. (4s. 6d. net. Cambridge University Press.)

Teachers who have adopted this Geometry for use in their classes will find these concise and clear solutions of all the exercises and examination papers of considerable assistance.

Statics. Part I. By R. C. Fawdry, M.A., B.Sc., Head of the Military and Engineering Side, Clifton College. (2s. 6d. G. Bell.)

The author evidently knows the sort of work that young engineering students require, and has written a thoroughly useful and practical little book which, as an introductory course in the subject, could hardly be improved upon. The five chapters deal successively with Moments, Machines, Triangle of Forces, Friction, and Centre of Gravity. There are plenty of examples, and several simple laboratory experiments are described. An elementary knowledge of trigonometry is assumed. The toothed wheel diagram on page 61 is rather crude.

Matriculation Mechanics. By W. Briggs, LL.D., M.A., and G. H. Bryan, Sc.D., F.R.S. (3s. 6d. Clive.)

The ninth impression (third edition) of this well known textbook of elementary mechanics, dynamics, and statics. The treatment throughout is well adapted to the purpose for which it has been written, but the effect of friction has been mentioned in a somewhat cursory manner, especially in the chapters on Machines. Trigonometrical work has been avoided.

SCIENCE.

Elementary Graphic Statics. By John T. Wight, A.M.I.Mech.E. (4s. net. London and New York: Whittaker.)

The number of works on this subject being comparatively small, a new one written by a teacher with a view to the needs of a large number of students promises to have a useful career. The author is well fitted by his work to understand what is required. His method of discussing rather concisely general principles and then applying these to the full treatment of some of the practical problems which present themselves to the engineer and the student of building construction has much to recommend it, provided always that the reader also has the advantage of competent oral instruction. Many exercises are proposed for solution by the individual student, and the book is fully illustrated by bold diagrams.

A School Statics. By G. W. Brewster, M.A., and C. J. L. Wagstaff, M.A. (3s. net. Cambridge: Heffer. London: Simpkin, Marshall.)

It is a pleasure to see brought out at a price within the reach of most a volume as thoroughly useful and attractive as the one before us. The authors are not only well versed themselves in the subject treated, but know how to make interesting to the beginner the knowledge they desire to impart. It has been said by one of our well known professors that the teacher should strive to marshal his facts so that they may lie in the minds of his pupils just as they already lie in his own. The power of attaining to so desirable a result would seem to us to be possessed by the writers of the present volume.

Geological Excursions round London. By G. MacDonald Davies, B.Sc., F.G.S. (3s. 6d. net. Murby.)

The author describes 12 typical excursions in the London Basin, 10 in the Weald, and 4 beyond the Chilterns. Minute instructions are given as to routes, pits to be visited, and general geological features to be observed. The fossils, &c., that are to be found in the different formations are indicated, but no space is wasted on unnecessary descriptions. A brief account is given of the main features of stratigraphical geology in the south-east of England, and the formations crossed on each railway journey are concisely described. A small coloured geological map for the south-east of England is provided in addition to several good sketch maps, sections, and photographs of pits to be visited. Geological students preparing for examinations will find the book extremely handy, and it can be strongly recommended to all members of geological field classes.

The Elements of Qualitative Analysis. By Julius Stieglitz, Professor of Chemistry in the University of Chicago. (2 vols. 6s. net each. Bell.)

In these two volumes modern theory and practice are closely combined, and an extremely useful addition has been made to the already existing literature on the subject. The first volume, which is in the nature of a textbook for use in connexion with a lecture course, deals with important physicochemical topics, such as osmotic pressure, the theories of solution and ionization, and the laws of equilibrium, developing the subject from the purely analytical point of view and paying particular attention to its application in practical analytical

work. The subject-matter includes a discussion of the colloidal condition, precipitation, hydrolysis, and the theory of complex ions, while two chapters are devoted to a consideration of oxidation and reduction reactions from the point of view of the modern theory of solution and the laws of equilibrium.

The second volume forms the laboratory manual, and gives clear instructions for the practical study of the reactions of the metal and acid ions and their group analyses. The work is limited to the commoner elements, including gold and platinum, their usual inorganic combinations, and a few important organic compounds, such as the acetates, oxalates, silicates, &c. A useful feature is the frequent setting of questions bearing directly on the experimental work. Alternate pages are blank, apparently for the purpose of entering notes. The books are more suitable for University and specialist requirements, but much of the work might reasonably be dealt with in advanced classes in secondary schools. The numerous references to larger and more detailed works on the subject and to many important original articles on the various topics will be of considerable assistance both to the instructor and to the serious student.

Methods of Quantitative Organic Analysis. By P. C. R. Kingscott, D.I.C., A.R.C.Sc., A.I.C., B.Sc., and R. S. G. Knight, D.I.C., A.R.C.Sc., A.I.C., B.Sc. (6s. 6d. net. Longmans.)

Though not possessing any distinctive value from a literary point of view, this work is useful, inasmuch as it is, to all intents and purposes, a collection of abstracts of scientific papers dealing with the subject in hand. The descriptions are illustrated by diagrams, but some of the abstracts are unfortunately obscure in detail. A case in point is to be found on page 232, where the description of the method of Cameron and McEwan for the estimation of malonic acid (for which, by the way, the correct reference is *Proc. Chem. Soc.*, 1910, 26, 144) is unintelligible. The arrangement of the matter is in the introduction variously ascribed to the authors and to their lecturer, Dr. M. A. Whiteley, of the Imperial College of Science and Technology, whose unique references are acknowledged as forming a nucleus for this systematic study. Certain modifications of processes due to Dr. Whiteley are also included. In four chapters the determination of molecular weights by physical methods, the methods of ultimate analysis, the estimation of typical groups, and technical applications are dealt with from a historical rather than from a critical point of view. It is to be regretted that, except in a few cases, no adequate attempt appears to have been made to distinguish authoritatively between the merits and ranges of applicability of the various methods to which allusion is made. The results of such a task, competently and exhaustively undertaken, would have proved of the greatest value to the organic chemist. To the advanced student whose geographical situation is such as to preclude easy access to chemical abstracts and original papers, this volume will certainly be handy, though it can hardly be described as indispensable. The book is pleasantly presented; the type and diagrams are printed with clearness.

NATURE STUDY.

"Cambridge Nature Study Series."—(1) *Pond Problems.* By E. E. Unwin, M.Sc. (2s. net.) (2) *Bird Studies.* By W. P. Westell. (2s. net.) (Cambridge University Press.)

(1) "Pond Problems" provides a series of lessons on pond life, intended for the lower forms of secondary schools and upper standards of elementary schools. It is above the average of such books, and we venture to think that much of the work suggested would be suitable for higher forms in our secondary schools, presuming the necessary time could be found for it. The aim of the series of practical lessons and demonstrations is really to give some ideas, from actual contact with Nature, "about environment, natural selection, and evolution." After showing how material should be obtained, and making quite clear what an insect is, our author states that "insects are really land animals," even though now in a comparatively few cases they may pass part of their life in the water. The main object of the remaining lessons is, by practical observation and experiment, to show how the adaptation to their new surroundings is managed. The work concludes with useful appendixes on material, apparatus, the microscope and the making of microscope slides, and a short bibliography. The book, which is well got up, is illustrated by forty-seven good figures, all, except two, from the author's drawings or photographs. We are glad to welcome this work, for too often Nature study would seem to be considered almost synonymous with botany; and, whatever the girls may think, animal life, rather than vegetable, appears to have the greater attraction for boys.

(2) "Bird Studies" belongs to the same series as "Pond Problems," but it is not of the same type. In it we have twenty-four lessons on various phases of bird life, each followed by a number of problems. The "lessons" are, however, short articles—chatty and interesting enough, but not lessons; and the "problems" are in many cases (perhaps most cases) really little more than examination questions, although containing many interesting and useful suggestions. The book is well illustrated by means of numerous excellent pen-and-ink

(Continued on page 130.)

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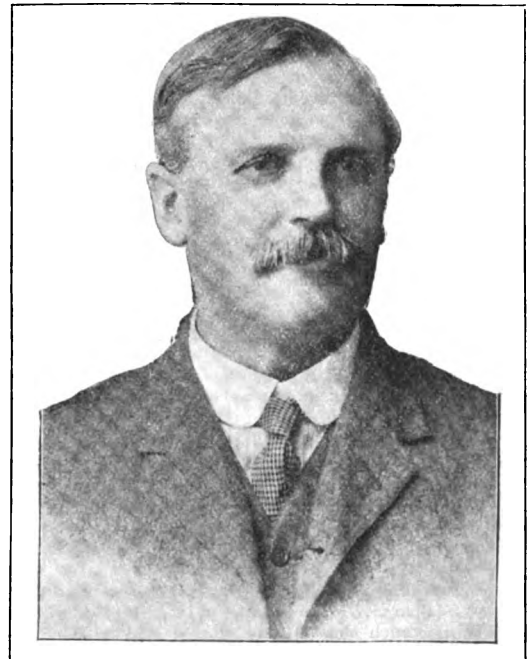
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Mr. Henry Holman, M.A., formerly Professor of Education in the University of Wales, and one of His Majesty's Inspectors of Schools.
(One of the Contributors to "The Teacher's World").

drawings, and by photographs equally good. "Bird Studies," we are inclined to think, will be found most useful to the members of the school natural history society on their rambles, as well as to bird-lovers in general; and to these we heartily recommend it. Since our author is writing as a teacher, his diction, we think, might have received a little more attention at times.

MUSIC.

Compend of Musical Knowledge. By Percy Baker, F.R.C.O.,
L.Mus.T.C.L. (1s. net. W. Reeves.)

Designed to assist candidates in preparing for questions in general knowledge at various musical examinations, this book contains a great deal of reliable information. One can have no grumble against the matter, the wide scope of which is indicated by the headings of the various sections. Here are a few chosen at random: How to Study General Knowledge Questions, Beethoven's Contributions to Program Music, Orchestration, Form, Combined Counterpoint, How to Write an Essay for A.R.C.O. The contents cannot be said to be of great depth, but they certainly are thought-inducing. With regard to the general arrangement of the book, we feel we must enter a protest. It is particularly annoying in reading a work of this kind to have to hunt for the musical illustrations to which one is referred, and which could have been incorporated in the text quite easily. Here it is often quite difficult to find the illustrations one requires. Again, some of the chapters consist of specimen papers of questions, the answers to which are given in the immediately succeeding chapter. Obviously it is intended that they should be referred to along with the questions. In that case might we suggest that it would facilitate reference if each question were followed by its appropriate answer? On the whole, it is a valuable book for music students, but its unmethodical and haphazard arrangement somewhat detracts from its excellence.

How to Pass Music Examinations. By Herbert Antcliffe.
(1s. net. Augener.)

On the whole, this little book is not quite up to the high standard of its companion volume, "The Successful Music Teacher," which has already been noticed in these columns. The present volume, the sub-title of which is "The Successful Candidate," however, is a very useful book, and may be recommended to all who contemplate entry for any of the various examinations in music, but especially those for the professional diplomas. The author covers a wide ground in very general terms, writing so that his remarks may be applicable to all examinations of recognized standing in all branches of music. The chapter headings are: the Purpose of Examinations; Preparation and Playing; the Theory of Practice (a somewhat contradictory term indicating lines on which practice should proceed and advocating the use of systematic gymnastic exercises); Practical Hints; Paper Work: History, Form, and Teaching; General Hints on Studying; Instruments other than the Pianoforte; Examinations in Singing; General Suggestions, before and during the Examination. We especially like the chapter on Preparation and the accompanying suggestion for a time-table for such preparation. A series of twenty-two "General Suggestions" terminate the book. Several of these apply to things which at first sight appear perfectly obvious, such as sending in the form and fee at the proper time. However, from experience, we know that this a matter which music students often overlook until too late. Altogether the book conduces to lively thought on the part of the candidate, and ought to prove of use in preparation for examinations.

Elementary Lessons in Sight-Singing. By J. W. Rossington, L.R.A.M.
(1s. W. Reeves.)

This little book sets out to assist those who are preparing for the sight tests of the Associated Board of the Royal Academy of Music and the Royal College of Music. We entirely concur with the author in his remarks in the preface. From personal experience, we know that the best sight-singers are always dual notationists—that is, those who are equally at home in singing from tonic sol-fa or from the old notation. The six lessons provided here should prove of use to those who have not been trained in both notations, although we cannot say that the exercises (which, by the way, for a work of this kind are very few) reach any very high-musical standard. Also the work itself is not by any means an improvement on the tonic sol-fa course. Lastly, the value of the book would be enhanced if the exercises—which, after all, are the most important things in teaching sight-singing—were printed more clearly. In our copy it is difficult to read some of the exercises at all.

Memoranda on Teaching and Organization in Secondary Schools (Music).
(Board of Education Circular, No. 832. 1d. Wyman.)

While much that is here offered strikes us as being unnecessary, for the simple reason that the suggestions indicate matters with which every director of music in a secondary school is, or ought to be, quite familiar, many of the remarks are well worth careful study and attention. A short while ago rumours were abroad that those in authority were making efforts to abolish the use of tonic sol-fa in all

schools under Government control. Apparently those responsible for this pamphlet do not share this desire, for many references are made to the undoubted excellence of the tonic sol-fa system. We are glad to find that it is so, for it is the opinion of most persons engaged in teaching singing in schools that the best results—especially in sight-singing and time—come from a combination of the two methods. In a word, a dual notationist is a much more reliable singer than one knowing either old notation only or sol-fa only.

In many schools singing has to be taught by the usual form masters or mistresses, and not by some person who has made a special study of teaching class singing. Such inexperienced instructors will benefit much by a careful perusal of these memoranda. By following the advice given, comparatively good results may be obtained by those who are not specialists. Occasionally one finds a great lack of co-operation between the singing teachers in a school in which two or more than two persons are responsible for the instruction in singing. Cases are known where in a low form the boys are taught only the staff notation, while in a higher class the boys are able to sing only from tonic sol-fa. This ridiculous state of things is due to the fact that one man has been trained by the sol-fa method only, and the other, having learnt music by the method, or no method, of the staff notation, regards the sol-fa as beneath his dignity and not worthy his notice. This pamphlet makes some cutting remarks about such "organization," which is, of course, stupid. In all secondary schools it is possible to combine the two systems and teach them concurrently, with increased benefit to all concerned.

The memoranda are divided into two sections. The first deals with Class Teaching, in which is included everything connected with the teaching of class singing; the second section concerns Individual Teaching, by which term is meant the instruction given in various instruments, the lessons in which are individual. In the first section much good advice is given in such things as choice and teaching of songs, voice training (with remarks on common mistakes), ear training, and sight singing. That portion dealing with individual teaching seems to us to be the least useful of all the booklet. The suggestions indicate lines upon which all really thoughtful musicians engaged in teaching music in schools must have worked for years.

Aural Culture based upon Musical Appreciation. By Stewart Macpherson and Ernest Read. (Part II, 3s. 6d. net. Joseph Williams.)

Mr. Stewart Macpherson has had much to do with the recent revival of interest in the question of ear training, and in the subsequent introduction of Musical Appreciation Classes. Indeed, one might say that it is to his initiative that we owe the wide-spread attention now being given to these subjects in every musical centre in the country. In conjunction with Mr. Ernest Read, he has issued a textbook setting forth their views and giving directions in the methods of aural culture. One cannot but regard the whole as being a distinct addition to the literature of a much neglected branch of music. Part I, which dealt with elementary facts of Time, Rhythm, Pitch, and Character, was published some time since. The present part continues the instruction to a higher stage, and is divided into two sections. The first considers the "basic facts," and the second Musical Appreciation proper. The exercises and pieces in both sections, which should be worked concurrently, are most carefully graded, and we recommend the work to all teachers seeking for something to help their pupils on the road to true musicianship as opposed to mere automatic imitation.

Sumer is Icumen in. By Jamieson B. Hurry, M.A., M.D.
(Novello.)

This tastefully got-up and really beautiful little book is an enlarged and revised edition of a pamphlet originally issued when a memorial tablet was unveiled at Reading Abbey. It gives a description, and as much as possible of the history, of that world-famous example of very early musical composition in canon form, "Sumer is icumen in." Dr. Hurry is to be congratulated most heartily on the result of his labour of love in research and in the compilation of this work. It will interest all who study the history of music. A facsimile of the original manuscript, now preserved in the British Museum, is given as a frontispiece, and there is a transcription of the canon in modern notation. The book concludes with extracts from the writings of many well known musicians and musical historians, giving their opinions of the composition. It also has a very full index.

The High School Singer. By L. C. Venables.
(Parts I and II, each 1s. Curwen.)

Out of the fullness of his experience as a teacher of singing and as an examiner for the Tonic Sol-fa College, Mr. Venables has produced a valuable work on the teaching of sight singing. It consists of an application of the well known Tonic Sol-fa Method to the Staff Notation, and splendidly is the work carried out. Carefully graded exercises are given at each step, and equally carefully chosen are the songs used for purposes of illustration. A class that works through these two books under the vigilant direction of a teacher who is a dual notationist will make great strides in that somewhat neglected accomplishment, singing at sight from the Old Notation.

PUBLICATIONS RECEIVED.

EDUCATION.

The School, The Child, and The Teacher: Suggestions for Students in Training (with special reference to South African Schools). By Ellen Winifred Adamson. Longmans, 4s. 6d. net.
School Discipline. By William Chandler Bagley. Macmillan, 5s. net.

CLASSICS.

Ovid: *Metamorphoses* I, II (1-400). Edited by A. H. Allcroft and J. F. Stout. Clive 2s. 6d.
Plato: *The Apology of Socrates*. Edited by Adela Marion Adam. Cambridge University Press, 2s. 6d.
Via Romana. A Latin Course for the First Year. By Frank Granger. Bell, 1s. 6d. net.

FRENCH.

Le Français par l'Exemple et les Textes. Livre II. Par C. L. Albert Bonne. Rivingtons, 1s. 4d.
Military French. By George E. Pitt. Hodder & Stoughton, 1s. net.
The Soldier's Word and Phrase-book: French and German. Harrap, 6d. net.

GERMAN.

The German Language: Outlines of its Development (Oxford German Series). By Tobias Diekhoff. Milford, 5s. net.

RUSSIAN.

Russian Grammar. By Nevill Forbes. Clarendon Press, 6s. net.

ENGLISH.

Wordsworth: *Poems in Two volumes (1807)*. Edited by Helen Darbishire. Clarendon Press, 4s. 6d.
Pro Patria: A Book of Patriotic Verse. Compiled by Wilfred J. Haldy. Dent, 2s. 6d. net.
The Columbiad: By William Henry Sheran. Dent, 1s. 6d. net.
Shakespeare's Plays. Edited by S. P. B. Mais, with illustrations by Byam Shaw. (1) King Lear. (2) The Tempest. (3) Henry IV, Part I. (4) Henry IV, Part II. (5) The Merchant of Venice. (6) Coriolanus. Bell, 1s. each.
Oxford Plain Text Shakespeare. (1) Much Ado about Nothing. (2) King John. (3) Henry IV, Part I. (4) Henry IV, Part II. (5) Henry V. (6) Henry VIII. Clarendon Press, 6d. each net.
Abraham Cowley: *Essays and other Prose Writings*. Edited by Alfred B. Gough. Clarendon Press, 4s. 6d.
Lorna Doone. By R. D. Blackmore. Edited by R. O. Morris. Oxford University Press, 2s. 6d.
Longmans' Classbooks of English Literature.—English Letters. Selected for reading in schools. By H. J. Anderson. 1s. 6d.
Gods and Heroes; or, Greek Fairy Tales. By P. C. Sands. Gill, 10d.
Asia in Pictures. By H. Clive Barnard. Black, 1s. 6d.
The Brodie Books.—(1) Tales from the Norse. By W. B. Rands. (2) Rip Van Winkle. By Washington Irving. (3) Alice in Wonderland. (4) A Book of British Ballads. (5) Selected Poems of John Keats. (6) Longfellow's Shorter Poems. (7) Our Village. By Mary Russell Mitford. (8) Curiosities of Natural History. By Frank Buckland. (9) The Three Midshipmen. By W. H. G. Kingston. (10) The Twelve Labours of Hercules. Brodie, 1d. each in paper; 2d. in cloth.
Class Exercises in English Composition. By Arthur Linecar. Book I, 4d.; Book II, 5d.; Book III, 6d. Jack.

HISTORY.

A Political History of Contemporary Europe (since 1814). Translated from the French of Charles Seignobos. Popular Edition. Heinemann, 6s. net.
Canadian Essays and Addresses. By W. Peterson. Longmans, 10s. 6d. net.
A General History of Europe (1789-1900). By Oliver J. Thatcher and Ferdinand Schwill, edited and adapted by Arthur Hassall. Murray, 2s. 6d.
How to Teach American History. A handbook for teachers and students. By John W. Wayland. Macmillan, 5s. net.

GEOGRAPHY.

An Atlas of Economic Geography. By J. G. Bartholomew, with introduction by L. W. Lyde. Oxford University Press, 5s. net.
The Britannic Historical Geography. Part III. Europe, 1600-1914. Charles, 3d. net.
Highroads of Geography. Book VI. Nelson, 2s.

Macmillan's Geographical Exercise Books. III. The British Empire. 6d.
Bacon's Contour Atlas. South Scotland Edition. 6d. net.
War Map of Central Europe. Oxford University Press, 3d. net.
Oxford Outline Maps. Edited by A. J. Herbertson. Prices 1d. net each, 9d. net for twelve of one kind.

BIOGRAPHY.

The Lonely Nietzsche. By Frau Förster Nietzsche. Translated by Paul V. Cohen. Heinemann, 15s. net.

ECONOMICS.

A Textbook on National Economy for use in Schools. By A. G. Clarke. King, 3s. 6d. net.
Know Thyself. By Bernardino Varisco. Translated by Guglielmo Salvadori. Allen & Unwin, 10s. 6d. net.

MATHEMATICS.

Homogeneous Linear Substitutions. By Harold Hilton. Clarendon Press, 12s. 6d. net.
A Treatise on the Analytic Geometry of Three Dimensions. By George Salmon. Edited by Reginald A. P. Rogers. Fifth Edition. Vol. II. Longmans, 7s. 6d. net.
Exercises in Algebra (including Trigonometry). By T. Percy Nunn. Part I. (Part II has been already issued.) Longmans, with answers, 4s.; without, 3s. 6d.
Plane Trigonometry: an Elementary Textbook for the Higher Classes of Secondary Schools and for Colleges. By H. S. Carslaw. Macmillan, 4s. 6d. Solutions to the above, 6s. 6d. net.
Geometry: A Reasoned Chain. By Leonard C. Comfort. Gill, 1s.
Workshop Arithmetic. By Frank Castle. Macmillan, 1s. 6d.
A Shilling Arithmetic. By W. M. Baker and A. A. Bourne. Bell.
The Laws of Algebra: an Elementary Course in Algebraic Theory. By A. G. Cracknell. Clive, 1s.

SCIENCE.

An Advanced Inorganic Chemistry. By P. W. Oseroff. Bell.
Notes on Practical Physics (for junior students). By C. G. Barkla and G. A. Carse. Gurney & Jackson, 3s. 6d. net.
Papers set in the Qualifying Examination for the Mechanical Sciences Tripos, 1906-1913. Cambridge University Press, 2s. net.
Science Progress, January. Murray, 5s. net.

BOOKS ON THE WAR.

Prussianism and its Destruction. By Norman Angell. Heinemann, 1s. net.
Mutual Aid: A Factor of Evolution. By P. Kropotkin. Heinemann, 1s. net.
America's Arraignment of Germany. By J. William White. Harrap, 1s. net.
The Daily Telegraph War Books: (1) From Heligoland to Keeling Island: A hundred days of Naval War. By Archibald Hurd. (2) The First Campaign in Russian Poland. By P. C. Standing. (3) Slav Nations. By Srgjan Pl. Tucic. (4) The Submarine in War. By C. W. Domville Eife. (5) The Battle of the Rivers. By Edmund Dane. (6) With the Scottish Regiments at the Front. By E. Charles Vivian. Hodder & Stoughton, 1s. net each.
Amor Vincit Omnia. Thoughts on the War with notes on what to read and helps to intercession. By Lillian Stevenson. Students' Christian Movement, 3d.
How to Enforce Laws of War. By Señor S. Perez Triana. King, 2d.
Daily Mail Flags of the World. Philip, 1s. net.
Germany and England. By Professor Cramb, with introduction by the Hon. J. H. Choate. Murray, 1s. net.
Six Songs of the War. Set to music by Martin Shaw. Milford, 2s. 6d. net.
The War: Its Origins and Warnings. By Frank J. Adkins. Allen & Unwin, 2s. 6d. net.

STORIES.

The Master of the World. By Jules Verne. Sampson Low, 3s. 6d.
Jo's Boys. And how they turned out. By Louisa M. Alcott. Illustrated. Sampson Low, 2s.

CALENDARS.

University College of North Wales (Bangor). Calendar, 1914-15. From the Registrar.
Matriculation Directory (London). Clive, 1s. net.

UNCLASSIFIED.

An Introduction to the Study of Social Problems. By Arnold Freeman. Workers' Educational Association, 2d.
Musketry: Imperial Army Series. Murray, 1s. net.

MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17681. (C. V. L. LYCETT.)—Inscribe a triangle in an ellipse being given one vertex and the orthocentre.

Solution by W. F. BEARD, M.A.

Let A, H be the given vertex and orthocentre, and O the centre of the ellipse. Draw OG, OF radii parallel and perpendicular to AH. Produce AH to meet the ellipse at E. Divide HE at D, so that

$$HD/DE = OF^2/OG^2.$$

Draw the chord BDC perpendicular to AD. Then ABC is the triangle required.

$$(BD \cdot DC)/(AD \cdot DE) = OF^2/OG^2 = HD/DE;$$

therefore $BD \cdot DC = AD \cdot DH$;

therefore H is the orthocentre of ABC, and therefore ABC is the triangle required.

The following is due to the PROPOSER:—

Let A and P be the given vertex and orthocentre, and O the centre of the ellipse.

Draw any chord QQ' perpendicular to AP, bisect it at K. Join OK. Draw KS perpendicular to QQ' in the same sense as PA and equal to $\frac{1}{2}PA$.

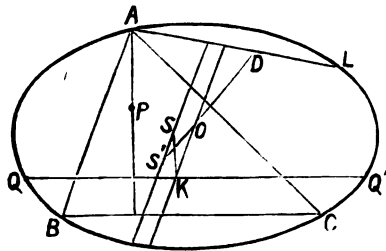
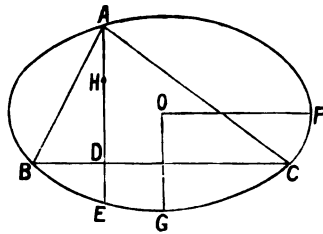
Draw SS' parallel to OK.

Draw AL to cut the ellipse in L and such that it is equally inclined to the major axis with QQ'.

Bisect it in D. Join OD to cut SS' in S'.

Then S' is the circum-centre of the triangle ABC.

The rest is obvious.



17822. (S. NARAYANAN, M.A.)—ABCD is a quadrilateral inscribed in an ellipse of focus S. Show that

$$SA \cdot \Delta BCD + SC \cdot \Delta ABD = SB \cdot \Delta ACD + SD \cdot \Delta ABC.$$

Solutions (I) by W. N. BAILEY; (II) by R. F. DAVIS, M.A.

(I) Let ABCD be any quadrilateral, the co-ordinates of the vertices being (x_r, y_r) ; $r = 1, 2, 3, 4$.

From the identity

$$\begin{vmatrix} x_1 & x_2 & x_3 & x_4 \\ x_1 & x_2 & x_3 & x_4 \\ y_1 & y_2 & y_3 & y_4 \\ 1 & 1 & 1 & 1 \end{vmatrix} = 0,$$

we have

$$x_1 \begin{vmatrix} x_2 & x_3 & x_4 \\ y_2 & y_3 & y_4 \\ 1 & 1 & 1 \end{vmatrix} - x_2 \begin{vmatrix} x_1 & x_3 & x_4 \\ y_1 & y_3 & y_4 \\ 1 & 1 & 1 \end{vmatrix} + x_3 \begin{vmatrix} x_1 & x_2 & x_4 \\ y_1 & y_2 & y_4 \\ 1 & 1 & 1 \end{vmatrix} - x_4 \begin{vmatrix} x_1 & x_2 & x_3 \\ y_1 & y_2 & y_3 \\ 1 & 1 & 1 \end{vmatrix} = 0;$$

so that $x_1 \cdot \Delta BCD + x_3 \cdot \Delta ABD = x_2 \cdot \Delta ACD + x_4 \cdot \Delta ABC$.

Now let ABCD be inscribed in a conic, and take the directrix corresponding to S as axis of y . Then

$$x_1/SA = x_2/SB = x_3/SC = x_4/SD.$$

Hence $SA \cdot \Delta BCD + SC \cdot \Delta ABD = SB \cdot \Delta ACD + SD \cdot \Delta ABC$.

(II) I went into this many years ago either in *The Educational Times* or *Mathematical Gazette*.

Since

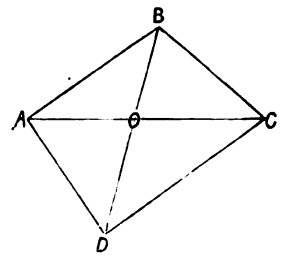
$\Delta ABD : \Delta BCD = AO : OC$, a mass proportional to ΔBCD at A, and a mass proportional to ΔABD at C, will have its centroid at O.

Hence, if L be the directrix,

$$\begin{aligned} A(L) \cdot \Delta BCD + C(L) \cdot \Delta ABD \\ = O(L) \text{ quad. } ABCD \\ = B(L) \Delta ACD + D(L) \Delta ABC, \end{aligned}$$

and $SA = e \cdot A(L)$, &c.

Theorem is by Mobius, and is in Salmon's *Conics*.



Note on the $\Gamma(\rho)$ Function and its application for carrying out Integrations, which do not seem to be possible with the ordinary methods.

By F. TAVANI.

If x is a real quantity and $\rho = a + i\beta$,

$$(1) \Gamma(\rho) = \int_0^\infty x^{\rho-1} e^{-x} \cos(\beta \cdot \log x) dx + i \int_0^\infty x^{\rho-1} e^{-x} \sin(\beta \cdot \log x) dx;$$

therefore $\int_0^\infty x^{\rho-1} e^{-x} \cos(\beta \cdot \log x) dx$

and $\int_{-\infty}^\infty e^{-x^2+ix} \cos(\beta \cdot x) dx$

(2) are both $= |\Gamma(\rho)| \cdot \cos[\arg. \Gamma(\rho)]$.

and $\int_0^\infty x^{\rho-1} e^{-x} \sin(\beta \cdot \log x) dx$

and $\int_{-\infty}^\infty e^{-x^2+ix} \sin(\beta \cdot x) dx$

are both equal to $|\Gamma(\rho)| \cdot \sin[\arg. \Gamma(\rho)]$ (3).

As we can calculate $\arg. \Gamma(\rho)$ directly in function of a, β, ϕ , ϕ being the argument of ρ , so we can express the said integrals explicitly in function of a, β, ϕ .

With this method other important functions connected with $\Gamma(\rho)$ can also be expressed under the form of a vector; thence we can deduce expressions of integrals in a similar way as indicated for the integrals here given.

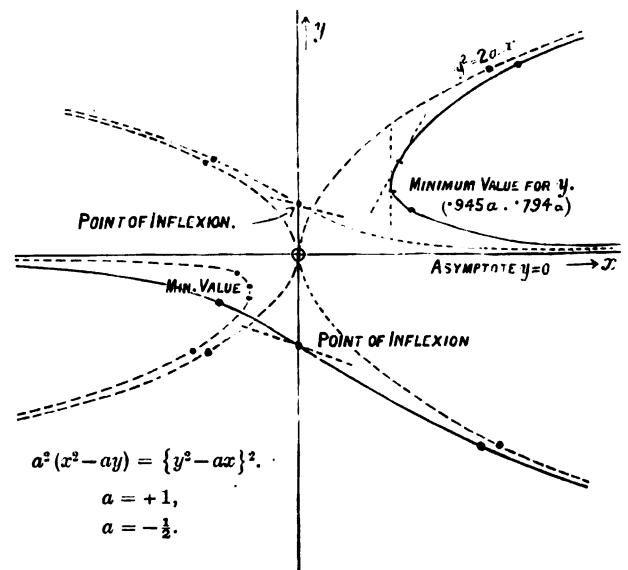
17585. (Professor E. J. NANSON.)—Trace the curves

$$(1) a^2(x^2 - ay) = (y^2 - ax)^2; \quad (2) a^2(x^2 - ay)^2 = (y^2 - ax)^3.$$

Solutions (I) by F. J. TURTON and A. M. NESBITT, M.A.;

(II) by A. M. NESBITT, M.A.

(I) Transforming $y^4 - 2axy^2 + a^2y = 0$,
i.e., $y = 0$ or $x = (y^2 + x^2)/2ay$.



$$a^2(x^2 - ay) = \{y^2 - ax\}^2.$$

$$a = +1,$$

$$a = -\frac{1}{2}.$$

(1) Obvious points on curve (a, a) , $(0, -a)$.

(2) Asymptote. Put $y = mx + c$ for asymptote test: then $m^2x^3 + x^2(3mc - 2am) + x(3mc^2 - 2ac) + a^3 = 0$,

i.e., an asymptote when $m = 0, c = 0$; i.e., $y = 0$:

(3) $x = y^2/2a + a^2/2y$,

when y is large then $x = y^2/2a$. But x is always greater than this with y positive, and always somewhat smaller than this when y is negative. Then curve approaches $y^2 = 2ax$ from below with x and y positive, and from below with y negative, as shown.

(4) Differentiate $dx/dy = y/a - a^2/2y^2 = (2y^3 - a^3)/2ay^2$.

Then dx/dy is = 0 when $y = a/\sqrt[3]{2}$, i.e., at the point (945a, 794a).

Differentiate again $d^2x/dy^2 = 1/a + a^2/y^3$; therefore $(d^2x/dy^2)_{y=a/\sqrt[3]{2}} = 1/a + 2/a$;

therefore this value is a minimum for y .

(5) $d^2x/dy^2 = 0$ when $(y^3 + a^3)/ay^3 = 0$, i.e., when $y = -a$.

Then point of inflexion at $(0, -a)$.

The curve can now be drawn in form. To fix it definitely the following properties may be used.

(6) $(dx/dy)_{x=0, y=a} = -\frac{3}{2}$, $(dx/dy)_{x=0, y=-a} = \frac{1}{2}$.

Also $(\frac{2}{3}a, 2a)$, $(\frac{2}{3}a, -2a)$, $(\frac{8}{9}a, \frac{1}{2}a)$, $(-\frac{7}{9}a, -\frac{1}{2}a)$ are on the curve. [Rest in Reprint.]

17863. (B. HOWARTH.)—Let D be an integer (not necessarily a prime), such that the decimal equivalent of $1/D$ is a pure circulator with a period of p figures. Then, if p be a factor of n ,

(i) D is a factor of $\overset{m \rightarrow}{000 \dots 001}$ if D be a factor of m ;

(ii) D is not a factor of $\overset{m \rightarrow}{000 \dots 001}$ if D be not a factor of m .

[Notation.—I use $\overset{m \rightarrow}{000 \dots 001}$ to denote

$$000 \dots 001, 000 \dots 001, 000 \dots 001, \dots,$$

to m groups, (n) denoting the number of figures in the group

$000 \dots 001$. Hence, if $(n) = 1$, then $\overset{m \rightarrow}{000 \dots 001} = \overset{m \rightarrow}{1}$; if 2,

$\overset{m \rightarrow}{01}$; if 3, $\overset{m \rightarrow}{001}$; and so on. Thus, $\overset{m \rightarrow}{1} = 111 \dots$ to m terms;

$\overset{1 \rightarrow}{99} = 99999999 = \overset{9 \rightarrow}{9}$; $\overset{9 \rightarrow}{001} = 001001001$.

N.B.—The arrow head of the group-index is placed over the first figure of the group; and (n) , the digit-index, is placed under the last figure of the group.]

Solution by the PROPOSER.

D is a factor of $\overset{n \rightarrow}{9}$;

therefore D is a factor of $\overset{n \rightarrow}{9}$, because n is a multiple of p .

Now $\overset{m \rightarrow}{000 \dots 001} = \begin{pmatrix} \overset{m-1, n \rightarrow}{9+1} \\ + \overset{(m-2), n \rightarrow}{9+1} \\ + \overset{(m-3), n \rightarrow}{9+1} \\ \dots \dots \dots \\ + \overset{2n \rightarrow}{9+1} \\ + \overset{n \rightarrow}{9+1} \\ + 1 \end{pmatrix}$

$= M(D) + m$, because D is a factor of $\overset{n \rightarrow}{9}$.

Therefore (i) and (ii) follow.

COR.—(i) D is a factor of m if D be a factor of $\overset{m \rightarrow}{000 \dots 001}$;

(ii) D is not a factor of m if D be not a factor of $\overset{m \rightarrow}{000 \dots 001}$.

Double-acting Sieve for the Odd Primes.

By NORMAN ALLISTON.

The operator has a strip with the numbers marked in two directions, thus

L | R
... 6 5 4 3 2 1 0 1 2 3 4 5 6 ...

The paper being folded at R1, he pricks out every 3rd number,

" " " L1, " " " 5th " "
" " " R2, " " " 7th " "
" " " L2, " " " 9th " "
" " " &c., &c.

For example, at the first folding the R side is kept uppermost, and 4, 7, 10, 13, &c., are pricked out, which simultaneously annuls 2, 5, 8, 11, &c., on the L side. At the next folding, 6, 11, 16, 21, &c., are pricked out on the L side, and simultaneously 4, 9, 14, ... on the R side. Within the limits to which this process has been carried, the following applies: unpricked figures on the L side, multiplied by 4 and augmented by 1, are primes; unpricked figures on the R side, multiplied by 4 and diminished by 1, are primes.

This sieve renders it evident that the $4n + 1$ and $4n - 1$ primes are perfectly balanced to infinity.

11948. (Capt. P. A. MacMAHON, R.A.)—A tangent to a parabola inscribed in a triangle is inclined at an angle δ to the axis: find the envelope, and also the locus of the centres of the series of envelopes obtained by varying δ .

Solution by C. E. YOUNGMAN, M.A.

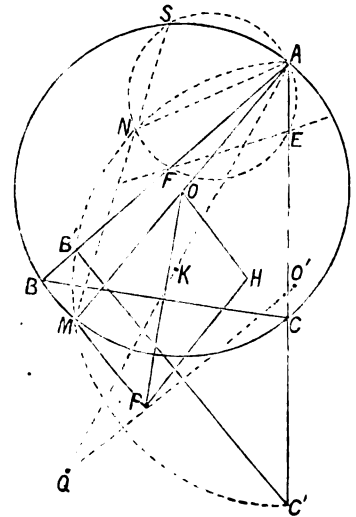
Let ABC be the triangle, S the focus of the parabola, and E, F the points where the tangent cuts CA and AB. Then the angles between SF and the tangent FA are equal to those between the tangent FE and the axis; i.e.,

SFA = δ .

Let M, N be the points opposite to A on the circles ABC, AEF, which both pass through S, so that MNS is a straight line. Then

ANS = AFS = δ ;

therefore, while δ is constant, the locus of N is a circle AMN which cuts AB, AC at fixed points B', C'; and EF is in AB'C' the pedal line of N; consequently its envelope is a three-cusped hypocycloid.



The centre K of the envelope is the nine-point centre of AB'C'. To find the locus of this when S and δ vary, consider O, O' the circum-centres of ABC and AB'C', P and Q their images in BC and B'C', and H the orthocentre of ABC. The rhombi O'B'QC' and OBPC are similar figures; their double point is M, since

MB'C' = MAC' = MBC, &c.;

therefore MPQ = MBB' = 90°; and the locus of Q is a straight line perpendicular to MP or OH. But K bisects AQ; hence its locus is the axis of OH.

The angle OKH = 2MQP = 2MB'B = 2 δ = AO'M;

therefore the nine-point radius is to KO as AO to OH; hence the envelope of the inscribed circle of the hypocycloid is an ellipse with foci O, H and eccentricity (OH/OA)².

17841. (F. G. W. BROWN, B.Sc.)—If the lengths of the three medians of a triangle ABC are in geometrical progression, show that $2 \cos B = 2h \pm \sqrt{3(h^2 - 1)}$, where $hac = a^2 + c^2$.

Solutions (I) by J. MACMILLAN, M.A.; (II) by I. FITZ ROY JONES, the PROPOSER, and others.

(I) Median from A = $\frac{1}{2} \sqrt{2b^2 + 2c^2 - a^2}$.

Similarly for the other medians;

therefore $(2b^2 + 2c^2 - a^2)(2a^2 + 2b^2 - c^2) = (2c^2 + 2a^2 - b^2)^2$.

Now $b^2 = c^2 + a^2 - 2ca \cos B = ca(h - 2 \cos B)$.

Putting this value for b^2 throughout and reducing, we get

$12 \cos^2 B - 24h \cos B + 3h^2 + 9 = 0$,

whence

$2 \cos B = 2h \pm \sqrt{3(h^2 - 1)}$.

(II) If AD, BE, CF be the medians, we have

$AD^2 = \frac{1}{2}b^2 + \frac{1}{2}c^2 - \frac{1}{4}a^2, \dots$

If the medians are in geometrical progression,

$BE^2 = AD \cdot CF$,

or $(\frac{1}{2}c^2 + \frac{1}{2}a^2 - \frac{1}{4}b^2)^2 = (\frac{1}{2}b^2 + \frac{1}{2}c^2 - \frac{1}{4}a^2)(\frac{1}{2}b^2 + \frac{1}{2}a^2 - \frac{1}{4}c^2)$,

i.e., $(c^2 + a^2 - \frac{1}{2}b^2)^2 = (b^2 + c^2 - \frac{1}{2}a^2)(b^2 + a^2 - \frac{1}{2}c^2)$,

i.e., $c^4 + a^4 - \frac{1}{2}b^4 + \frac{1}{2}a^2c^2 - b^2c^2 - a^2b^2 = 0$,

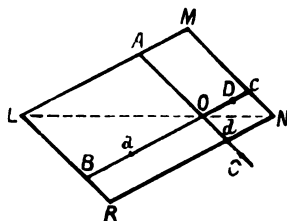
i.e., $2c^4 + 2a^4 - b^4 + a^2c^2 - 2b^2c^2 - 2a^2b^2 = 0$,

i.e., $(c^2 + b^2 + a^2)^2 = 3(a^4 + a^2c^2 + c^4)$,
 i.e., $b^2 + c^2 + a^2 = \pm \sqrt{3[(a^2 + c^2)^2 - a^2c^2]}$,
 i.e., $\frac{c^2 + a^2 - b^2}{ac} - 2\frac{a^2 + c^2}{ac} = \pm \sqrt{3\left\{\left(\frac{a^2 + c^2}{ac}\right)^2 - 1\right\}}$,
 i.e., $2 \cos B - 2h \pm \sqrt{3(h^2 - 1)}$.

Geometrical Note.

By R. F. DAVIS, M.A.

Let ABC, DBC be two triangles upon the same base BC and on the same side of it, having their vertical angles BAC, BDC equal. It is required to prove the equality of the angles DBC, DAC without any recourse to circle properties.



Let AC, BD intersect in O. Along OB, OC, OD take Oa, Od, Oc respectively equal to OA, OD, OC. Through A, d draw parallels to BOD; and through B, c draw parallels to AOC, forming the parallelogram LMNR as in figure.

Since angle BAC = ODC (hypothesis) = Odc (congruent triangles), therefore cd is parallel to AB. Hence OL bisecting AB is coincident with ON bisecting cd (Nixon's *Euclid Revised*, Addenda, Book 1). Thus O lies on the diagonal LN, and the complements about it Ac, Bd are equal. Therefore $\triangle OBD = \triangle OAC = \triangle OaC$, and ad is parallel to BC. Thus the angle

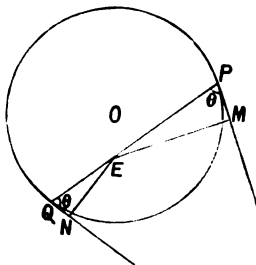
$OBC (DBC) = Oad = OAD (DAC)$.

[It appears incidentally that $OA \cdot OC = OB \cdot OD$.]

17876. (R. F. DAVIS, M.A.)—Through E, a given point within a given circle, any chord PEQ is drawn. If EM, EN are the perpendiculars from E on the tangents at P, Q, prove that $1/EM + 1/EN$ is constant.

Solution by H. D. DRURY, M.A., and many others.

Let R be the radius of the circle $d = OE$, θ the angle which either tangent makes with the chord PQ.



Then $1/EM + 1/EN$
 $= 1/EP \cdot \sin \theta + 1/EQ \cdot \sin \theta$
 $= PQ/EP \cdot EQ \cdot \sin \theta$.

But $PQ/\sin \theta = 2R$,
 and $EP \cdot EQ = R^2 - d^2$;
 therefore

$1/EM + 1/EN = 2R/(R^2 - d^2)$
 (constant).

QUESTIONS FOR SOLUTION.

17950. (C. H. HARDINGHAM.)—The following scoring occurred in a cricket match which took place in 1903:—

Worcestershire.

A.	ct, b Rhodes	.....	0
B.	c and b Hirst	.....	3
C.	st, b Rhodes	.....	1
D.	ct, b Hirst	.....	4
E.	ct, b Rhodes	.....	11
F.	ct, b Rhodes	1
G.	b Hirst	1
H.	ct, b Hirst	0
I.	ct, b Rhodes	0
J.	b Hirst	1
K.	not out	0
	leg b 1, no b 1	2

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Hirst	1	w	4	w
	2	1	w	w
	1	4	1	4	w
Rhodes	w	1
	1	1
	w	w	1	w	w

Show that the batsmen attempted a run when D. was caught, that E. was out before F., but that G. may have survived H.

17951. (C. M. ROSS, M.A.)—Find the value of the multiple integral $\iiint \dots \int \frac{(1-x_1^2-x_2^2-\dots-x_n^2)^{\frac{1}{2}}}{(1+x_1^2+x_2^2+\dots+x_n^2)^{\frac{3}{2}}} dx_1 dx_2 \dots dx_n$,

the integral being extended to all positive values of x_1, x_2, \dots, x_n , which make $x_1^2 + x_2^2 + \dots + x_n^2 < 1$.

17952. (E. R. HAMILTON.)—In an ellipsoid, $x^2/a^2 + y^2/b^2 + z^2/c^2 = 1$,

show that $\iiint (a^2x^2 + b^2y^2 + c^2z^2) dx dy dz = V$,

where the integral is taken throughout the volume V of the ellipsoid.

17953. (S. KRISHNASWAMI AIYANGAR.)—Show that

$1 - \frac{x^2}{(1!)^2} + \frac{x^4}{(2!)^2} - \frac{x^6}{(3!)^2} + \dots (-1)^n \frac{x^{2n}}{(n!)^2} \dots$
 $= (2/\pi) \int_0^{\pi} \cos^2(x \sin \theta) d\theta - 1$.

17954. (T. MUIR, LL.D.)—Prove that

$\begin{vmatrix} a & x_1x_2 & x_1x_3 & x_2x_3 \\ x_1x_2 & b & x_1x_4 & x_2x_4 \\ x_1x_3 & x_1x_4 & c & x_3x_4 \\ x_2x_3 & x_2x_4 & x_3x_4 & d \end{vmatrix} = (a-\delta_1)(b-\delta_2)(c-\delta_3)(d-\delta_4)$
 $\times \left(1 + \frac{\delta_1}{a-\delta_1} + \frac{\delta_2}{b-\delta_2} + \dots\right)$,

where $\delta_1 = x_1x_2x_3x_4, \delta_2 = x_1x_2x_4, \dots$.

17955. (B. HOWARTH.)—Let D be a prime number greater than 5, and let 1/D have a period of p figures. Then (1) D is a factor of $\overset{m}{\rightarrow} 000 \dots 001$, if mn be a multiple of p and n be not; (2) D is not a

factor of $\overset{m}{\rightarrow} 000 \dots 001$, if mn be not a multiple of p. Prove also

that (1) and (2) hold when D is not prime providing that the reciprocal of each factor of D gives rise to a pure circulator with a period of p figures. [Notation.—I use $\overset{m}{\rightarrow} 000 \dots 001$ to denote

$\overset{(n)}{000 \dots 001}, \overset{(n)}{000 \dots 001}, \overset{(n)}{000 \dots 001}, \&c.,$

to n groups, (n) denoting the number of figures in the group $\overset{(n)}{000 \dots 001}$. Hence, if (n) = 1, then $\overset{m}{\rightarrow} 000 \dots 001 = \overset{m}{\rightarrow} 1$; if 2,

$\overset{m}{\rightarrow} 01$; if 3, $\overset{m}{\rightarrow} 001$, and so on. Thus

$1 = \overset{1}{\rightarrow} 111 \dots$ to m terms, $\overset{4}{\rightarrow} 99 = \overset{4}{\rightarrow} 99999999 = \overset{3}{\rightarrow} 9$,
 $\overset{3}{\rightarrow} 001 = 001001001$.

N.B.—The arrow-head of the group-index is placed over the first figure of the group, and (n), the digit-index, is placed under the last figure of the group.]

17956. (J. HAMMOND, M.A.)—If n is any even number, P the number of odd primes (including 1) below it, Q the number of its partitions into two unequal primes, and R the number of ways of parting it into two, relatively prime, composite numbers; prove that $P - Q + R - \frac{1}{2}\phi(n) =$ the number of odd prime divisors of n. When n is a power of 2, $P - Q + R = \frac{1}{2}n$, and when n is the double of an odd prime, $P - Q + R = \frac{1}{2}(n + 2)$.

17957. (Prof. J. E. A. STEGGALL, M.A.)—Find the co-ordinates of the node in the unicursal cubic given by

$x = a_1 + a_2\theta + a_3\theta^2 + a_4\theta^3, y = b_1 + b_2\theta + b_3\theta^2 + b_4\theta^3,$
 $z = c_1 + c_2\theta + c_3\theta^2 + c_4\theta^3$.

17958. (Prof. E. J. NANSON.)—Find all the solutions of

$yz \{a^2xw - a(x^2 + w^2) + xw\} = xw(y + z)^2,$
 $zx \{a^2yw - a(y^2 + w^2) + yw\} = yw(z + x)^2,$
 $xy \{a^2zw - a(z^2 + w^2) + zw\} = zw(x + y)^2$.

17959. (C. E. YOUNGMAN, M.A.)—Two circles, inner and outer, with radii 2 and 3, touch each other at V; a chord VFX cuts them (in order); and a parabola is drawn with focus F and directrix the tangent at X. Prove that its envelope consists of two equal cardioids having the same double normal: the circle through the three points of contact also touches these cardioids; and the circum-circle of the triangle of tangents has radius 1, and touches 2 at F.

17960. (Prof. NEUBERG.)—On donne deux axes rectangulaires Ox, Oy et une droite quelconque d. MP étant l'ordonnée d'un point M mobile sur d, trouver l'enveloppe de la parabole qui a son foyer en P et son sommet en M.

17961. (W. F. BEARD, M.A. Suggested by Question 17864.)—Circles of a coaxal system are taken in pairs such that the product of their radii is constant. Prove that their external common tangents envelope a conic.

17962. (The late Prof. COCHEZ.)—On considère deux ellipses confocales. Par le foyer commun F on mène une sécante quelconque coupant les ellipses en a et a' . En a et a' on mène les tangentes qui se coupent en M dont on demande de lieu.

17968. (A. M. NESBITT, M.A.)—If m be a root of the cubic $\theta^3 - p\theta^2 + q\theta - r = 0$, the circle circumscribing the triangle whose sides are $my = x + am^2$, and two similar lines, has for equation $x^2 + y^2 - ax(1 + q) - ay(p - r) + a^2q = 0$.

17964. (H. D. DRURY, M.A.)—ABCD is a trapezium, parallel sides, AB, CD; any line is drawn through A intersecting BC in E, through C a parallel to AE is drawn, intersecting AD in F; show that DE is parallel to BF.

17965. (N. SANKARA AIYAR, M.A.)—If S be the centre and r the radius of the polar circle, show that $2Rr^2 = AS \cdot BS \cdot CS$.

17966. (W. N. BAILEY.)—A range of points on a conic is homographic with a range of points on another conic. Show geometrically that the envelope of conics which pass through corresponding points and three fixed points is a straight line.

17967. (E. G. HOGG, M.A.)—If H be the circum-centre of the triangle ABC, and if the radii HA, HB, HC subtend angles α, β, γ , respectively at (1) the orthocentre, (2) the in-centre of the triangle ABC, then (1) $\sin A \cos \alpha + \sin B \cos \beta + \sin C \cos \gamma = 0$, (2) $\cos \frac{1}{2}A \cos \alpha + \cos \frac{1}{2}B \cos \beta + \cos \frac{1}{2}C \cos \gamma = 0$.

17968. (Prof. J. C. SWAMINARAYAN, M.A.)—The external bisector of the angle A of triangle ABC, cuts BC produced in P. With B and C as centres, two circles, each passing through P, are described, and PA produced cuts the circles in Q and R. Show that $AP^2 = AQ \cdot AR$.

17969. (R. F. DAVIS, M.A.)—If Φ be the point on the circum-circle of the triangle ABC whose Simson line is parallel to OH, prove that ΦG passes through the middle point of OK. [O, H, G, K = circum-centre, orthocentre, centroid, Symmedian point.]

17970. (Prof. K. J. SANJANA, M.A.)—Prove that the expression $(25 \sin \theta + 80 \tan \theta) / (6 \cos \theta + 51 \sec \theta + 48)$, is a good approximation to the circular measure of any angle less than 60° ; and that in the case even of an angle of 42° , the result is within a half-second of the true value. [A wider approximation is given by $(29 \sin \theta + \tan \theta) / (9 \cos \theta + 21)$, which holds well till 45° , and for an angle of 21° is within a half-second of the true value.]

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Thursday, February 11, 1915.—Prof. A. E. H. Love, Vice-President, in the Chair.

Messrs. C. E. Weatherburn and Tadahiko Kubota were nominated for election to the Society.

Mr. G. H. Hardy communicated two papers, by Mr. J. E. Littlewood and himself:—(i) “The Zeroes of the Riemann Zeta-Function,” (ii) “On an Assertion of Tchebycheff.”

Mr. G. B. Jeffery read a paper “On the Steady Motion of a Solid of Revolution in a Viscous Fluid.”

Mr. S. T. Shovelton spoke “On Relations amongst Bernoulli’s and Euler’s Numbers.”

The following paper was communicated by title from the chair:—“A polar Generation of the Quartic Curve”: Mr. W. P. Milne.

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The Educational Times.

THE TURN OF THE TIDE.

A FRESH protest has been made against the proposals of the Board of Education for the examination of secondary schools, which are contained in Circular 849. The Liverpool Education Authority have addressed to the Board and have circulated among other Education Authorities a letter giving reasons why the Board's suggestions should not be accepted. The objections raised are of two kinds: there is first the objection from the Education Authority to the proposal that the control of the lines of study in secondary schools should be placed in the hands of a Central Authority; secondly, there is the protest from the head teachers in Liverpool against the injurious effects of the suggested interference with their liberty. The letter also points out very pertinently that it is against the genius of the English nation that the Board should use the Universities as an instrument of government. The Liverpool protest is exactly similar to the protest we made in the leading article of last month: that the Board's proposals constitute an unwise, even a disastrous, interference with the freedom of secondary education.

It must not be thought that the Board of Education are endeavouring to force their views on the Local Education Authorities or on the schools in any autocratic manner. The Circular was issued eight months ago and sent broadcast throughout the country (no copy, however, reached the College of Preceptors) in order that criticisms might be made. The Board issued no ukase: they invited discussion and suggestion. The problem was how to co-ordinate secondary school examinations and maintain such a high standard of leaving certificate that parents should keep their children at school at least to the age of sixteen. The evil of the multiplicity of examinations was admitted. At the time when the Consultative Committee reported, there was no Body except the Board able to co-ordinate the University and other examining bodies.

Circumstances are now different: the Teachers' Registration Council is in existence, able and willing to undertake this task. The Board have asked for criticism: they have received it, and they will undoubtedly modify their proposals in the light of it.

The evils that the Circular was designed to remedy have greatly lessened since the Consultative Committee began their inquiry; but, if we are to have a central co-ordinating authority, it must clearly be a committee of the Teachers' Registration Council combined with representatives from Local Authorities having powers under Part II of the Act.

The main objection to the Circular is the peremptory character of several of the clauses: the grant-earning schools would "be required" to do so and so; they would not "be allowed" and so on. So far as this group of secondary schools is concerned, all freedom would vanish: they would be under the control of the Universities, which in their turn would be controlled by a department of the State. The Universities will never submit to the proposed political interference, by which the views of a government could at any time through them be impressed upon all grant-earning schools. Another pertinent objection has been raised: if the first proposed examination is of matriculation standard, is the second examination taken two years later to excuse two years of the University course?

The aim of the Board's proposal is to relieve schools from the burden of the many examinations for which they are called upon to prepare their pupils. It would be an undoubted advantage if one examination would give entrance to the Universities, the Civil Service, the Army, the Navy, and numerous other professions. But the Board are careful to tell us that it is no part of their plan to lay down conditions of entrance to the Universities or the Professions. Consequently the convenience of the proposed new examinations depends entirely upon the willingness of other Bodies to accept them; that this will be the case we have no evidence. Another point is of importance: will the other Bodies accept the new examinations while retaining their own?

If so, there will be alternative methods of entrance. Some may be easier than others, but pupils in grant-earning schools will be allowed to enter by the Board's examination only. This may prove a hardship or even an injustice. Before the Board's proposals can be accepted we need to have the views of all the Universities, of the Civil Service Commissioners, the Army Council, the Admiralty, and of the following professions, all of which hold special entrance examinations: Accountants, Actuaries, Architects, Auctioneers, Engineers, Librarians, Lawyers, Doctors, Dentists, Chemists. If in all these professions special entrance examinations are held, the value of the proposed new examinations will be nil.

We have said enough to show that we are at the turning of the ways. The freedom of secondary education is at stake. The grant-earning schools run the risk of having their courses of study controlled by a department of a political State. If they give way, each year will see more freedom crushed, as additional schools, forced by the needs of grants, conform to the State regulations. Each year will see a closer connexion between the teachers in State-aided schools and a government department. Liberty will vanish; professional success will depend upon conformity.

It is clear that the greater the control exercised by the Board of Education over one group of secondary schools, the greater the need for maintaining the freedom and power of initiative on the part of the schools that are outside the State organization. In this struggle for spiritual and intellectual independence the College of Preceptors has great responsibility and a very important duty to perform. For more than sixty years the College, in accordance with the Royal Charter, issued in the reign of Queen Victoria, has upheld the cause of education. At a time when teachers were untrained and sometimes ill educated, the College instituted examinations for teachers, and provided from its own resources courses of training. It established examinations for pupils in secondary schools in order to raise the standard of teaching. Throughout the whole course of its existence it has worked hard and effectively for the establishment of a self-governing teaching profession. The Board of Education must now recognize the mistake that has been made in omitting to consult the College, which has more knowledge and experience of examinations than any other examining body.

In a very special manner the College stands for liberty and independence in education. Special, we say, because it is a Body composed of teachers in private schools as well as in State-aided and other public schools. The present Council of the College includes such men as the head masters of St. Olave's, Rugby, Merchant Taylors, and Owen's Schools. When these men, to mention four only, combine with their colleagues in the private schools to defend secondary education from the dead hand of the State, it will be seen that the College speaks with a very special authority.

The position taken by the Council of the College is this: they welcome proposals for co-ordinating examinations in secondary schools, provided that all existing examining bodies of good repute are included in the scheme; they protest against the Board of Education claiming to decide what examinations a State-aided school should hold; they question whether the Universities, acting under a State department, are the right authorities to have the complete and undivided control of the courses of study in secondary schools; and they protest in particular against the action of the Board in ignoring the valuable work that has been done and is being done by the College.

The Council are taking steps to bring their views before the Board. Should the Board persist in their present policy of ignoring the College, which is hardly conceivable; or should the Board carry out, in some modified form, their examination proposals, then the College will at once receive a mighty access of renewed vigour. Nothing promotes unity and rouses activity better than a common danger. The Board will find that the soul cannot be crushed out of secondary schools while the College of Preceptors remains true to its Charter.

NOTES.

MR. BARROW RULE, who has been a member of the Council of the College of Preceptors for many years, writes to remind us that the College has "laboured diligently for more than half a century to secure for the scholastic profession legal recognition, independence, and self-government." He points out that, when the Board of Education recognize that the College was the first incorporated body of teachers, the first to examine teachers, with powers under the Charter "to ascertain and give diplomas of the acquirements and fitness for their office," and the first to endeavour to secure the consolidation of teachers into a self-governing profession, they will not hesitate to give the College its due honour. He thinks that the Board's proposed examination scheme would have the effect of a submarine blockade, and hopes that the words written in the March number may have the effect of a "trumpet call to arms."

WE are glad to be able to print this month the second lecture on "The Teaching of St. Paul," which Canon Nairne has been delivering to teachers. These lectures have been arranged under the auspices of the Association for the Teachers' Study of the Bible, of which Association Dr. Sophie Bryant is the President. The lectures are specially designed to help teachers in their Scripture lessons. It is well, therefore, to give them a wider publicity than was possible in the lecture room. The lectures were not delivered from manuscript; but Canon Nairne has kindly undertaken to write out the main contents of each. We

also publish the second of a series of articles by Mr. F. J. Gould, in which he explains his conception of story-telling as a moral revelation of life. No man has had a wider experience of this branch of educational work than Mr. Gould, and no one has mastered more successfully the art of story-telling.

LAST month we were able to give a very flourishing report of the proceedings of the Joint Agency for Men during the past twelve months. We now give a similar report of the sister association:—

The Joint Agency for Women Teachers. During the last five years 1,478 assistant mistresses have been appointed to posts through the Agency, the commissions paid by them being considerably less than if the posts had been obtained through the commercial Agencies. Notices of 996 posts were sent out during the year 1914, and of these 306 were filled by candidates introduced by the Agency. In addition, 107 emergency and short temporary posts have been notified, and 60 of these filled. The number of teachers who used the Agency during the year was 1,477; of these 798 were University graduates. Since the War broke out a fair number of head masters have applied for women to take the place of men, and in many cases the Registrar has been able to introduce suitable candidates.

It is very satisfactory to have good news of these Agencies, which are managed entirely by teachers' associations (of whom the College of Preceptors is one). The Agency for Women Teachers has lately moved, and is now located at Oakley House, Bloomsbury Street, W.C.

THE value of manual work in secondary schools is becoming widely recognized. The Report of the Consultative Committee on this subject, issued in 1913, has exercised a great influence. The Board of Education have now published a Memorandum on Manual Instruction in Secondary Schools for Boys (price 1d.), which contains very useful information and sound advice for governing bodies and heads of schools who are thinking of introducing or developing the manual work for boys. The Board hold that the educational value of this work as part of the normal curriculum has now been established. All boys should receive instruction during part of their school career, and, as a rule, the course should extend at least up to the age of fourteen. "Manual instruction should not be regarded as an isolated subject of the curriculum, but should aim at definite association with such subjects as science, mathematics, geography, and art."

THE discussion still rages somewhat furiously around the agricultural boy under the school age. Mr. Pease is accused of weakly giving way to the farmer. He replies that it is a matter for Local Authorities, but that he thinks the shortage of labour is really due to the insufficiency of the wages offered. Dr. Fry, a former head master, and therefore not biased against education, writes to *The Times* to say that, if the boys be selected boys, if they be volunteers, half-timers, and excluded from the heavy work, their education need not really suffer. He also suggests that the secondary schools might supply bodies of volunteers for agricultural work during the afternoons. We believe

that, if the work were undertaken in the right spirit, it would prove just as exhilarating and healthy as games, and that the intellectual work need be no less vigorous.

MR. PEASE is firm, and in our opinion rightly firm, in opposing the outcry for military training in the public elementary schools. The Board believe "that physical drill on the Swedish system develops the physique better than the military side of drill." Up to the age of fourteen, we feel sure that military drill is not the best form of exercise. The physical exercises that are now given combined with scouting cannot be bettered. It is after the age of fourteen that the more definite military drill becomes suitable for boys, and makes an appeal to their powers. We are surprised to learn from Mr. Pease that at the present time there are only fourteen grant-earning schools with Cadet Training Corps; and that there are only fifty-one Officers' Training Corps in the whole of the secondary schools of the country. The Board, with the support of the War Office, should at once set about increasing the number of Cadet Corps. It is only a matter of money; the spirit is there.

WE publish in another column a report from the Teachers' Registration Council. It will be noticed that there are indications of an extension of work on the part of the Council. Unfortunately there still exists a great deal of apathy on the part of teachers. We do not know if the announcement of the year 1920 as the final date for registration under temporary conditions makes it seem to the majority of teachers unnecessary to take any steps at once. Lately we happen to have visited a number of schools, and we have been asked, "To whom ought one to write about registration?" In spite of all the publicity that has been given, it is still necessary to repeat the address: The Secretary, Teachers' Registration Council, 2 Bloomsbury Square, London, W.C.; and to remind our readers that the first official list is to be issued almost immediately. The *University Correspondent* says: "It is somewhat disappointing to learn that out of the 200,000 teachers entitled to enrol only about one in forty has thought it worth his while to do so."

AMONG the many summer schools for teachers that are doing helpful work, "Uplands" stands out with a special appeal. "Uplands" is designed as "a meeting ground for those whose interests are not limited to any special line of work, but are anxious to come into practical relations with those large fundamental ideas that are shifting our educational operations to a new base." The school is a successor, on widened lines, to those that were carried on by the late Miss M. E. Findlay. Prof. Findlay is the chairman of committee; the secretary is Miss A. F. Purvis, Darbshire House, Upper Brook Street, Manchester, who will answer inquiries. There will be lectures, discussions, eurhythmic, singing, and dancing. The date is August 7 to 28.

UNIVERSITY OF CAMBRIDGE ENTRANCE SCHOLARSHIP EXAMINATION, 1915.

THE next combined Examination for fifty-two Entrance Scholarships and a large number of Exhibitions, at Pembroke, Gonville and Caius, Jesus, Christ's, St. John's, and Emmanuel Colleges, will be held on Wednesday, December 1, 1915, and following days, commencing at 9 a.m. on Tuesday, December 7.

Mathematics, Classics, Natural Sciences, and History will be the subjects of examination at all the above-mentioned colleges. Scholarships and Exhibitions will also be offered for Modern Languages at Gonville and Caius, Christ's, St. John's, and Emmanuel Colleges; and for Hebrew at Gonville and Caius, and St. John's Colleges.

Most of the Colleges allow candidates who intend to study Mechanical Science to compete for Scholarships and Exhibitions by taking the papers set in Mathematics and Natural Sciences.

A paper containing alternative subjects for an English Essay will be set to all candidates, and every candidate will be required to satisfy the Examiners that his knowledge of Elementary Classics and Elementary Mathematics is sufficient to enable him to pass the Previous Examination by October, 1916. Candidates who have already passed some examination exempting from the Previous Examination are excused the corresponding part of the Test Paper.

A candidate for a Scholarship or Exhibition at any of the six Colleges must not be more than nineteen years of age on October 1, 1915.

Forms of application for admission to the Examination at the respective Colleges may be obtained from the Masters of the respective Colleges, from any of whom further information respecting the Scholarships and Exhibitions and other matters connected with the Colleges may be obtained.

The forms of application must be sent in on or before Saturday, November 27, 1915, and with his application every candidate must send a copy of the register of his birth and a certificate of good conduct. Instructions as to the certificate will be sent to candidates with the form of application.

The Colleges desire it to be known that any candidate for a Scholarship may signify in writing his wish not to receive the emolument of the same, if elected thereto, and that such candidate may be elected to a Scholarship which may be honorary only and without emolument, but shall carry with it all other privileges attached to the position of a Scholar. The amount thus set free will serve to increase the number of Scholarships or Exhibitions open to other candidates.

THE TEACHERS' REGISTRATION COUNCIL.

At the February meeting of the Council it was announced that 5,500 applications for admission to the Register had been received, and that the number of certificates of registration issued was 5,400. Since the beginning of the year the number of applications has shown that the movement is gaining strength, although much remains to be done before the Register can be said to include a due proportion of the qualified teachers of the country. It is not sufficiently realized that the Register indicates the extent to which teachers as a body are willing to sink minor differences and prejudices in order to support a professional Council, composed solely of teachers, and including men and women duly elected by associations which represent every form of teaching work.

The Council has made an important modification in the Conditions of Registration. As originally devised, these provided only for the registration of teachers who were engaged in Universities, colleges, schools, or similar educational institutions. The private teacher was thus excluded from the Register. It has now been found possible to arrange for the admission of private teachers under special conditions as to attainments and satisfactory experience.

The discussion of the question of Examinations in Secondary Schools and of the proposals of the Board of Education was continued at the last meeting of the Council. The Hon. W. N. Bruce, Principal Assistant Secretary in the Secondary Schools Branch of the Board, attended, and explained the proposals, which were afterwards referred to a committee of the Council for full consideration.

The Council also had before it a scheme for the establishment of Examinations Committees to consider existing examinations for teachers of technological and other special subjects. Under the Conditions of Registration which come into force after 1920, evidence of attainments satisfactory to the Council will be required, and the proposed Committees will advise us to the examinations which may be accepted. Arrangements for the publication of the first Official List of Registered Teachers are now being made. In order to afford the time needed for the final stages of preparing the volume, it will be impossible to include in the first list the names of those who apply later than April 15. It is hoped, therefore, that all who intend to register will send their applications before that date.

Among recent applicants may be mentioned:—

- Mr. Edgar C. Keey, M.A., Head Master of the Commercial School, Aston.
 Mr. Seth Coward, Head Master of Smith Street L.C.C. School.
 Prof. J. C. Hearnshaw, King's College, London.
 Prof. R. A. Gregory, Queen's College, London.
 Mr. William Hugh, late of the High Pavement Secondary School, Nottingham.
 Miss C. S. Banks, of the Girls' High School, Wigan.
 Dr. S. Bryant, of the North London Collegiate School.
 Mr. G. Smith, Head Master of Dulwich College.
 Miss E. B. Cole, of Southlands Training College.
 Mr. P. J. Hartog, Academic Registrar, University of London.
 Mr. T. W. Gould, of St. Paul's School.
 Mr. G. F. Johnson, Inspector of Schools, Liverpool.
 Mr. J. Litt, Monnow Road Central School, London.
 Mr. C. J. Smith, Head Master, Upper Latymer School.
 Dr. G. P. Gould, Principal, Regent's Park College.
 Miss R. Haig-Brown, Head Mistress, Oxford High School.
 Miss E. M. Ironside, Head Mistress, Sunderland High School.

MORAL TEACHING AS LIFE-REVELATION.

By FREDERICK J. GOULD.

II.

OUT of a mass of lesson notes on ethical topics I select one example which has no special distinction. Having taught publicly on a great many occasions, I have come to recognize that certain lessons, with favourable conditions in the children's class, achieve a warmer reception from the adult audience than others.* The following example is not one of these. Indeed, when I delivered it before an educational conference at the London University last January, it was violently criticized by one or two objectors. It may be added that these angels of accusation denied the validity of my whole position on the subject of moral teaching.

The topic, as it presented itself to my own mind, was Modesty, in the sense of sobriety of self-estimate; but the term Modesty was not used on the occasion just named, nor does it occur in the ensuing analysis. For brevity's sake the actual or imaginary replies of the children are omitted; and the comments which I venture to make to the reader by the way are printed in smaller type:—

THE LESSON.

An Indian prince, turbaned and bejewelled, rode in state along the streets of a city amid a crowd of admiring people, who bowed as he passed. A Brahman, who attended on the prince, rode a fine horse, which was adorned with splendid harness. The high-caste man was much annoyed when the bystanders praised the beautiful horse and its trappings, and never said a word about the Brahman himself. In a bad temper he went home to his wife, to whom he told his grievance. She was a wise woman; he was a foolish man; indeed, so foolish that we need not believe the story at all, but will take it as a fable or legend. Laughing in her sleeve, as people say (though the mantle, or sari, of Hindu women has no sleeves), she advised him to dress up in his gayest clothes and ornaments, and, in this harness, to prance along the street like a horse. This he did, his reward being the laughter, mockery, sneers, and jeers of the crowd when the Brahman next day pranced along with the royal procession. What sort of a man shall we call the Brahman?

The legend comes from the Buddhist "Jataka" (Vol. II, translated by W. H. D. Rouse; page 79). The children may or may not yield such answers as "vain," "conceited," "swanky," &c. In any case, the object aimed at is to ridicule the Brahman's attitude of mind.

We meet such prancing folk now and then, don't we?—people who glance from the corners of their eyes, eagerly watching if other persons are admiring. The prancing man in our tale got nothing for his trouble but mockery and jeers, and that was all he deserved.

* For instance, the lesson on "Self-Control," the full notes of which are set out in my "Moral Instruction, its Theory and Practice" (Longmans).

Another such foolish person, so it is said (but you need not believe it!) lived a long way west from India.

Here, as in the preceding instance, the teacher rapidly sketches a map, in the expectation that some child may detect Spain. These geographical items are of no ethical value, but serve to keep the children's interest alive and impart a sort of actuality to the anecdotes.

A Spanish tailor, who made but a very poor living, had the some prancing spirit as our Brahman. Wearing a cloak and sword, he stalked into the market place, and happened to notice some French visitors, who had probably come to see an old cathedral or castle in the city. He trusted they would admire him. "What is the price of fish?" he asks a fisherwoman at a stall. She replies that it is dear to-day: as much, in fact, as 5s. a pound. He twirls his moustaches, clanks his sword, and glances at the visitors. "Since it is dear, I will buy three pounds instead of one," he says, and flings down three crown pieces. The 15s. is all he has; and the tailor, his wife and family have an expensive dinner. He is one of those prancing people who spend more than they can afford, because they are too vain to let neighbours think they cannot pay. Very well. But next day, what do you suppose the Spanish tailor and his family had for dinner? Nothing but bread and water. It seems, then, that these conceited and prancing gentlemen get very poor reward—laughter, mockery, jeers, sneers, bread and water.

The fable is given in Poitou's "Spain and its People," trans., citing Mme D'Aulnoy. This story, like the Jataka legend, is of a negative character; and two negative examples out of six (for there are four examples to follow) is an unusually large proportion for my lessons. At any rate, it proves that my veto on negativism is not absolute.

But, really, such stupid people are hardly worth talking about; and, as I wish to speak of men and women who are worth calling men and women, I shall count the young man James, of whom I will now tell you, as number one.

This remark is actually a bit of psychology, and it implies, though it does not state in abstract terms, that these negative examples are not to be treated as the true basis of our lesson. The case indicates (and it is a theme which merits even a profound study) that a logical process of moral judgment may be evoked by a teacher without reduction to verbal propositions. One may sometimes train better by impressions than by formulae.

Well, the young man, James Nasmyth, came up from Edinburgh, his birthplace, to London, hoping to find work. As a boy he had had day-dreams of what he would be as a man. He loved to hang about an iron foundry, or a chemical workshop. Out of iron and wood he loved to make things that would "go." At the age of seventeen he constructed a toy steam-engine, which ground colours for his father, who was a painter; and he was only nineteen when he built a steam carriage for use on roads near Edinburgh. His heart's desire was to be an engineer. This clever youth walked into Mr. Henry Maudslay's office and asked to be taken on. Mr. Maudslay did not seem very ready to employ him. James Nasmyth pleaded—

"I will do anything, even cleaning ashes out of the furnace."

Now it was no light business to crawl into a furnace pipe in order to clear out dust and ashes. To do this he must stoop. Would you say he was at all like the Brahman or the Spanish tailor? Was he vain or conceited? What, now, would you call any one who is ready to stoop as Nasmyth was? Humble? An even better word is *modest*.

He was not a poor, puny creature, either. In time he became a famous engineer, and the inventor of the steam hammer, so finely worked that it can crack a nut without smashing the kernel, or it can crush a huge, strong mass of stone or metal.

Anecdote from *Popular Science Monthly*, Vol. 51; other details from the *Dictionary of National Biography*. The children themselves may, or may not, supply the term "modest." In any case it is preferable to "humble" for the present purpose. This and the three ensuing examples are drawn from biography; and if, as is likely enough, the children hear or read later on of Nasmyth and the other persons here named, the influence of the lesson is reinforced in the most natural manner.

Now let us shift the scene to Spain, where our stupid tailor lived (*a map is sketched*), and then to the neighbour country,

Portugal. Do you happen to know if Portugal has a king? Well, it had in 1910. But in that year, in its chief city, Lisbon, a tumult took place. Rifles cracked; men were killed or wounded; red and green flags were waved; the King fled in a fishing vessel to Gibraltar, and then to England; and Portugal became a Republic. The people chose for head of the Republic a grey-haired man of sixty-seven. After his election the new President went to the railway station to go home, his house—not at all a grand one—being a little distance out of the city. Crowds cheered him. But what was the surprise of many onlookers when they saw President Braga enter—not a first-class carriage of the train, but a second-class, such as he had ridden in for years past in his going to and fro. He put on no airs. He was modest; and the citizens loved him all the more for it.

Incident drawn from the newspapers of October, 1910. The story should be so told as to give the impression that Braga, like Nasmyth, was a man of strong character and influence. To be modest does not imply weakness.

Suppose we find our next modest man here (*sketch map done in one or two strokes*)—the United States. You see this cliff overlooking the river (*a line or two suffices for the suggested picture*), and the barracks, and the drill-ground. This is West Point, a place where young officers, or cadets, are trained for the American Army. Of course, they must learn riding, and one summer afternoon in 1843 the riding hall was alive with people watching the cadets jumping their steeds over a bar. Major Delafield was judging, sometimes praising, sometimes blaming. Presently he raised the bar as high as a man's head. Here was a task such as only a good rider could manage. Then the Major called to a young man to try it. The name he cried out was "Cadet Grant." So Cadet Grant dashed forward on his chestnut horse. "York" was the name of the horse. The people held their breath as he took the daring leap. Over! and the horse's hoofs never touched the bar. "Well done, Sir!" said the Major. When people praised the cadet, he replied very simply: "Yes, York was a wonderfully good horse."

You see, he spoke as if it were all the horse's doing. He put on no haughty airs. He, too, was modest. And neither was he a shrinking, miserable creature. He rose to be General of the United States Army, and a victor in the Civil War; and U. S. Grant was twice chosen President of the Republic.

From H. Garland's "U. S. Grant," page 52. If time allowed, other and similar illustrations could be adduced from Grant's career. The theme is now clearly developed. Contrasted with the absurd vanity of the first two cases, we have three positive examples of modest bearing by men of distinction; and I submit that the mere narration, if adequately spirited, conveys the moral. The last instance is added in order to round out the interest for girls.

The Sisters of Charity—"Black Ladies" they were called by the people, because of their costume—had a convent in Dublin; and they were much loved for their goodness to the suffering and the needy. Their leader was Mary Aikenhead. At the table she was head; in processions she would hold the principal place; her title was "Reverend Mother." One day, all the sisters were out, and the Rev. Mother, noticing the stairs somewhat soiled, resolved to clean them. She fetched those lovely and useful things—soap, brush, flannel, and pail of water—and did a most lovely and useful act. She cleaned! Her long skirt was pinned back, a check apron covered her Sister of Charity robe. Was she mistress or servant? She was both. A ring at the bell sent her to the door. A bishop had called. She ushered him into a room, and he supposed she was the servant, as, indeed, she was, for she loved to do service. She was willing to stoop. "The Rev. Mother will be here directly," she said, and she retired. She hurriedly changed her dress and returned. The bishop did not recognize her as the modest scrubber. They talked on business, and he took his leave. She smiled to herself. That was a woman with a noble heart—mistress, yet modestly doing any task that needed doing.

In such a manner, almost abrupt, I should always close. As there is no solemn preface, so neither is there any solemn epilogue. All my lessons are of this general type; and I leave it to experienced teachers to decide whether I make a just claim when I say they are free from moralizing.

(To be concluded.)

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Medical College, Charing Cross Hospital,
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THE COLLEGE OF PRECEPTORS
PROFESSIONAL PRELIMINARY EXAMINATION. — MARCH, 1915.
PASS LIST.

THE Supplementary Examination by the College of Preceptors was held on the 9th, 10th, and 11th of March in London and at fourteen other local centres — viz., Aberdeen, Birmingham, Blackburn, Bristol, Cardiff, Dumfries, Edinburgh, Glasgow, Inverness, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham. The following candidates obtained Certificates:—

SENIOR.**Pass Division.**

Morton, J. A.	Schapiro, H. N.	Tidd, G. M. <i>a.l.gr.</i>
Powell, H. C.	Scourfield, Miss M. <i>ch.</i>	Ward, H. M. A.
Rosser, Miss W. J.	Scrace, Miss M. C.	Wilkinson, J. C. F.

JUNIOR.**Honours Division.**

Chadwick, J. W. <i>g.a.al.</i>	Kinkead, Miss C. M. <i>h.f.</i>	Phillips, E. A. I. <i>h.</i>
Dodd, A. V.		

Pass Division.

Ackers, R.	Cockell, D. H.	Hughes, Miss G.	Philipps, H. W. L.
Amm, R. D.	Crichton, R. H.	Jeffery, D. R.	Pires, A. C.
Atkinson, F. O. <i>al.f.</i>	Davies, H. S.	Jones, G. E.	Powell, J. H.
Austen, E. A.	Dean, C. S. C. <i>l.</i>	Joscelyne, Miss M. V. <i>cf.</i>	Pryce, A. C. H.
Bailey, E.	Edwards, A. E.	Keith, W.	Rampling, E. H.
Barnes, H. N.	Elliott, E.	Kennedy, H. P.	Rowe, G. J. B.
Baylis, W. A.	Evans, D. K.	Kirby, A. V. <i>ch.</i>	Rudland, Miss W. R.
Bayly, W.	Evans, E.	Kuli, I.	Scott, R. C.
Beattie, T. M.	Fear, E. L. B.	Laundon, Miss M. A.	Seidlitz, L. A.
Bell, F. G.	Flocks, H. B.	London, C. H.	Shuttleworth, Miss D. K.
Bench, A. G. R.	Foster, W.	Llewellyn, H. D.	Smith, F. J.
Bennett, A. M.	Gear Evans, C. A.	Lloyd, H. R.	Smith, H. M.
Bentley, Miss D. M.	Green, B.	Marley, J. O.	Statham, J. E. W.
Blackie, J. J.	Greenberg, B. <i>al.</i>	Monks, H. L. <i>ch.</i>	Terezopoulos, S. <i>h.</i>
Blain, I.	Hall, F.	Moorley, H. A.	Thomas, D. J.
Bowen Jones, E.	Hall, P.	Moss, T. W.	Tomey, D. S. <i>f.</i>
Buck, N. A.	Harris, W. F.	Page, A. D.	Turner, J. A. <i>ch.</i>
Butters, H. J. G.	Hemming, F. W.	Parsonage, R. P.	Unger, K. R.
Carr, E. W.	Hinton, J. W. M. <i>g.</i>	Payne, J. B.	Wilson, J. P. <i>l.</i>
Clark, E. A. V. <i>al.</i>	Hudson, R.	Pegg, J. T.	Winston, W. P. B.
Clark, J. W.	Hughes, D. R.	Pegler, F. R.	

*N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic.
al. = Algebra.
ch. = Chemistry.

e. = English.
f. = French.
g. = Geography.

gr. = Greek.
h. = History.
l. = Latin.

CURRENT EVENTS.

THE forty-first Annual Conference of the Association of Head Mistresses will be held this year on Friday and Saturday, June 11 and 12, at the Walthamstow County High School, by invitation of Miss Hewett.

A SPECIAL service for members of the teaching profession will be held in St. Paul's Cathedral on Ascension Day, May 13, at 6.30 p.m.

LITTLE MAUDIE had listened for the first time to the second verse of "God Save the King," and when it was done, she said: "Oughtn't we to say 'Confound their army's tricks,' because the army is fighting as well as the navy?"

SIXTY cadetships (special entry) will be offered for competition at the examination to be held by the Civil Service Commissioners, conjointly with the Army Entrance Examination for Woolwich and Sandhurst, beginning on June 29. Candidates are required to be not

more than eighteen and a half, nor less than seventeen and a half, on June 1, 1915. Candidates who have served with his Majesty's naval or military forces during the War will be allowed a deduction from actual age in respect of such service.

A LONDON STUDY CIRCLE has been formed, under the auspices of the Montessori Society, for systematic study and discussion. These discussions should give teachers on Montessori lines some opportunity of exchanging experiences. It is further hoped that by means of the Study Circle those interested in the method and who have not had the advantage of studying in them may, by discussion with Montessori students, get nearer to Mme Montessori's ideals. The Study Circle will meet every third Friday. The immediate programme will include "The Didactic Apparatus," by Miss Olive Smees; "The Teacher," by Mr. Claude Claremont; "Sense Education," by Miss Baird; "Reading and Writing," by Mrs. Hutchinson—all of whom are holders of the Montessori diploma. The inaugural meeting was held, by kind permission of Miss Hildyard, at 33 Courtfield Gardens, and a paper was read by Mr. Claremont on "Dr. Montessori's Conception of Liberty." All particulars can be obtained from C. A. Claremont, Esq., 7 West Heath Avenue, Hampstead.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on the 27th of February. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Dr. Armitage-Smith, Mr. Bain, Mr. Barlet, the Rev. J. O. Bevan, the Rev. J. B. Blomfield, Mr. F. Charles, Miss Crookshank, Prof. Dixon, Mr. Eagles, Mrs. Felkin, Mr. Hawe, Mr. Hay, the Rev. R. Lee, Mr. Longsdon, Mr. Maxwell, Mr. Millar Inglis, the Rev. Dr. Nairn, Mr. Pendlebury, Miss Punnett, Mr. Rushbrooke, Mr. Starbuck, Mr. Thornton, Mr. Wagstaff, Mr. White, and Mr. Wilson.

The Diploma of Associate was awarded to Mr. Frank Gilbert Berry, who had satisfied the prescribed conditions.

The Secretary reported that Mr. Frank Roscoe had consented to deliver a lecture on "Educational Administration and the War" at the Members' Meeting on the 12th of May.

He reported that an Examination for Certificates of Ability to Teach was held at the Holborn Estate Girls' School on the 23rd of February, and that the examination was attended by two candidates, both of whom passed in the Second Class.

He reported that the number of entries for the March Professional Preliminary Examination was 423.

The Joint Sub-Committee of the House and Finance Committees reported the steps that had been taken to secure compensation in case of damage or injury to the College building arising out of the construction or working of the Underground Post Office Railway.

The Examination Committee presented a report dealing with the revision of the examination syllabuses in certain science subjects.

On the recommendation of the Finance Committee, the Council expressed its willingness to extend the term of the guaranteeing Agreement relating to the Joint Scholastic Agency up to Lady Day, 1916.

A grant of £10 from the College Benevolent Fund was made to the widow of a former Life Member of the College.

Prof. Adamson and the Rev. Dr. David were re-elected members of the Council.

Mr. Millar Inglis was appointed a representative on the Joint Scholarships Board, to fill the vacancy caused by the retirement of Mr. Brown.

Mr. C. C. Perry, M.A., Ph.D., was appointed an additional Examiner in French, and Mr. D. Orson Wood, B.Sc., A.R.C.Sc., was appointed an additional Examiner in Physics.

The following persons were elected members of the College:—

- Mr. C. T. Draper, A.C.P., 22 Printing Office Street, Doncaster.
- Mr. A. C. P. Handover, L.C.P., 54 Clare Road, Hounslow.
- Miss R. G. Hutchison, A.C.P., Ivy Bank, Leytonstone.
- Mr. M. Murray, A.C.P., 45 Melrose Avenue, Norbury, S.W.
- Mr. H. G. Rees, A.C.P., 2 Norfolk Road, Horsham, Sussex.
- Mr. G. A. Sindall, A.C.P., Old Swinford Hospital, Stourbridge.

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

By LA SOCIÉTÉ MATHÉMATIQUE D'AMSTERDAM.—Œuvres Complètes de Thomas Jan Stieltjes, Vol. I.

By A. & C. BLACK.—Barnard's Asia in Pictures; Nightingale's Visual Botany; Reynolds's The Three Southern Continents (Junior Regional Geography).

By MACMILLAN & Co.—Castle's Workshop Arithmetic Davidson's Subjects for Mathematical Essays.

By the OXFORD UNIVERSITY PRESS.—Adie and Satze's Souvestre's Comorre and other Stories; Cavenagh's Scott's The Antiquary; Chignell's Numerical Trigonometry; Coleman's Co-ordinate Geometry; Collins's Poems of War and Battle; Darbishire's School Bible Atlas; Frizer's Je sais un Conte; Grierson's Shakespeare's Macbeth; Morris's Ruskin's Ethics of the Dust; Nicholson and Brennan's Passages for Translation into French and German; von Glehn's L'Odyssée d'un Artilleur.

By RELFE BROS.—Court's English Nation, Parts I-II; Hallett's Follow the Flag.

By the UNIVERSITY TUTORIAL PRESS.—Collins's Shakespeare's King John.

Mr. PEASE, in answer to a question in the House of Commons, said that, largely in consequence of the War, the proceedings of the Departmental Committee on University Education in London were in abeyance, and that it was impossible at present to make any statement in regard to the acquisition of a site.

PRACTICE IN RESISTANCE.

THERE is a fundamental difference between the practice of resisting inward and outward stimuli by self-denial and moderation and the practice of training the will by energetic and persistent activity. They are equally necessary in the conduct of life. Yet people may object and say: "Of what use is this kind of training? Is it not simpler and more healthy to train the will by activity than by abnegation?" Those, however, who have studied humanity know that there are many energetic people who lack all self-control. Surely this is the proof that energy of action and energy of resistance are of a different order and require separate and special practice.

In Greece this training in resisting was called *ἀσκησις*. It was considered to be that form of spiritual gymnastics which led to the *ἐγκράτεια*, self-control, in which they included self-denial, keeping silence and the enduring of pain. To become true philosophers men had to pass through a period of *ἀσκησις*, for the Greeks considered that freedom of thought could only be possessed by those who had become masters of their passions. This principle was later on accepted by the Christian Church, which included it, to a great extent, in her ordinances, and even made it the ruling factor for special communities. The principle of renunciation of all pleasures finds its fullest expression in the ideals of Buddhist monks.

However, we are not at present concerned with religious renunciation, but only with the practice of voluntary self-denial as a means of strengthening the will, of enabling the spirit to rule over the world of desire. We believe in world-conquest through self-control. But such practice in moderation and self-denial does not necessitate a gloomy attitude towards the joy of life. All I wish to imply is that he only can be truly cheerful who has learnt to say a firm "No" when occasion requires, and is able to prove himself master over his desires. Only he who has himself well in hand can surrender himself freely to the joys of life: for him, enjoyment has lost the hidden dangers which menace those whose characters are weak, and which are able to turn pleasures into misery, to sear the conscience and finally may lead to self-destruction. What we must aim at is to be master in our own house—to control our senses, exercise discipline of soul and bravely repel the attacks which our nature makes upon us. There is a truth underlying the old belief that sacrifices influence the deities to graciously render help to those who seek it, for whenever sacrifices, however small, are made, higher powers in ourselves are set free, thereby strengthening us in all we do.

Medical men, and especially nerve specialists, have come to realize how dangerous weakness of will is to health. They have gone back to the Greek idea of gymnastics of the will. Once more the cry has been taken up: "Learn to will, for to will must be learnt." The French educationist, Payot, rightly contends that modern man has lost the art of willing. For strengthening the will he recommends young people to begin with easy ascetic exercises, occasional abstinence from even harmless and lawful things, for this lends itself best to the fortifying of the will where impulses and desires are concerned. By such practice in moderation the controlling faculty of our brain will be trained with a definite purpose, and the world of our desires will be taught to behave humbly. It is for this reason that for self-education Bossuet emphasizes the importance of making just those small sacrifices which we find so hard. Many people who are in favour of moderation and self-denial do not realize the importance of preventive training. For the resisting energy of our will to be effective against sudden temptation (and the power of the moment) it requires as much training as the muscles. The fundamental principle of *ἀσκησις* underlies the truth that those who have never denied themselves anything lawful cannot be expected to deny themselves anything forbidden. In warring with desires and inclinations the offensive is also always the best defensive. As in gymnastics, difficult exer-

cises are practised in parts, especially those requiring the greatest muscular efforts; in like manner we can only gain strength to fulfil the higher demands of character if by careful and well planned training in self-denial we fit ourselves for the most difficult of all moral efforts—that of self-control. This will be understood by all who have come to see that what is called character and correct behaviour depends essentially on a steadfast power of resistance.

The Romans rightly called virtue *virtus* ("manly"), for every moral achievement contains an element of manliness, an effort of will. Whosoever is not trained in this respect can never become a reliable character.

CORRESPONDENCE.

IS OUR ENGLISH PRONUNCIATION "CARELESS, SLOVENLY, AND SLIPSHOD"?

To the Editor of "The Educational Times."

SIR,—The replies which appear in the March number of *The Educational Times* show that the subject I raised is not without interest. I know Prof. Rippmann, and I fully appreciate his contribution. I do not know Mr. B. Dumville, but the tone of his letter suggests that there are matters the study of which he has shockingly neglected, however good his knowledge of phonetics and spoken English may be. I must confess that my confidence in his phonetics is somewhat shaken when I read in Dr. Kruisinga's "English Sounds" (Vol. I, page 168): "The list (of books recommended by Dr. Daniel Jones in 'Phonetic Readings') includes books good and bad in which the alphabet of the International Phonetic Association is used—for example, such a thoroughly bad book as Dumville's 'Science of Speech.'"

Perhaps Mr. Dumville would have been better satisfied if I had commenced by quoting Sweet, "The main axiom of living philology is that all study of language must be based on phonetics," and then proceeded to speak of *wh* as a breath consonant and of *w* as voiced.

I preferred to follow the lines adopted in the newspaper comments on the discussion following Mr. Caldwell Cook's paper, feeling that I should then appeal to a greater circle of readers, although I might have expressed my view, and possibly have escaped the violence of Mr. Dumville's contempt, had I taken shelter behind the words of Kington Oliphant ("Old and Middle English"), "Let us hope that speakers of good English will never drop the sound of *h* in 'hwat,' 'hwat,'" or had I quoted from Soames's "Sounds of English," "It seems not improbable that the attempt to revive the regular use of *wh* in Southern English will be successful."

There are experts in phonetics who do not know good English, whose speech makes one think of what Max Müller called "phonetic decay," just as there are many speakers of good English who are entirely ignorant of phonetics.

It is not very many years ago that Mr. W. G. Lipscomb, formerly Secretary of the Modern Language Association, read, at the General Meeting of that body, a paper on the teaching of English with the aid of phonetics. The paper had a cold reception, which its merit did not deserve, and I could not help thinking then, as I think now, that experts in phonetics are more concerned in recording than in correcting forms and peculiarities of speech; and here I repeat what I said, practically, in my previous letter—that many English people who never doubt the correctness of their pronunciation would be horrified on reading a phonetic transcription of their actual speech. An intelligent study of this transcription would alone be sufficient to compel them to an effort to speak more carefully.

My friend, Director Max Walter, of Frankfurt-am-Main, is one of the most successful teachers of English to German pupils, and his pupils generally speak English well, but an exact ear will always detect a certain artificiality of pronunciation in his and in most foreign pupils taught with the aid of phonetics.

In many cases a residence in England would remove this artificiality, but the majority are but little affected by their surroundings—they rely upon the mechanical production of

the sounds of speech; yet by this method they speak infinitely better than did the ordinary English-speaking German twenty years ago.

I believe that the speech of many English people might be improved by a study of phonetics. I prefer a shade of artificiality to slovenliness of speech. I think that English people of good taste could just as easily stop short of artificiality as they now can stop short of that exaggerated speech which boys sometimes curtly dismiss as "swank." Maid-servant (returning to her Scotch native village home after some years' absence in service in London): "Pawtah, Pawtah! Can you tell me if the(r)ah is anyone heah who can convey my luggage to my home?" Porter: "Weel, miss, I dinna ken, but yer mitler's here with the barrie (wheelbarrow)." Many well-educated people use too open a sound in cases such as the last syllable of "remember" (bah). In one matter I appear to have failed to make my meaning clear. No one would dispute that many words have two forms of pronunciation, according as they are stressed or unstressed, and syllables follow the same rule.

On the occasion of my first visit to Marburg University I was asked a question that was then going the round of the students of phonetics. "Are you a 'Wiz-er' or a 'Woz-er'?" Certainly a little puzzling. In "I was," the pronunciation of "was" is fairly fixed, but in "I was going," "was" may be heard as "woz," "wuz," or "wiz." My critics seem to assume that the pronunciation of unstressed words has no variation. Unstressed "was" has at least three forms of pronunciation, and this was one of the words I had in my mind when I stated, and now perhaps a little more clearly restate, my view that much of the slovenliness of our speech would disappear if the pronunciation of the unstressed word were approximated as nearly, and as often, as good taste will allow to the pronunciation of the same word stressed. This will not give a word stressed or unstressed the same pronunciation, but it will prevent much slovenliness of speech.

Only the other day I heard a so-called good public speaker drop the *d* in "and." Some people will defend this and argue that the *d* of "and" is pronounced before a vowel ("you and I"), but that it may be dropped before a consonant ("Here an(d) there"). Is not the dropping of the *d* in "and" slovenly and careless in either case? Slovenliness and carelessness may even lead as far as "sloct" for "it is locked" or even to a corrupt form of speech mentioned some years ago by Prof. Rippmann—"shlitye(r)" for "I shall hit you."

No doubt, Mr. Editor, you will think I have written enough for the present.—I am, yours faithfully,

A. MILLAR INGLIS.

To the Editor of "The Educational Times."

SIR,—It is interesting to read the various opinions expressed by Prof. Rippmann, Mr. Inglis, Mr. Cook, Miss Cook, and your other correspondents on English pronunciation, and the bairing orthograpy iz supposed to hav on orthoepy.

Let us conseev sum landoner erecting a sign-post for the purpos ov directing travelertz, the said post being ov an unsertain character, cauzing pedestriantz to be doubtful az to the road they shud take, and leeding uthertz to go the *wong* way. The landlord wud be rekwestet to replais the ambiguous post for wun ov sertitude, or to take the irregular gide-post down. No wun iz in a quandary az to the cauz ov the misdirecshons. Ar we az cleer az to the misconduct ov English orthograpy and its consequensez? Duz it point strait, duz it provide the opportunity for a wurd being soundet wun way, and wun way only, or for too waiz, or three waiz? If for mor than wun way, then English pronounciashon must be *wong*. It iz a natural consequens. If we want regular and uniform orthoepy, speling must be uniform.

When traveling the uthur day I sat oppozit a briht, taukativ girl ov six yeerz. She had too tickets, wun for her muther, the uthur for a child, presumably for herself. The latter had "child" printed across it. I woz astonisht that the child cud not reed the wurd without the aid ov its muther. She hardly new aul the leterz in the wurd, but she made an unuzual sjestion: Why cud she not spel the wurd backwardz and arive at the same pronounciashon az by speling it forwardz? The lady did not see eny fun in the child's devise. I thaut I did. Noing a litl ov the pranks ov English letterz, I ruminated over the child's aparently absurd sjestion.

Let us try to spel "c-h-i-l-d" backwardz. Take *d* and make it equivalent to the *d* in "soldier," the *l* to pozzess the same sound az in "salmon," which iz—what? I submit it haz non. What sound shal be assigned to *i*?—that in "find," or in "bird," or in "lid," or in "invalid"? What power shal we accord to *h*? That given to it

at the begining ov "high" or at the end ov "high"? And, az for c, shal it be treeted az in "victuals," or in "receipt," or in "music," or in "vicious"? If we take *ch*, shal we giv it the same standing az it haz in "yacht" or in "chemist"? A caprishus orthograpy iz English! Iz ther eny wunder that our pronounciashon iz "aul six'z and seven'z"? We ar lucky we hav eny pronounciashon at aul.

We ar crying out for chemists. Cannot we help thair creashon by redusing the time spent and wasted in lerning to reed and rite, and thus aford them mor time for aquiring a noledj ov this and uther siensez?

Iz the War going to make us reform our absurd speling, that our galant Allies may no mor about us and our glorius literature, by making it eezier to lern and to reed?—Yours &c.,

Brook Villas, Hetton-le-Hole.

H. DRUMMOND.

P.S.—A D.D. haz chided me for riting "nephew" with a *r*, I hav consulted six dics-honariez: aul giv *r*, and wun *f* and *v*. The practis ov eilt uther authoritez favor *r*; wun both *f* and *v*. Why shud *f* require to be denoted so groteskly by *ph* and *ph* be capable of being sounded in *too waic*? What ar leterz for but to indicate the *correct* soundz ov speech?

A PLEA FOR THE EARLIER TEACHING OF ELECTRICITY IN SCHOOLS.

To the Editor of "The Educational Times."

SIR,—This is the age of electricity. What are we doing for the subject in our schools? The average school science course extends over four years. In the first year there is a general introductory course; in the second year a boy begins formal physics and chemistry; the third year sees him continuing chemistry and, for physics, studying light; in his fourth year he goes on with chemistry, and does sound in the first term, and then begins magnetism and electricity in the second term of his last year. The inevitable result is that many of the boys, leaving school, as they do, before the four years are completed, get no electricity at all, and those who stay for the whole course only have two terms at this, the most important of all the physics subjects.

Boys are interested beyond measure in electricity. They fit up their private lighting installations; they set up their electric bells; they drive their models by electric motors. Their science masters, if sympathetic, are assailed with eager questions concerning wireless telegraphy, and electric arcs, and electric this and that. All is electricity; they constantly ask when they are going to start it in class. And of this great interest, the average course, made rigid twenty years ago, makes little use.

From my experience, electricity is considerably easier, because more interesting, than light or sound. My own plan is somewhat as follows:—After three or four lessons on magnetism, the class is led straight on to the voltaic cell and then to the effects of an electric current: (1) heating, which leads to resistance and to electric lamps and furnaces; (2) magnetic, leading to galvanometers; (3) inductive, leading to the induction coil, to dynamos and motors, and to telephones and microphones; (4) chemical, leading to electrolysis, electroplating, and to various manufacturing processes. After this follow some lessons on thermo currents and their application to the measurement of temperature, and short courses on wireless telegraphy and the x -rays. It will be noticed that static, or frictional, electricity is dropped; it makes no appeal to boys, is too logical for them to understand, and has practically no commercial application. Moreover, it takes up valuable time and blunts the keen edge of the boys' interest.

This course can be given without appealing to any harder mathematics than the average boy of fourteen can understand. It has stood the test of practical experience. Electricity should be taken immediately after heat. It could be followed by light, and, if need be, sound could be entirely dropped. A further advantage of taking electricity early will be apparent to chemistry teachers. Their lessons from beginning to end are full of references to electricity. Such examples as the electrolysis of water and the use of the induction coil to pass sparks for the composition and decomposition of gases can be multiplied. Also, they have to refer to the manufacture of many compounds by electrical processes, by using the electric furnace, and otherwise. Elementary electricity and chemistry are continually intertwining.

Electricity is the science of the future. Our boys must be equipped as well as may be to appreciate that future.—I am, &c.,

WILLIAM H. PICK.

LINGUISTICS.

To the Editor of "The Educational Times."

SIR,—With reference to an appeal to linguists, which appeared in your March issue, in connexion with collective nouns, &c., I beg to say that it is held by English and French grammarians that, "before deciding whether a verb or a pronoun is to be in the plural, we must look to the *meaning* of the noun and not simply to the *form*."

EXAMPLES.

COLLECTIVE ACTION (<i>Singular</i>).	INDIVIDUAL ACTION (<i>Plural</i>).
The <i>majority</i> (= the whole mass in its collective unity) is resolved.	The <i>majority</i> (= such of the members as formed part of the majority) are on their way home.

The French language has also examples of this kind.

EXAMPLES.

<i>Singular</i> .	<i>Plural</i> .
Une <i>foule</i> d'enfants encombrait la rue.	Une <i>foule</i> d'enfants couraient dans la rue.

In the first instance, the act of *encombrer* (of blocking-up) is more appropriate to *foule* than to *enfants*: the *singular* is, therefore, correct.

In the second instance, the act of *courir* (of running) is more appropriate to *enfants* than to *foule*; hence the *plural* verb.

With regard to the word "series," it is used both in the singular and in the plural, says "Bain's Grammar," like "species" and "superficies."

Respecting the sentence, "'The Old Curiosity Shop' . . . is one of the most touching and pathetic tales that has ever been written," I prefer the *singular*. My authority in this respect is a French Grammar (Larive and Fleury): "Avec un des [one of the] la verbe se met au *singulier* ou au *plurief*, selon que le sens de la phrase indique qu'il s'agit d'une action faite par un *seul individu* ou par *plusieurs*."

EXAMPLE.

(a) Un des animaux féroces qui s'était échappé terrifiait les promeneurs (un *seul* animal s'était échappé).

(b) Le renard est un des animaux qui dévastent nos basses-cours (= des animaux qui dévastent nos basses-cours, le renard en est un).

—I am, Sir, Your Obedient Servant,

ADOLPHE BERNON.

61 Talbot Road, Bayswater, W.

FOREIGN TRADE AND ENGLISH SPELLING.

To the Editor of "The Educational Times."

DEAR SIR,—At a recent meeting of the London Education Committee the suggestion was made by one or two members that the study of foreign languages should be encouraged in order to facilitate the development of the nation's foreign trade. Might we not also attack the reverse side of the difficulty, and while attempting, as a nation, to gain a mastery of foreign languages, endeavour to make our own language simpler to the foreigner? Experts agree that the one great barrier to the rapid spread of English as the language of commerce is the insane spelling. Not long ago Lord Bryce told a large concourse of teachers that in his travels in the Far East he had been repeatedly told by Eastern traders that English spelling constituted a real menace to the development of English trade. Twenty times within the last half century Germany has reformed her spelling, her reason being, as Mr. Labouchere told us, to enable her to gain foreign trade.

The Simplified Spelling Society is at present promoting a petition, asking for a Royal Commission of Inquiry into the whole subject. The petition will not, of course, be presented till the War is over. I shall be happy to send a copy to anyone interested.—Yours faithfully,

Simplified Spelling Society,
44 Great Russell Street,
London, W.C.

CHRISTINA JUST,
Secretary.

EDUCATIONAL INQUIRIES.

To the Editor of "The Educational Times."

SIR,—I venture to call the attention of your readers to an investigation which the Fabian Research Department is making into the working of professional organization in its relation to State and municipal enterprise. The legal, medical, and engineering professions have already been dealt with by various members of the Department, and I am now engaged in collecting material for an adequate description of the professional organization of the teaching profession, including University, secondary, technical, and elementary education. Officials of various associations have kindly given me access to their reports, and I have received information and help from other organizations. I may add that I have discovered much information in the pages of *The Educational Times*. The Fabian Research Department is holding a meeting at the Fabian Hall, 25 Tothill Street, Westminster, on March 11, at 8 o'clock, when I propose to use the material already collected as the basis for opening a discussion on the sphere of professional organization in the control of the educational system of the country. If any of your readers would like to attend this meeting and give us the benefit of their experience, I will gladly send them a card of invitation. Meanwhile I should be grateful for any communications or documents

relating to the working of the existing associations or to the constitution and special function of sectional organizations in any branch of the profession.—Yours very truly,
BEATRICE WEBB.
(Mrs. Sidney Webb.)
41 Grosvenor Road,
Westminster.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

SUBJECT FOR MARCH.

The most suitable story to be told to a class up to a certain point, and then left to be completed by the class as an exercise in composition. The story should be completed by the competitor, but a line should be drawn at the exact point at which the teacher should stop in telling the story to his class. The kind of story wanted is one that will interest the pupils and make them anxious to supply a proper ending.

The object of this composition story is to supply the pupils with something to write about, and to fire them with the desire to write. Once the teacher has got his pupils into the state of "wanting to say something," he is on the road to success. The story accordingly should be interesting in itself, and should be cut off by the teacher at a point where the interest is at its height, and where therefore there is the greatest desire to reach a conclusion. The ideal case is where there are two, and only two, alternative endings, and neither is inevitable. The classical example is Frank Stockton's "The Lady or the Tiger." A barbaric monarch discovers that an impossible suitor has won the heart of his daughter. Being a sportsman, he determines to give the ineligible a run for his life. Placed in the arena before a mighty assembly the detrimental is told that he must advance and open one of two doors at the end of the arena. Behind one door is a beautiful lady who will make a sort of consolation prize; behind the other is a starving tiger, of high grade ferocity. The princess knows behind which door the tiger waits. As her lover approaches the door he looks up at her. She makes an unostentatious sign.

He advances and opens one of the doors. It is here that the talented author thinks fit to stop and throw upon the reader the burden of finishing the story, thus supplying an ideal climax for the teacher of composition. Pupils, particularly girls, who hear that story at once reach for their pens in order to give their views.

The next best kind of story is one that deals with circumstances that are familiar in the everyday life of the pupils. One that is very useful tells of a little girl of six who is left in the drawing-room while her parents are making afternoon calls. Being an affectionate girl, she wonders what she can do to please them, and, being struck by the plainness of the white satin backs of the chairs, she gets her paint-box and remedies the defect. The story stops with the return of the parents, and the pupils are called upon to describe what happened then. Here the result is not a mere alternative. There are many things the outraged parents might do, but they are mostly within the scope of the imagination of the young writer.

None of the stories sent in meets satisfactorily the needs of the case. Many of them are interesting enough and are well told, but their suggestion of the ending is too vague. The story ends at a point that really leaves an unsolved problem—it is too much of the mystery story, with the solution left for the unfortunate pupils. The following is, on the whole, the best story sent in. It will be seen that the solution is too difficult for the ordinary pupil to apply:—

"On the eve of the opening of the great Paris Exhibition, two lady travellers from the East, a mother and daughter, reached Paris. Hotels were, of course, unusually crowded, but they succeeded in obtaining two rooms in one to which they drove. After some refreshment they retired to their rooms, with orders that they were not to be awakened. The elder lady complained of headache, and her daughter helped her to bed. She then went to her own room, which was on a higher storey, and, being very tired with a long journey, she slept long and soundly. When she woke up it was late afternoon. She rose, dressed, and went down to her mother. She had noted the number of her room in her notebook, so, without hesitation, she walked in. The room was empty, and, to her surprise, it resembled in no way the one she had seen in the early morning. Nor was there a trace of her mother's belongings. Thinking that she had made a mistake she visited storey after storey with the same result. She then descended to the porter, and inquired the number of Mrs. —'s room. The reply startled her—no lady of that name had arrived at the hotel. She protested, and the porter suggested that she should see the proprietor. He was suave, but shook his head and regarded the young lady as if she were demented. He suggested her seeing the police authorities. She called a taxi and drove to the police office and brought back a superintendent of police. He investigated the matter, but regretted that 'Mademoiselle must be under some delusion.' Indeed, by this time the unfortunate young lady was beside herself with bewilderment and grief." (*To be completed.*)

"It was only after the end of the exhibition that the mystery was cleared up. The authorities then communicated with the daughter, and restored her mother's belongings. The mother had been taken violently ill, and a doctor summoned recognized the symptoms of *bubonic plague*. Any rumour of this would have ruined the exhibition and all the tradespeople and hotel-keepers concerned. The dead body of the lady was removed by the police; hastily the room was disinfected, repapered, and rendered unrecognizable. A conspiracy of silence was formed, and no whisper of the danger got abroad in the city."

One candidate selects the well known story of the painter who nearly fell off the scaffolding under the dome of St. Paul's while stepping back to catch the effect of his work. The story is in itself well fitted for the purpose, but was only fairly well treated. Some candidates have sent in original stories of considerable length, but having no bearing upon the problem set. These are being returned by post, as their authors will no doubt find a place for them elsewhere.

A half-guinea prize is awarded to Miss M. McCombie, Training College, Darlington.

A competitor writes to point out that her quotation about the "Flower in the crannied wall" was meant to apply not to an "Introduction to Plato," but to an "Introduction to Plants." We did our best, it will be remembered, to find a connexion, and regret that we have not succeeded very well. But our competitor is sweet-tempered, and makes no moan, as she writes: "I imagine that my writing has been to blame, and has led to a somewhat amusing mistake."

SUBJECT FOR APRIL.

The best epigram on a schoolmaster or schoolmistress, either original or quoted.

TWENTY-THREE scholarships and exhibitions, of an aggregate total value of about £2,000, open to men and women, and tenable in the faculties of arts, science, medical science, and engineering of University College, King's College, and East London College, will be offered for competition on Tuesday, May 18.

Fourteen medical entrance scholarships and exhibitions, of an aggregate total value of about £1,200, tenable in the faculties of medical sciences of University College and King's College, and in the medical schools of Westminster Hospital, King's College Hospital, University College Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered for competition on Tuesday, July 20.

Full particulars and entry forms may be obtained from the Secretary of the Board, Mr. J. F. Hales, M.A., King's College, London, Strand, W.C.

1915.

THE COLLEGE OF PRECEPTORS

INCORPORATED BY ROYAL CHARTER
BLOOMSBURY SQUARE, LONDON, W.CLECTURES FOR TEACHERS
ON THE
SCIENCE, ART, AND HISTORY OF EDUCATION.

PSYCHOLOGY AND ITS EDUCATIONAL APPLICATIONS.

To be delivered by JOHN ADAMS, M.A., B.Sc., LL.D., F.C.P., Professor of Education in the University of London.

The First Course of Lectures (Forty-third Annual Series) began on Thursday, February 11th, at 7 p.m.

The course is meant to meet the needs of teachers who wish to improve their acquaintance with what underlies the principles of their profession, whether such teachers have any examination in view or not. The subject will be so treated as to fit in with the requirements of the College in connexion with the examinations for the Associateship, the Licentiate, and the Fellowship. The reading of the students will be guided, and problems set for their exercise. The lectures will give teachers an opportunity of keeping in touch with the newer developments of educational studies, and will be illustrated by practical applications of psychological principles to the work of the classroom.

SYLLABUS.

I. (Feb. 11.) *The Problem of Psychology.*—Claims of psychology to rank as a science: peculiar nature of its subject-matter: consciousness: the inner and the outer world: the ego and the non-ego: essential bipolarity: the unity of experience: relation between body and mind: consciousness as epi-phenomenon: the relation of education to psychology: place of the educational expert between the pure psychologist and the practical teacher.

II. (Feb. 18.) *Experimental Methods.*—Value of the different kinds of psychology (a) old-fashioned descriptive, (b) empirical, (c) rational, (d) genetic: introspection: need for an objective standard: statistical method: correlation: different kinds of development of psychology in the school, the study, and the laboratory: use of apparatus: combination of rational and experimental psychology: various kinds of experiments: danger and difficulties of experimenting by teachers: need for "controls" of experiments: what the teacher may legitimately demand from the psychologist.

III. (Feb. 25.) *Sensation and Perception.*—Both sensation and perception are direct and deal with stimuli here and now present: limitations of pure sensation: the threshold of sensation: the introduction of meaning marks the emergence of perception: the so-called *training of the senses*: the theory of the fixed coefficient: prodigality of sense stimuli and the need for selection: "the preferred sense": common misunderstanding of the term: substitution of one sense for another: interpretation.

IV. (March 4.) *Ideas.*—The passage from perception to apperception: ordinary psychological meaning of *conception*: resulting abstraction: the "faculty psychology": ideas as modes of being conscious: idea as specialized faculty: presented content and presentative activity: interaction of ideas: fusion, complication, and arrest: place and function of each of these in the teaching process: the dynamic and the static threshold: the conscious, the unconscious, and the subconscious in relation to ideas: apperception masses and soul building.

V. (March 11.) *Memory.*—Retention and recall: mediate and immediate recall: association, convergent and divergent: use of suggestion: native powers of retention and recall: "brute" memory: possibility of "improving the memory": purposive element in memory: need for selection of material to be memorized: mnemonics and the educational applications: learning "by rote": attempted distinction from learning "by heart": verbal, pictorial, and rational memory: memory by categories: personal identity and memory: connexion between memory and reality.

VI. (March 18.) *Imagination.*—Interpenetration of memory and imagination: literal meaning of imagination: the series—*percept, image, generalized image, concept*: manipulation of images: unintelligent limitation of the term *imagination* to the aesthetic aspect: suspicions of serious-minded persons: the use of the imagination in science: its place in the formation of hypotheses: clearly imaged ends: imagination as an aid and also as a hindrance to thinking: imagination should not be limited to the pictorial: nature of ideals: the case for day-dreaming.

VII. (March 25.) *Instincts and Habits.*—Nature of instinct: prevailing misconceptions: order of development of the human instincts: atrophy of

instincts: basis of habit: association as a general principle of organic development: relation of habit to instinct: racial and individual habit: formation of habits: the elimination of consciousness: turning the conscious into the unconscious: the upper and the lower brain: the breaking of habits: the possibility of habit forming being abused apart from the quality of the habits formed: accommodation and co-ordination: the growing point.

VIII. (April 29.) *Attention.*—The manipulation of consciousness: the prehensile attitude: state of preparedness for any one of a limited number of contingencies: the mechanism of attention: the vaso-motor, respiratory, and muscular elements: the span of attention: field of attention: distinction between area and intensity of attention: physiological rhythm of attention: psychological rhythm—alternation of concentration and diffusion beats: unsatisfactory classification of the kinds of attention: passing from the voluntary to the non-voluntary form: interaction between interest and attention: absorption.

IX. (May 6.) *Judgment and Reasoning.*—The narrower and wider meaning of *judgment*: distinction between understanding and reason: logical aspects of judgment: connotation and denotation: the laws of Thought as Thought: the syllogism: meaning of reasoning: relation between form and matter in thinking: the need for internal harmony: exact nature of thinking: the purposive element: fitting means to ends by the use of ideas: the two recognized logical methods—deductive and inductive: their interrelations: their special uses in teaching: analogy.

X. (May 13.) *The Emotions.*—Various theories of the nature of the emotions: evil reputation of the emotions among the philosophers: relation of the emotions to the intellect: Maedougall's theory of the relation between the instincts and the emotions: Shand's theory of the relation between the emotions and the sentiments: educational importance of this theory: Lange-James theory of the relation between the emotions and their expression: the mechanism of the emotions: the vascular theory and the nerve theory: manipulation of this mechanism by the educator.

XI. (May 20.) *The Will.*—Fallacy of the popular demonic view: unity of the ego and the will: unsatisfactory nature of the view that the will is "the choice between alternatives": nature of motives: fallacy of the popular view of "the strongest motive": relation between desire and will: the evolution of the will: relation of the will to the circle of thought: possibility of training the will of another: explanation of the phenomena of indecision: psychological meaning of the freedom of the will: the meaning of *aboulia*: fallacy of "breaking the will."

XII. (May 27.) *Character and Conduct.*—"Conduct is character in action, character is the accumulated capital of conduct": man's whole spiritual nature is involved in character: distinction among the terms *character, personality, individuality*: temperament and its relation to character: types of character: various classifications of characters by the French psychologists: mutability of character: views of Schopenhauer and others: examples of modification of character under external pressure: the sanction for such pressure: the conditions under which the educator may conscientiously seek to modify the character of the educand.

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AND

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Communications intended for the Editor should be addressed to THE EDITOR OF THE EDUCATIONAL TIMES, 6 Claremont Gardens, Surbiton.

THE TEACHING OF ST. PAUL.*

II.—THE EPISTLES OF THE JOURNEYS.

By the Rev. ALEXANDER NAIRNE, D.D.

IN an address to the Association for the Teachers' Study of the Bible, the Dean of Wells gathered up the theology of St. Paul along three lines—*One for All, All in One, All One Man* ("Central Teachings of the New Testament," in "Thoughts for Teachers of the Bible"—Longmans, 6d.). This is one of those true observations of fact which, when once they have been pointed out, it is impossible ever afterwards to ignore. We will therefore follow his three lines, taking *One for All* and *All in One* to-day, and leaving *All One Man* for next time.

Reference to 2 Cor. v. 14; Gal. iii, 28; Eph. ii. 15, will show that the three phrases are almost exactly quotations from St. Paul himself; the first two from Epistles of the Journeys, the third from one of the Epistles of the Captivity. *One for All, All in One*, express the Gospel liberty for which St. Paul strove in the period of the six Epistles—1 and 2 Thessalonians, Romans, 1 and 2 Corinthians, Galatians—the Missionary period, in which there were "fightings without, fears within" (2 Cor. vii. 5), the period of Gospel "ambition" (Rom. xv. 20; 2 Cor. v. 9, 1 Thes. iv, 11—R.V. margin). The theme is Jew and Gentile, Law and Grace, Advent and Redemption, Christ dying for all, Christ receiving from all and opening the way to all that all may find their home in Him. *All One Man* expresses the joy (Phil. ii. 2, 18; iii, 1; iv, 4) and peaceful confidence (Phil. iv, 7, 9) of the victorious vision which was given to St. Paul in Rome—the large outlook upon "the Christ that is to be." There the controversy of Jew and Gentile draws to a close; larger thoughts flow in of the Person of Christ, the purpose of God, the unity of all Godhead and all manhood. "Ambition" passes into fulfilment (Eph. i. 23), the struggle of the "churches" into the ordered, manifold, and onward-sweeping life of the one Church (Eph. iii. 10).

Now let us make a start upon the former period. It is full of new hope offered to the Gentiles and of difficulties raised by the opposition of the Jewish party in the Church. Out of this friction the simple Gospel of Galilee bursts into a theology, broad but intense, emotional yet reasonable, rich

* Lectures given to the Association for the Teachers' Study of the Bible.

and manifold with immense capacity for further growth—the “faith” of St. Paul. To trace this process is not quite so simple as might appear at first sight. Problems arise which demand the consideration of an open mind. Criticism proves its worth as a continual refreshment of ideas, which, left to themselves, become conventional.

Three stages may be noticed in the study of this period. First, there is the simple view of the plain religious reader of Acts and the Epistles. It may be expressed very shortly: *Paul stands for true liberty*. That is the right view. We shall never get a better one. Again and again we shall come back to it. But it fluctuates. It comes and goes, as it were, in tides. Only each returning tide rises higher than the last; each reforming of the view makes it larger and clearer. It fluctuates because it is expressed in words which become conventional. We repeat what others have said without having ourselves felt and known what they felt and knew. “Law,” “Grace,” “Works,” are terms which had most real meaning to St. Paul. So they have to the sincere conscience to which St. Paul brings peace out of struggle. But easy-going people repeat the words without feeling their real significance. We make systems of theology, and explain the words artificially. We rob them of their freshness and vigour, and presently stifle them with unconscious insincerity. Theology becomes disputation; love and righteousness are separated from it. Then criticism comes to the attack, breaking up the convention, renewing the enthusiasm for truth at any cost. Truth is the critic’s prime virtue; love is the virtue that he sometimes underrates. Not that this reproach could be brought against the earliest criticism of conventional Paulinism, i.e. the Epistle of St. James. The treatment of “faith” and “works” in that Epistle is a good example of criticism renewing the plain, true view which had been obscured. Let us consider for ourselves whether we have not conventional views of the narrowness of Judaism, the condemnation of the Law, the meaning of Justification, the godlessness of the unconverted Gentiles; views which we fancy are St. Paul’s, but which would appear very different from his if we tested them by an unprejudiced criticism.

So we come to the second stage of Pauline study. In the earlier half of the nineteenth century Ferdinand Christian Baur (who with his companions formed the once famous Tübingen school) startled conventional readers of the New Testament by proposing a new point of view from which to study it. In Gal. ii St. Paul tells us that St. Peter came to Antioch and disturbed the relations of Jewish and Gentile Christians by refusing to eat with the Gentiles. And, says St. Paul, “I resisted him to the face because he stood condemned.” This passage Baur took as one of many indications that there was a serious division in the apostolic church between the two parties, Jewish and Gentile, “Petrine” and “Pauline.” The latter pair of epithets indicates the manner in which he pressed this division. It was not merely an opposition of subordinate Judaizers to St. Paul; it was almost a schism between St. Paul and the Galilean Apostles. Baur made it a critical test of the origin and date of all the New Testament books. The early ones were written in support of one side or the other in this controversy. Others, like Acts, and the Epistles to the Ephesians and Colossians, were written later, when the dispute was dying away, in order to complete the necessary reconciliation.

Few, perhaps none, would now accept Baur’s critical scheme as he formulated it, nor would it be now allowed that an apostolic quarrel of this kind could explain the making of the New Testament or the development of Christian doctrine. In England Bishop Lightfoot applied his massive historical learning to correcting the Tübingen account of things, and he did correct it. Dr. Hort accepted Lightfoot’s correction, and even carried it further. His “Judaistic Christianity” is perhaps the best book that could be used as a companion to the study of St. Paul’s relations to the earlier Apostles and to Gentiles. Hort always writes in simple words, and many might fancy, as they began to read, that he was merely repeating what all know. But that impression would be modified before the book was read through. It would presently appear that the simplicity arose out of difficulties faced—was the final mastery of complex reflexions. The peculiar value of this book comes from its being an appreciation at least as much as a refutation of Baur. The

historical criticism of the Tübingen school, the late date assigned to so many books, Hort has weighed and found wanting. But he sees the philosophical truth of Baur’s larger purpose; it is just the truth that he was always recognizing for himself. Here, on earth, everything goes on bit by bit, by means of stress and struggle; it is a difficult, obscure advance on many seemingly separated lines. Then, at the ordained time, the divine “idea” descends and gathers all into harmonious life. Thus Baur is completed by Hort. The criticism which broke up vain conventions brings back the first simplicity, but brings it back enriched.

Yet this process continually needs repeating. It is sometimes said that the Germans tried to break up the New Testament, but their criticism has been a failure; we can read it again just as our grandfathers did. The fact, however, is that part of the old criticism has proved wrong; part has been, more or less unconsciously, accepted by us all; and the movement as a whole has made it impossible to read the New Testament just as our grandfathers did. Books which are worth so much as the New Testament must always be read by successive generations with an understanding deepened by correction. Still, that kind of thing is said, and it shows that we are once more in danger of conventional indolence, and once more may be profitably roused by exact criticism.

And the opportunity is given us. Lightfoot was a powerful historian; Hort was a philosopher as well. Of late a school has appeared that is perhaps historical, but might more precisely be described as philological. It lays much stress on resemblances in language. And it finds in St. Paul’s language striking resemblances to the language of Greek faith and piety as observed in the Oriental religions of the Greek-speaking Roman Empire. St. Paul, it would seem, received from the Gentile world almost as much as he gave.

This school, again, has risen out of German scholarship. On the other hand, there is a German writer, more listened to in England than in his own country, who insists upon the thoroughly Jewish character of St. Paul’s theology from first to last. This is Albert Schweitzer, who has been so much talked of as the author of “Von Reimarus zu Wrede” or (in its English translation) “The Quest of the Historical Jesus” (Black). In that book he showed how the key to the synoptic gospels is our Lord’s proclamation that the Kingdom of God was immediately coming. In his book on St. Paul (“Paul and his Interpreters”—Black), he shows how the expectation of our Lord’s Advent as the Christ in glory was Paul’s inheritance as a Jew, and how this tremendous expectation is the key to all his theology. If he borrows words from the Greek or Oriental religions, he does this only as a means of expressing in new circumstances the old Jewish-Christian idea.

Whatever may be thought of the purely critical part of Schweitzer’s earlier book, a good deal of injustice has been done to it by confining attention to that part. Mere criticism always needs further correction, and, even where it is right, it has but a temporary value. Two “ideas” in the book make its abiding merit: that our Lord’s doctrine of the Kingdom compels us to take His moral teaching in a simpler, more uncompromising fashion than we generally do; and that the impossibility of applying that uncompromising morality of renunciation to modern conditions must impel us to draw near to our Lord, *who still lives, and leads and teaches*, in order to follow Him still as He would have us follow Him. So, too, with his later book on St. Paul. He may be partly mistaken in his insistence on St. Paul’s absolute freedom from foreign influences. But he has really helped us to appreciate St. Paul’s intense, onward-pressing theology, by showing how dominated he always was by this longing hope of meeting the Lord he loved, of seeing at last all hatred and all evil abolished in His triumph.

The Dean of Wells’s formula *All in One* belongs to this Jewish side of St. Paul’s mind. It is a Messianic idea. The Old Testament is full of this title “Messiah” or (in Greek) “Christ.” It is generally disguised for English readers by the translation “Anointed” in our versions. But even through that disguise we can observe how the title is used. Hardly once is it used by itself. The phrase is always “the Lord’s Anointed,” “my Anointed,” &c. It is a title given to the kings and other representative persons in the nation. Sometimes it is given to the whole nation itself; so, at the end of Ps. lxxxix. In like manner the person “like unto a

son of man," in Dan. vii, 13, seems, in vii, 27, to represent "the people of the saints of the Most High." All this explains a thought which ran through St. Paul's Epistles, though it is expressed with especial care in one, the Epistle to the Ephesians; the thought of the Lord Jesus being the Christ together with, not apart from, His people. The thought which may seem difficult to us was perfectly natural to St. Paul and the Christians who had been brought up in Judaism. Notice, too, how continually he calls them "Saints," the word which describes the Messiah-people in Daniel and, so often, in the Psalms.

Whether or no there be another element in St. Paul's theology, there can be no doubt that the Jewish hope of the Christ who should come with the Kingdom of God was deeply fixed in his heart. Throughout his Epistles this hope is expressed, and, in the earlier period, at any rate, he expected the Advent soon. In the Epistles to the Thessalonians, and in 1 Corinthians, he speaks of those who shall have died before Christ comes, as though their case were a peculiar problem. He declares that their premature death shall be no loss to them: "The dead in Christ shall rise first: then we that are alive, that are left, shall together with them be caught up in the clouds, to meet the Lord in the air" (1 Thess. iv, 13-18; 2 Thess. ii; 1 Cor. xv). Yet he never speaks in this way without showing that he recognizes the symbolic character of much of the traditional Jewish language. In 2 Thessalonians he warns his friends against taking these things too literally. So he does in 1 Cor. xv, and in that chapter he raises all to an almost dizzy height of religious philosophy in verses 24-28. Beyond the "advent" is the "end," in which such titles as "Kingdom," and even "Son," shall be surpassed by the reality, "that God may be all in all." Soon or late, trumpet and clouds, are not the substance of his firm hope, but rather *Maran atha*, "Come, Lord!" (1 Cor. xvi, 22), "Proclaim the Lord's death till he come" (1 Cor. xi, 26, cf. Luke xxii, 18), "This mortal shall put on immortality" (1 Cor. xv, 54). See, too, the simplifying of the doctrine for the Roman Felix in Acts xxiv, 25.

Moreover, all important as the hope is for the future, Paul says even more about the present enjoyment of the Messianic Life. Christ is in heaven now, but so also, he again and again insists, are his faithful "saints." A startling assurance, more readily accepted by the "enthusiasts" and "reivalists" of later days than by too sober Churchmen. But the early Church could understand it, filled, as it was, with the intense Jewish experience of the Spirit of God, now really the Spirit of the Christ. They were "sealed," and had "the earnest of the Spirit in their hearts" (2 Cor. i, 22); they believed that "the Lord is the Spirit" and that "where the Spirit of the Lord is, there is liberty" (2 Cor. iii, 17). They still wait to "be changed" and to "meet the Lord," but already through His Spirit their "life is hid with Christ in God" (Col. iii, 3).

All this doctrine of the Advent, the present exaltation of the believer, the spiritual, i.e. utterly real, character of such other-worldly processes, is summed up by St. Paul in his iterated and reiterated phrase "in Christ." It is just the old Judaic faith, now fulfilled in Jesus the Christ, of the Messianic participation of the whole people. Look out the following references, and consider with how definite a sense this doctrine fills the language: Rom. vi, 11, 23; viii, 1; ix, 3, xvi, 5; 1 Cor. i, 13; vi, 15; 2 Cor. ii, 14; Gal. iii, 14, where notice, as in Rom. vi, 23, how R.V. restores the Pauline thought, which had been spoiled in A.V.

It is the old Judaic doctrine, but it is more than fulfilled for St. Paul. It has been infinitely deepened and inflamed with a divinely personal affection, because he knows the Christ as *Jesus whom he persecuted* (Acts ix, 5). The prophetic dream of Judaism has been brought into actual relationships on earth. Sharp, conflicting realities have emerged from the vast, golden haze. The problem of Christ's Person begins; the problem which for Paul was solved by the revelation of God's love in Jesus Christ (read Rom. viii, 31-39).

But read, also, Rom. v, 6-11, a passage which brings us face to face with that other element in St. Paul's theology, the element that may prove akin to certain forms of Gentile piety.

For here the thought of Christ's *love* is associated with the thought of His *dying for the ungodly*. But is that another thought? Is it not just the completion of the love? It seems a natural completion. It hardly occurs to us to ask how

St. Paul came to have this further thought. Yet it is a further thought. It is remarkable that there is comparatively little insistence on it in Acts. The stress there is on the Resurrection and the Advent—i.e. the proof that Jesus is, and will come as the Christ. Was the thought suggested by Leviticus? But the idea of the "sacrifice" of the death of Christ belongs to Hebrews; there is very little of it in St. Paul; 1 Cor. v, 7 is exceptional. Or by Isaiah liii? Great as the influence of that passage did become in the apostolic Church, there is hardly one significant quotation from it in St. Paul; and though the thought of a suffering Messiah is certainly in the Old Testament, and was pointed out by our Lord (cf. Luke xxiv, 25-27), this was not generally before the Jewish mind in the Gospel days.

It would, indeed, be foolish to suppose that Paul had learned nothing from the Old Testament about Messianic suffering, and even death. Yet it does seem more than possible that his mind was deepened in that respect by ideas which came to him from another source also. From the earliest times there had been among the Greeks a rival to their philosophy as well as to their cult of Zeus, and the Olympian divinities. This rival was the religion of the Mysteries. But the religion of the Mysteries was widespread. It is found throughout the Eastern World, and by St. Paul's time it was saturating the Roman Empire. The ceremonies were various; the heart of the religion was always the same. It told of God dying for men; of eternal life for men through their participation in the death and resurrection of the God. In later centuries remarkable correspondences are observed between Mystery rites and Christian rites. These detailed correspondences have little bearing on St. Paul's theology. But it is by no means impossible that the broad theological and moral ideas of the Mysteries did touch him. He often uses the word "mystery." Sometimes he uses it in a context where other significant words seem to indicate further connexion, e.g. Rom. xvi, 25, "The mystery which hath been kept in silence through times eternal." The strange phrase in Col. ii, 18, R.V., "dwelling in the things which he hath seen," has been shown by Sir William Ramsay to be a formula of the Mysteries in Asia Minor. Here St. Paul uses the phrase disparagingly; and we may well suppose that if he recognized some true inspiration from God in this Gentile worship, he also knew that there were things faulty and dangerous in it, and was concerned to keep the new influence in order. He would accept and interpret, but he would also reject and restrain. Yet, it would seem, he did find in this wild region of men's aspiration thoughts which he had himself been waiting for; thoughts of "redemption," "the dying Saviour," "one for all"; thoughts which transfigured the "scandal of the cross," and satisfied his own passionate heart. This is how M. Cumont describes the Mystery-religions in his masterly and delightful book, "Les religions orientales dans le paganisme romain": "The eastern mysteries which impel the will towards an ideal goal and exalt the inner man are rather careless of social progress; but they know how to provoke that shock to the moral being which makes emotions that pass all understanding well up from the depths of the unconscious soul. They give, by a sudden illumination, the intuition of a spiritual life, the intensity of which causes all material advantages to appear dull and contemptible. It is this thrilling appeal to a supernatural existence, both in this world and in the world to come, which rendered the message of their priests irresistible" (page 69).

St. Paul had felt that shock of contrition and conversion. He wrote: "Yea, verily, and I count all things to be loss for the excellency of the knowledge of Christ Jesus my Lord: for whom I suffered the loss of all things, and do count them but dung, that I may gain Christ, and be found in him" (Phil. iii, 8f). No reader of his Epistles but will recognize how keenly such emotions as M. Cumont describes would touch him if he found them in that Gentile world to which he carried the perfected Gospel of his Jewish fathers.

No doubt he had already felt some such emotion in that most other-worldly Jewish Gospel of the Kingdom. The gulf between Jew, Hellenistic Jew, and Gentile was not so marked as we sometimes fancy. It might be said that the Advent hope, and the conversion through death to life, are two ideas which are innate in every religious heart. But it is the definite relationship of such ideas with particular times,

places, and persons, that calls them forth to effectual life. As Charles Kingsley once wrote: "All the revivals of religion which I ever read of, which produced a permanent effect, owed their strength to the introduction of some new element, derived from the actual modern consciousness and explaining some fresh facts in or round man" ("Life," Vol. II, page 93). So with St. Paul. "All in one" came from "the actual modern consciousness" of his Jewish contemporaries; "One for all" from the most earnest Gentiles of his day.

Of course this is the onlooker's historical analysis. Paul himself ascribes everything to direct revelation (Gal. i, 11-17; ii, 6). But there is no contradiction in that. The two aspects, revelation and discovery, are always present in divine operations. Revelation through earthly relationships is always the larger part of God's dealings with his choicest servants. Yet something remains, the deepest and most secret influence. And, whencesoever St. Paul gathered words and thoughts, it is still that most secret influence which fuses all into single life, and keeps us still striving, as we read him, to reach the height of his great argument; still baffled, yet uplifted by the sublimity of this Apostle, who was "born out of due time," "became all things to all men," was the "bond-servant of Jesus Christ," and "heard unspeakable words, which it is not lawful for a man to utter."

REVIEWS.

Education through Play. By Henry S. Curtis.
(5s. 6d. net. The Macmillan Co.)

This is in its way one of the most remarkable books that has come along for some time. It makes a very catholic appeal. Not content with dedicating his book to "the twenty million school children in the United States," Mr. Curtis writes in such a way as to rouse the sympathy of such different groups as the Public-School masters of England and the social philosophers of America. But he produces his effects by the series of antagonisms that he rouses among his readers. The philosophers will not like what he says about the English Public School and the English Public Schoolmaster will not like what he has to say about the philosophical aspects of education. It may be gratifying to be told of our Public Schools that "they might teach Choctaw or Hottentot instead of Greek and Latin, and they would still be fine schools." But when our author comes to deal with the philosophy of play we are afraid the English Public School man will shrug his shoulders. Yet Mr. Curtis has far too practical a mind to dwell unduly on the mere theory of play. He gives the right amount on this subject to justify the title of his book and to prepare the reader for an intelligent appreciation of the subject as a whole. His general position is that play is of the first importance in the school curriculum. He would probably be more successful in carrying his readers with him if he had fewer sneers at the Ph.D. His argument ought to prove that a man may attain his degree in a much more wholesome way if he allowed play to perform its proper part in his college course. Making allowance for the bias of one who has to maintain a thesis, we must admit that Mr. Curtis makes out an excellent case. His real claim is that play should have a recognized place in the school curriculum, and in support of this claim he puts the reader in possession of a great mass of facts that are new to most English readers. Few of us knew till Mr. Curtis told us that "The most interesting city in this country [the United States] from an educational point of view is the city of Cary, Ind." It appears that in this city the schools are organized on the principle of having only half the classroom accommodation that the number of pupils demands, the defect being made good by having half the pupils always engaged in collective work in some of the common rooms or laboratories, or—and this is the cheering thing for Mr. Curtis—in the playground. The school time-table is so arranged that every pupil has two hours at play, one in the morning and the other in the afternoon. So far so good; but the system fails to satisfy our author, since it includes play in the time-table without including it in the curriculum. To do its best educational work play must form a part of the regular work of the school. To get two hours play in the school time-

table involves a lengthening of the school day, a lengthening that Mr. Curtis regards without qualms, for he wants play masters and mistresses, who will relieve the ordinary teachers, who can then spend the extra two hours per day in the profitable work of marking exercises and preparing lessons, thus leaving themselves free to spend the whole out-of-school time on out-of-school interests.

He acknowledges the danger that if play is put into the program of the school the pupils will regard it as work. The whole problem of compulsory games is at once raised, and the English reader will find much that is new and useful in regard to this old topic. The conditions of the American schools in the matter of play are so different from ours that we cannot study them without profiting by the new point of view. On his side Mr. Curtis admits that America is learning from us in certain respects. He describes the rise of a new type of American school based upon the English public school model, and suggests that before very long we shall have on the other side of the Atlantic serious rivals to Eton and Rugby. One is surprised at one sentence in his account of these schools: "They are for the sons of our American aristocracy." One rubs one's eyes, but the words persist. Page 234 contains the confession.

Of the sixteen interesting chapters that make up the book the most striking is probably that in which the author deals with Recreation and Summer Schools. Here he boldly outlines a view of education that is really implicit throughout the book. Old things are passing away. The "three R's" no longer occupy their former place of importance. Pupils are to be prepared for real life, so their teachers must themselves live. Recreation of all kinds is to take a front place in educational systems. "A good time" is to receive the blessing of the Educational Authorities, instead of being the somewhat contemptible thing it is regarded by the sterner pedagogues. A "soft pedagogy" has no terrors for Mr. Curtis. Psychology gets "a good hard knock." Its votaries "do not begin to have the social skill in understanding or dealing with people that is possessed by our social leaders and politicians" (page 252). It is a pity that on page 248 our author has confused *training with information* in a way that a little knowledge of psychology would have guarded him against.

We lay down this book with the conviction that we have been reading the words of a man who really knows his own subject—Play. His wide experience and his enthusiasm have combined to produce a book that cannot but exercise a powerful influence. We cannot agree with his deification of baseball, "one of the most fundamental things in American life, one of the most determining things in American character." Other things have their place, as he himself admits when he complains of "semi-illiterate coaches" of athletics at the Universities. But something must be pardoned in an enthusiast, and what the teacher learns from this book will far more than compensate for any overstatement of the case.

School Discipline. By W. C. Bagley. (5s. 6d. net.
The Macmillan Company.)

Among teachers there is no subject that arouses greater interest than school discipline, but it is seldom indeed that they find it systematically treated. With his accustomed thoroughness, Prof. Bagley presents his subject in such a scientific way as to satisfy the expert, and yet with such sympathy and insight as to gain the approval of the inexperienced teacher eager to get some genuine help in what is for many the most trying aspect of their work. He wins confidence at once by his attitude towards the unruly school. Most writers on the subject deal with discipline as if the teacher could always begin at the beginning. In point of fact, most teachers have to accept as the data of their problem a state of affairs already existing. Nowhere is the *fait accompli* of more account than in entering upon a new teaching post. Prof. Bagley rightly lays stress on the great advantage of being able to begin in a school where discipline is already established on good principles. In such a school it requires a positively bad teacher to introduce unruliness. But, as Prof. Bagley knows from his wide experience that there are many unruly schools, he sets about working out the practical side of his theme by suggesting means of turning an unruly school into the sort of school of which he gives an excellent account in his first

chapter. After an analysis of the general and the specific causes of unruliness in school, he devotes six chapters to elaborate the way in which such schools can be transformed. He rightly insists upon the fundamental importance of the teacher taking up an objective attitude towards discipline. He fully realizes the importance of Prof. Mitchell's insistence upon "taking things for granted." After discussing the advantage of raising the qualitative standard of school work, he proceeds to demonstrate the wholesome influence of individual assignments. Next the stimulation of group responsibility is evaluated, and stress is laid upon the influence of a regimen of work. All teachers will agree that under this head Isaac Watts's doctrine of idle hands has not yet been superseded. It is only after having dealt with those fundamental matters that Prof. Bagley approaches those rewards and punishments that usually stand in the forefront of discussions of discipline. He makes it quite clear that he has no hankering after the old-world use of the rod. But he cannot help being driven to the conclusion that physical correction has a valuable place in the background—well in the background, no doubt, but still there as a possibility. In this section Prof. Bagley is exceedingly cautious. He knows the pitfalls too well to become dogmatic. He walks circumspectly, and with admirable ingenuity contrives to throw the burden of responsibility to some extent on the reader. For, after the excellent fashion of the newer American books on educational matters, he provides a series of problems at the end of the chapters, which gives him just the opportunity he needs to rouse the reader to a sense of responsibility in deciding controversial questions on his own account.

There is a capital chapter on troublesome types of pupils. We are told that little has been done in the study of such types; but the field has not been quite so much neglected as Prof. Bagley suggests. The subject has been dealt with by one of our English professors of education, and in Germany we have the thorough, if somewhat dispiriting, "Die Charakterfehler des Kindes," by Dr. Friedrich Scholz.

It is only in the last chapter that the relation between the doctrine of interest and school discipline comes in for detailed treatment. Here our author will meet the approval of most readers by his sound sense. He recognizes all that can be said for interest as an aid to discipline, but he cannot regard it as the means. It has its place among others, but its real importance is rather on the educational side than on the side of that control that is usually known as school discipline.

A very valuable feature of the book is the series of illustrations drawn from actual school life. They are all intensely interesting, but they have the additional advantage of being helpful. It is only occasionally that they are dramatic. Indeed, a merely artistic critic would be inclined to suggest that they need a little bit of editing in order to bring out the full flavour. But the implied lack is the guarantee of their authenticity. One feels that in reading these accounts of school difficulties one is living through, at the second remove, events that actually occurred, and one benefits accordingly. This book will increase the reputation even of the author of "The Educative Process."

The School, the Child, and the Teacher. By Ellen Winifred Adamson. (4s. 6d. Longmans.)

The nature of this book is indicated by its sub-title, "Suggestions for Students in Training." It is written with special reference to the work in South African Schools, but the reader need not be in any way repelled by this limitation. After all, schools and children are pretty much the same all the world over, and, though Miss Adamson has frequent references to South African conditions, these concern mainly textbooks, language, and curriculum, and in no way detract from the usefulness of the book.

The general impression conveyed by the volume carries one back to the textbooks of a similar kind published thirty or forty years ago under the general title of School Management. The first four chapters deal with general matters—the School and its Work, the Student as Learner and as Teacher, and the Cultivation of Speech. Thereafter Miss Adamson plunges into the teaching of the various subjects of the curriculum, and gives a separate chapter to each of the

(Continued on page 158.)

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following subjects: Reading, Writing, Spelling, Grammar, Composition, History, Nature Study, Geography, Arithmetic, Singing, Drawing, Handwork, Physical Training. The book closes with a stimulating chapter on Continuation after Training. It will be noted that Miss Adamson does not put the various subjects into commission as is the custom in recent books, but boldly takes all knowledge to her province, and covers the whole field herself. This has an obvious disadvantage, for no one can deal equally well with all the subjects of the curriculum; but it has a corresponding advantage. There is a unity of treatment that is lacking in the mosaic work of the books of multiple authorship. Miss Adamson has an advantage similar to that of the form mistress as compared with the specialist teacher. She is able to introduce a harmony among the various subjects by the unifying influence of their presentation through the workings of a single mind. It is not to be supposed, however, that the impress of a single personality leads to monotony in the text. The authoress is careful to secure variety and interest by presenting all manner of different opinions. Indeed, one is at first inclined to think that she has quoted too much. But when one considers the purpose of the book, and the readers to whom it makes its appeal, one must regard it as eminently successful. While of the same class as the old fashioned textbooks, it rises far above them. It communicates as much knowledge as they, but it does so in a far better way. The student is not only informed—he is stimulated. The book can be honestly and strongly commended.

Teaching Children to Read. By Paul Klapper.
(5s. net. Appleton.)

In his preface the author honestly warns readers that they are not to expect new theories and experimentations in the physiology and the psychology of reading. But the ordinary teacher will find in the pages quite as many new theories and experimental results as are good for him. After three preliminary chapters dealing with the general problem of reading, including its physiology, psychology, and hygiene, Dr. Klapper proceeds to its pedagogy. Then follows a treatment of the Basic methods of Primary Reading, and a chapter on special modern methods. Next comes the Subject Matter of Primary Reading. A very useful chapter on Phonics follows, and is succeeded by a treatment of Reading in the Intermediate Grades. The last chapter deals with the Teaching of a Masterpiece, and covers some of the ground so skilfully manipulated by Dr. Hayward in his recent book on "Appreciation."

Most teachers are aware of the struggle at present going on between the advocates of reading as a formal exercise and reading as a means of assimilating thought. Dr. Klapper naturally leans towards the side that favours "silent reading," that sets before it the rapid absorption of the thought of the writer of the passage read. But he does not take an extreme view. "Despite the sharp line of demarcation that each school seeks to draw, we see that neither has a monopoly of pedagogical wisdom. If we unite these two tendencies we evolve a composite method which insures thoughtful, expressive reading, fluent and smooth, and which also develops that mastery of the technique of symbols that is absolutely essential." Most English teachers are familiar with the Alphabetic, the Phonic, and the Phonetic methods. When it comes to the "Ward" system they are still able to link it on to something familiar by speaking of "Look and Say"; but, when they are faced by the Emma K. Gordon method, the Farnham method, and the Margaret McCloskey method, they feel in need of guidance. They are acquainted with the method of making the word the standard of reading, and even the sentence is not quite beyond their experience. But the *story* as the reading unit will strike many as something surprising. There is, indeed, much to astonish our conservative teachers within the boards of this book. But it is all put in such a convincing way that it carries the reader along, and wins his favourable opinion, if not his assent. The one complaint he is likely to make is that there is too much classification; but this is a fault that seems to be ineradicable in books of school method, and the intelligent reader will be able to gather valuable matter from the book without paying too much attention to heads and subheads. No training college library can afford to omit this book from its catalogue.

Political Economy. By Charles Gide. Translated (under the direction of Prof. Smart) by Miss C. H. M. Archibald. (10s. 6d. net. Harrap.)

English readers of economic literature should be grateful to Prof. Gide for this very attractive work, with its remarkable lucidity of style, variety and abundance of illustration, and its sound and critical judgment. After its perusal they will not complain of economics as "the dismal science." The chief characteristic of the book, indeed, is its living human interest, its concreteness in the treatment of economic phenomena. Its tendency is to touch lightly upon those more abstract aspects of economic science which have been so prominent in the works of the British writers in recent times. The French attitude is distinctly lighter, the tone more lively, the method of treatment less severely academic than is usual in English treatises; and these characteristics have been well sustained in this excellent translation. English students will do well to read the work concurrently with their study of the English classical authors, and to combine with their acquisition of the fundamental principles of value, prices, wages, theories of trade and finance, the facts and illustrations so amply supplied by Prof. Gide. The one will supplement and test the other, and the subject will be illumined by the joint study; for a basis of fundamental principles and a groundwork of substance and solidity they cannot forgo the more severe discipline and method of the English economists. Prof. Gide gives freshness of treatment, enhanced by charm of expression and novelty of application; and, though we may not agree with some of his criticisms and views in detail, we find in them tests of the theories which are deemed fundamental by the more academic English school.

Economics is not an exact science; its theories and principles have to be taken in conjunction with other laws of human nature, and have to be applied in a great variety of circumstances. We need all the help and guidance that can be afforded by able observers and enquirers in different conditions. The acute observations and brilliant expositions of so distinguished a savant throw fresh light upon economic problems, and are a contribution of great value to the study of those engrossing and exacting aspects of human society which are ever being augmented by the increasing and more complex economic relations of modern civilization.

The Piscatory Eclogues of Jacopo Sannazaro. Edited by Wilfred P. Mustard, Ph.D. (1 dol. Baltimore: Johns Hopkins Press.)

For those leisurely scholars who like to dive into the byways of literature here are "fresh woods and pastures new." Most English readers will, perhaps, need to be informed that Jacopo Sannazaro was a Neapolitan amateur of the New Learning. He was born five years after the fall of Constantinople. The enthusiasts of his generation must have been truly saturated with classical learning, for the Latinity is excellent, as are the hexameters. The most expert of modern Virgilian scholars could teach him little about the technique of the Eclogues. At the same time, polished as these verses are, they are merely triumphant exercises in a particular medium. They are as artificial in sentiment as the shepherds and dairymaids of the Petit Trianon. The touch of originality is sought in a change of local colour. Our old friends, Lycidas and Mopsus, are transformed into fishermen, and lay oysters, instead of apples, at the feet of their lady-lovers. Their sentiments, however, are rather far-fetched. Lycidas, since Phyllis is dead, can no longer bear to live on land, and longs for magic herbs to turn him into a fish! "Et feriam bifida spumantia marmora cauda." This sort of thing is like Pope's couplet: once you have the knack of it, you can turn it out *ad infinitum*. Still, the same verdict must apply to much of Ovid, and Sannazaro would provide quite as good a text for the student as Ovid affords.

Occasionally we find a word used in a slightly unclassical sense, e.g.,

Nam quid ego, heu, solis vitam sine Phyllide terris
Exoptem miser?

Virgil would hardly have used *solis* in the sense apparently of "lonely or deserted."

Prof. Mustard has certainly done all that is required to make a standard edition of Sannazaro for this generation. He has

taken immense pains to discover all that can be known about his life, his imitators, and his critics. It is surprising what a vogue he seems to have had up to the end of the eighteenth century. Nowadays, when form is no longer an end in itself, we prefer scholarly renderings of good modern verse. Certainly most scholars of our day would take more pleasure in "Sabrinae Corolla," still more in Jebb's beautiful versions, owing to the greater interest of the subject-matter and the skill required to find a classical equivalent for modern thought and phraseology. Our scholars could do this "original" work if they thought it worth while, as witness Swinburne's fine Greek elegiacs, prefixed to "Atalanta in Calydon."

Greek History for Schools. By C. D. Edmonds.
(5s. net. Cambridge University Press.)

This book is admirably adapted to its purpose. It contains a simple, clearly written narrative of the history of Greece from earliest times to the conquest of Greece by the Romans. Thus, an account of the Hellenistic age is included, and the history of Greece brought into relation with that of Rome. In this way the gap is avoided which was left by so many of the older textbooks, which broke off at the death of Alexander. Greek history, dealing as it does with a number of independent States, is apt to present an apparent lack of unity. This difficulty the author avoids successfully, sometimes by grouping facts about some particular aspect of Greek development, such as tyranny or colonization; sometimes by bringing them into relation with the leading State of a particular period, such as Athens or Macedonia. In the early chapters full use is made of recent discoveries in Aegean civilization. Social life and the arts are dealt with in chapters on "Athenian Life" and "The Culture of the Hellenistic Age." The book is copiously and excellently illustrated, and well furnished with maps. A praiseworthy feature of the latter is that they are provided with rough contours. A few questions are added at the end of each chapter, forming suggestions for revision. This work deserves to be widely used, and we hope that when a second edition is called for Mr. Edmonds will add a bibliography for the benefit of teachers.

"Cambridge Tracts in Mathematics and Mathematical Physics."—No. 15, *Complex Integration and Cauchy's Theorem.* By G. N. Watson, M.A. No. 16, *Linear Algebras.* By L. E. Dickson, Ph.D. (Each 3s. net.)

The value of this series of short treatises, to which many of our well known mathematicians have contributed, is by this time a matter of common knowledge with readers of advanced topics in connexion with mathematical science. In No. 15 of the series Mr. G. N. Watson, M.A., investigates the subject of "Complex Integration and Cauchy's Theorem." Brief as is the space available, the author succeeds in impressing the reader with a sense of the completeness with which he has endeavoured to endow his research within definite limits. The central theme is the rigid demonstration of the following important theorem of Cauchy—namely, that "If $f(z)$ be analytic at all points in the interior of a regular closed curve with limited variations, C , and if the function be continuous throughout the closed region formed by C and its interior, then $\int_C f(z) dz = 0$." In order to arrive at a perfectly satisfactory proof of the main proposition it is, however, necessary to make use of a number of important subsidiary theorems, and it is with the discussion of these—save where the author deems it permissible to take for granted the reader's familiarity with them—that Mr. Watson occupies himself in the early portion of his text. His mode of treatment is set forth in direct and simple language. Moreover, he prefers to base the whole, as far as possible, on an arithmetic groundwork, and to dispense to the utmost with geometrical intuitions. By so doing he is of opinion that he secures a breadth for his demonstration which a geometrical interpretation of the question would fail to furnish. Following up the proof of the central proposition, the author proceeds to indicate at least some of its possible applications to definite integration.

No. 16 of the "Tracts" is entitled "Linear Algebras." We owe it to Dr. L. E. Dickson, a writer whose name is well known to mathematicians in this country, but still more familiar to students in the United States. This able little treatise is in-

tionally introductory in character, and has been influenced more or less by the work of the author in connexion with the University of Chicago. The ground covered embraces a careful survey of the general theory evolved by the investigation of "Complex Linear Associative Algebras with a Modulus," and a consideration also of the relations existing between these algebras and kindred subjects of mathematics. Dividing his text into four "Parts," the writer devotes "Part I" to the necessary work of definition, to "concrete illustrations" of the subject, and to the investigation of certain fundamental propositions bearing on the theory. Freshness of treatment, and results that have been arrived at independently (even if they are not original), mark this section. In the later "Parts" the line of argument followed by Cartan is that which the author has adopted, his choice having been made as a result of his decision to avoid as far as possible touching on bilinear forms and the theory of groups.

GENERAL NOTICES.

ENGLISH.

Beowulf with the Finnsburg Fragment. Edited by A. J. Wyatt. New Edition, with Introduction and Notes, by R. W. Chambers.
(9s. net. Cambridge University Press.)

Every Englishman should take an interest in this the oldest poem in our own tongue, although, of course, special study is now required in order to read it. An "Introduction to the Study of Beowulf," is to follow, and this should be of great value for the critical examination of the poem. There is but one manuscript of Beowulf, made about 1000 A.D., which was preserved in the celebrated Cotton Library, and this was damaged in the disastrous fire which the library suffered in 1731. Near the end of the eighteenth century, an Icelandic, Thorkelin, transcribed the manuscript and caused a second transcript to be made. It is from these and the manuscript which, owing to the damage sustained in the fire, has much deteriorated since Thorkelin's time, that the text as we have it has been reconstructed. Of great interest are the facsimiles of two pages, one from each of the two parts due to two different scribes who made the copy of the poem that has come down to us. With the latter facsimile are given the two transcripts of Thorkelin, from which it may be seen how much the manuscript has lost since his day. With its excellent notes and glossary, the present fine edition provides all that is required by the student, armed with an Anglo-Saxon grammar, who wishes to read for himself this interesting relic of old English poetry.

Elizabethan Literature. By J. M. Robertson, M.P.
(1s. net. Home University Library.)

This book is a worthy member of a notable series. It is not to be read lightly, for its pages survey a wide field, and wealth of detail and vigorous judgment are everywhere packed into the smallest space. Though readers may dissent from some of its views, they will see on every page the impress of a mind possessing the fullness of knowledge and the detachment of sound criticism. It is a summary of a period that has not often been assessed; it is an original contribution to the study of questions that are of unfading interest to all students of literature.

Material for Précis-Writing. Compiled by H. A. Treble, M.A.
(3s. 6d. Rivingtons.)

This book provides 276 pages of material for précis-writing for students preparing for the London Matriculation, the Royal Society of Arts, and the Second Division Clerkships of the Civil Service. Many of the passages have already been set at those examinations, and, as the rest are of a similar nature and difficulty, the book can be recommended as providing suitable exercises to candidates preparing for those and similar tests.

English Prose for Recitation. By B. C. Elliot. (2s. net. Macmillan.)

Many excellent passages appear in this volume, but not all are suitable for recitation. Some are too long, others too difficult, others unworthy of the time they would require for memorizing. For occasional use it should prove a useful aid to English teachers, as the best prose writers are well represented, and the extracts are often sufficiently short to be suitable for recitation. The book will be useful also for other purposes, as the author suggests.

Composition through Reading. Book II. By F. Pickles, M.A.
(1s. 9d. net. Dent.)

This book is very similar in plan to the first volume. Excellent passages in prose and verse are given as examples of various kinds of writing, and upon each passage are based several very instructive and searching exercises. For the teacher who prefers his own methods of teaching composition there is a wealth of good material here that he may turn to his own purposes. For the beginner there is a variety

of suggestions in the exercises that will be of great value. Scholars will take great delight in the passages chosen, for few collections are more suited to them and to their interests. Useful appendixes give the essentials of grammar and the mechanical rules of composition. It is a pleasure to see them in the appendix, and not occupying the bulk of the text.

HISTORY.

"Great Nations."—*Republican Rome. Her Conquests, Manners, and Institutions, from the Earliest Times to the Death of Caesar.* By H. L. Havell, B.A., formerly Scholar of University College, Oxford. (7s. 6d. net. Harrap.)

This volume, the second of the series, is quite worthy to stand by the first, Mr. Cotterill's "Ancient Greece," of which we spoke in favourable terms a short time back. The treatment is popular in the best sense—it suits the general reader without alienating the more serious student. The more important events are brought into relief, with fuller explanation of their bearings, the less important matters being curtailed or omitted. The presentation of the history is substantial and businesslike, and the style is clear and forcible. The text does not seem to have suffered owing to the lamentable accident of Mr. Havell's death. Mr. Cotterill has selected the illustrations and furnished them with explanatory notes. Altogether there are sixty-five plates and twelve maps and plans. The volume will rank well in a series that opens with the best promise, and it is liberally furnished forth by the publishers.

Historical Catalogue of Brown University, 1764-1914. (Providence, Rhode Island, U.S.A.: the University.)

A laborious and interesting compilation brought up to date on the 150th anniversary of the foundation of the institution.

Constitutional Documents. I-VI. Issued by the Historical Association. (1d. each; packets at reduced prices. G. Bell.)

The first half-dozen documents, issued as an experiment, are: (1) the Coronation Charter of Henry I, translated; (2) Magna Carta, translated; (3) the Petition of Right; (4) the Habeas Corpus Act; (5) the Bill of Rights; (6) the Act of Settlement. The more advanced students at least ought to have such constitutional documents before them, and it is to be greatly hoped that the Historical Association's experiment will meet with general support from teachers of history.

Ballads and Poems illustrating English History. Edited by F. Sidgwick. (1s. Cambridge University Press.)

This is a cheaper issue of a book first published in 1907, but without the introduction and notes. It has already enjoyed a wide popularity among teachers, for it contains many ballads that cannot be got elsewhere in convenient form. It offers valuable help to the history teacher, though the advice is questionable that "scholars should learn every piece by heart." The book would be even more valuable if it mentioned more fully the tunes to which the editor refers in his preface, for such information is not common among teachers.

GEOGRAPHY.

The British Isles. By Frederick Mort, D.Sc., M.A. (3s. Cambridge University Press.)

In these columns we have on several occasions called attention to Dr. Mort's useful contributions to geographical literature, and his present volume will rank as a reliable textbook for pupils taking the Locals and similar examinations. The chapters on Scotland are particularly good, and render the book distinctive; in contrast, Wales appears to have received rather too scant treatment. Structural facts receive careful and extended exposition throughout.

A Regional Geography of the Six Continents. Book I: Europe. 1s. Book II: Asia. 9d. By Ellis W. Heaton, B.Sc. (Ralph, Holland.)

These books are rather more advanced than "The Comparative Geography," by the same author, but contain the same good features. The diagram illustrations are boldly drawn and useful, while the general arrangement and material are both excellent. The appended questions are all interesting, though in several cases they demand reference to advanced manuals for their solution.

"The Pupil's Classbook of Geography."—(1) *British Isles*, (2) *British Dominions.* By Ed. S. Lay. (6d. Macmillan.)

Very satisfactory books for the middle standards. They are interestingly written, with excellent maps, and have numerous exercises which demand care and thought. Poetical descriptive extracts give a distinctive touch.

"Cambridge County Geographies."—(1) *Flintshire.* By J. M. Edwards, M.A. (2) *Durham.* By W. J. Weston, M.A., B.Sc. (1s. 6d. Cambridge University Press.)

The recent additions to the series are of considerable interest. Within the limits of the stereotyped arrangement of the volumes much individuality has been developed. The smallest Welsh county and the English coal mining county have much in common, but also offer wide differences, and a comparison of the books, section by section, emphasizes the value of the work of each author.

"The New Outlook Geography."—*The Home of Man: Asia.*

By L. A. Coles, B.Sc. (1s. 3d. Harrap.)

The method of treatment adopted in the previous parts has been continued, and the book is a well arranged text on modern lines. The introductory chapter, which needs some slight revision, is the same as that used in Part III. The rest of the book lays stress on the human basis, and is well provided with sketch maps, statistics, and exercises.

Handwork Models, to accompany "Visual Geography."

By Agnes Nightingale. (6d. Black.)

These will appeal to the small folk, who, during a play lesson with the models, will unconsciously learn valuable geographical truths.

RELIGION.

"Cambridge Bible for Schools and Colleges."—*Leviticus.*

(3s. net. Cambridge University Press.)

This commentary, begun and half-written by the late Mr. A. T. Chapman, was completed by Dr. A. W. Streane. Its subject-matter naturally limits its reading public, there being practically no students of Leviticus in the schools and few in any but the theological colleges. Though the details of Jewish law and ritual may directly interest only the advanced Biblical scholar or the student of ethnology, the subsequent religious developments of such subjects as Holiness, Sacrifice, Atonement make some knowledge and understanding of the Book of Leviticus of interest to everyone. Hence some sections of this commentary, especially those on Sacrifice and the Relation between the Law of Holiness and the Writings of Ezekiel, will be of use to every teacher of the Bible. Many Jewish customs and taboos, unintelligible to the modern Western mind, also find an explanation in this book, which, for quick reference, will be invaluable in schools and colleges.

"Cambridge Greek Testament for Schools and Colleges."—

(1) *St. Mark.* By Rev. A. P. Plummer, D.D. (4s. 6d.)

(2) *The First Epistle of St. Peter.* By Rev. G. W. Blenkin, M.A. (3s. 6d.)

(3) *The Epistle to the Ephesians.* By Rev. J. O. F. Murray, D.D. (3s. 6d.)

The clear Greek text, stimulating and helpful introduction and notes, not to speak of the portability of these volumes, make them of inestimable value to students. The last volume to appear, that on Ephesians, is of great interest, largely because the author has been content to state his own conclusions and the evidence on which they rest without recording the various other opinions. This gives the introduction simplicity, unity, and directness. Especially in respect of the problems of the relationship between the outlook of St. Paul and that of the Gospels is this freshness and independence noticeable. The resemblance between St. Paul and the author of the Fourth Gospel is more clearly shown in Ephesians than in the earlier Epistles of St. Paul. Did St. Paul's conceptions of the risen, transcendental Christ so influence St. John that he "boldly recast his own memories on the current tradition of the life of Jesus," or was St. Paul, though writing earlier than the author of the Fourth Gospel, so impressed by his (conjectural) intercourse with St. John that he adopted the latter's thought and phraseology? Though no definite solution is, or can be, forthcoming to these big questions, Dr. Murray's discussion is a new and stimulating contribution to the subject.

The Student Christian Movement at Work.

It is refreshing in these days to find the Annual Report of any Association so entirely satisfactory as this. The Student Christian Movement, already a power in the world, is developing everywhere. It knows no geographical limits, and we hear of meetings in the Universities of Turkey, Bulgaria, and Eastern Silesia. At home, too, both numbers and interest grow, and (unusual hearing) its financial position is sound and flourishing. That this success is the result of hard and earnest thought and work on the part of its organizers is illustrated by some of the pamphlets of the Association which have reached us. Among them are: (a) "Students and the Regeneration of Society," by Malcolm Spence, M.A., one of the retiring Secretaries; (b) "Christ the Teacher," by W. M. Sedgwick, also a Secretary to the S.C.U.; (c) "The Cultivation of the Inner Life," by Rev. P. Lloyd. All of these can be obtained from the Publishing Office of the Union, 93 Chancery Lane, W.C.

A Vision and a Voice. By the Rev. R. G. Philip, M.A.

(3s. 6d. net. Robert Scott.)

The writer attempts to describe and diagnose the symptoms of the present age, with a view to rebuilding on surer religious and ethical foundations. He believes we are on the eve of a great religious and social awakening.

The Sunday Kindergarten Game, Gift, and Story. By Carrie S. Ferris. (4s. 6d. Cambridge University Press.)

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(Continued on page 162.)

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THE KINGSWAY

The Literary Supplement of "The Teacher's World."

On April 7 the TEACHER'S WORLD will issue, in the form of a special Supplement, the first number of a monthly literary Review, to be entitled *The Kingsway*. Teachers have long desired that literature should be dealt with from the standpoint of the educationist, and *The Kingsway* will be the first real attempt to meet this demand. Its aim will be to provide a commentary on the literature of the day, with special reference to education in its widest and fullest sense.

SOME OF THE CONTENTS OF "THE KINGSWAY."

Amongst other features of great interest, the first and subsequent issues of *The Kingsway* will contain the following:—

Famous Authors of the Day.

1. A series of articles on famous authors of the day, giving an outline of their life and work, and attempting to show the significance of that work in its relation to the life of our time. The first article will deal with Mr. H. G. Wells, who, perhaps more than any other writer, has made himself the voice of the people in this hour of national crisis. Subsequent articles will deal with Mr. Bernard Shaw, Mr. Joseph Conrad, and the younger school of

novelists whose work is exercising such a profound influence on our literature.

Adventures among Books.

2. A monthly causerie by Mr. E. Brett Young, under the title of "Adventures among Books." Mr. Brett Young, as many of our readers will be aware, is a brilliant young writer, whose novel "Undergrowth," written in collaboration with his brother, recently created much attention. He is also the author of a monograph on the work of the Poet Laureate, Mr. Robert Bridges, which in its way has become a classic.

In the causerie written for *The Kingsway*, Mr. Young takes for his text Anatole France's famous definition of criticism, "The Adventures of a Soul among Books." His article is personal, fresh, and unconventional in treatment.

The Soul of Littleman.

3. Among articles descriptive of new methods and ideas in education the first will describe the wonderful work now being done in the teaching of English by Mr. Caldwell Cook, at the Perse School, Cambridge. This article, which will be entitled "The Soul of Littleman," will be illustrated by some of the poems written by Perse school boys.

Important Reviews.

4. Full reviews of important works dealing with educational affairs. The first will be "The Schools of Medieval England."

5. Reviews and notices of school text-books, either for class use or for the teachers. The Kingsway educational reviews will be authoritative, and one of the chief aims will be so to describe the work dealt with that the teacher may immediately judge of its suitability for his individual needs.

Literary Competitions, &c.

6. Literary competitions for the teacher's leisure hours.

These are only a few of the features which, it is hoped, will make *The Kingsway* as popular as the parent journal has been. The editor will always be glad to consider suggestions from his readers with a view to rendering the supplement more helpful and entertaining still.

As the issue of THE TEACHER'S WORLD for April 7, containing *The Kingsway*, is certain to go rapidly out of print, the only way to be sure of obtaining a copy is to place an order with your newsagent *to-day*. Regular subscribers to the paper should ask their newsagents to be sure and reserve their copies of THE TEACHER'S WORLD, dated April 7. The price will be 1d., as usual.

"THE TEACHER'S WORLD," SARDINIA HOUSE, KINGSWAY, LONDON, W.C.

MATHEMATICS.

- (1) *Plane and Spherical Trigonometry.* By Robert E. Moritz, Ph.D., Ph.N.D. (2) *A Textbook on Spherical Trigonometry.* By Robert E. Moritz, Ph.D., Ph.N.D. (10s. 6d. net and 4s. 6d. net respectively. New York: John Wiley. London: Chapman & Hall.)

The two volumes may well be noticed conjointly, the latter being a separate reprint of the second part of the first-named work. The complete textbook provides a very valuable treatise for both teacher and student. As Professor of Mathematics in the University of Washington, the author is necessarily in close touch with the needs of each class of reader, and he combines with the advantages afforded by his position a thorough mastery of the subject considered. Amongst the important points to which perhaps more than usual prominence is accorded in this treatise we find:—first, the degree of accuracy obtainable from given data, and secondly, the dual nature exhibited by circular and hyperbolic functions in combination. The pages of parallel columns which contain leading expressions and formulae connected with the two series of functions are uncommon in a textbook of the kind, and will be of great utility in promoting thorough knowledge. We are sorry to observe at least a partial disregard of the *sine* of lines when angles not greater than a right angle are in question. The neglect involved amounts to the error of making students condemn at a later stage of their work what they have accepted as accurate at an earlier one.

SCIENCE.

A Textbook of Chemistry. By William A. Noyes. (8s. 6d. net. Bell.)

It is manifestly impossible for every textbook of Chemistry to contain new material of importance, or to present-time honoured theories in a strikingly original manner. Nevertheless, there is always room for a work—exemplified by the book in question—in which the facts and theories of modern chemical science are neatly interwoven and set down in an extremely careful and lucid form. With his wide experience of the needs and capabilities of students, more particularly in the University of Illinois, U.S.A., Prof. Noyes has included in this textbook his estimate—and a shrewd one—of the requirements of high school and college students who commence the study of Chemistry with only as much scientific knowledge as is imparted by an elementary course in Physics. On the other hand, a student who has already passed through an elementary course of instruction in Chemistry will not find the book in any way unsuitable, special provision being made for him. In his endeavour to present the subject in the most clear and simple manner, the author has occasionally, and confessedly, erred in the direction of inaccuracy of detail. This course, though fraught with a certain amount of danger only to be avoided at the hands of a capable teacher, doubtless has in it much to be commended. The diagrams form not the least useful portion of the book; here and there—*e.g.*, in the manner of representation of a jet of water (!) on page 57, improvements suggest themselves. One may assert with confidence that for private study, and in the upper forms of secondary and public schools, this volume will prove of exceptional value. “Americanisms” in style and orthography are only to be anticipated in a book hailing from the “States,” but these in no way detract from its value so far as the British student is concerned.

Nature in Books. A Literary Introduction to Natural Science.

By J. Logie Robertson. (2s. Oxford University Press.)

This is a strange work. Its object “is to attract the young mind to the scientific study of Nature by the presentation of the facts in a literary, or at least picturesque, manner.” A certain proportion of the contents is made up of actual quotations from Bacon, Gilbert White, Shakespeare, Wordsworth, and others. The rest consists of articles on various topics by the editor. But, however literary or picturesque the whole may be, it is difficult to know to what the young mind would be attracted as a result of reading it, for the various topics are so disconnected that it would have to start on a new line after each portion of reading. This will not aid much in scientific study. Surely the ordinary course of literary studies would awaken quite as much interest in Nature as these disconnected portions, and the editor's articles are, with all due deference, no more alluring than those in any other plain, straightforward book of Nature study. The most attractive part of the volume is its pleasant smooth red cover, with good black lettering. Its most obvious use would be to help out who had studied some aspect of Nature to find literary allusions to it.

BOTANY.

A First School Botany. By Ethel M. Goddard, B.Sc. (2s. 6d. Mills & Boon.)

Contains exactly what is needed by high-school pupils taking botany in, say, the third and fourth forms. The letterpress is clear and readable and the illustrations particularly good on account of their size and simplicity. It will be very useful to teachers who

prepare pupils for Junior Locals and other examinations of similar scope.

Plant Life in the British Isles. Vol. II. By A. R. Horwood, F.L.S. (6s. 6d. net. Churchill.)

A work illustrating British plants by means of descriptions and pictures reproduced from photographs. The first volume has already been noticed in *The Educational Times*, and this one is very similar.

A First Course in Plant and Animal Biology. By W. S. Furneaux. (University Tutorial Press.)

This book is reminiscent of Science and Art Department examinations. It deals with certain plant and animal types which are useful as preparing the way for wider studies. At the same time there is an air of grind about it, and it does not succeed in presenting the type quite so well in its setting as do those books whose more liberal treatment gives us a view of a whole science while they deal with parts. Still, this manual is sound and reliable, and full of useful, necessary facts.

MANUAL INSTRUCTION.

The Thinking Hand; or, Practical Education in the Elementary School. By J. G. Legge, Director of Education in the City of Liverpool. (8s. 6d. net. Macmillan.)

This rather sumptuous volume is intended to show how the hand is employed in a multitude of ways in educating (in its proper sense) the children of the elementary schools under the charge of the Education Authorities in the City of Liverpool. This city is chosen, not because it is necessarily ahead in this connexion, but because our author is engaged in work there. Of course there are many who think (knowing little of the matter) that manual training is playing at education. To such we would commend the definition of the term as supplied by Dr. J. W. Robertson. It is “The general culture of the powers of the body, and of the mind through the activities of the body. . . . It is a training in accuracy, in ability to control self and environment, in expression of thought in deeds and substances rather than in language.” The first five chapters may be described as pedagogic, and will be of special interest to the theorist in education. They deal in fact with the general aspect and educational value of handwork. The sixth chapter is a practical one explaining the methods adopted in the City of Liverpool. Next follow two appendices. Appendix I contains suggestions for courses of instruction in Hygiene, Household Science, the Care of Infants, with syllabuses of Cookery and Laundry work—in fact, treats of handwork specially suitable for girls. Appendix II provides for the boys and gives schemes of work in many subjects—woodwork, metalwork, drawing in connexion with handwork, cardboard-cutting, modelling, knotting, weaving, basketwork, geography, history, cooking, gardening, Nature-study, and other sources of activity as numerous as those connected with the badges in the scheme for scout-training devised by Sir Robert Baden-Powell and those who work with him. But to us, and most probably to all who examine this book, the fine large photographs (some two hundred and twenty in number) will be of most interest. Indeed, the author apparently intended this to be the case. Here we see the children engaged in their multitudinous occupations, or else view the result of their work—both affording much food for consideration. The boy-cooks in their neat white uniforms, working amidst clean surroundings, inspire confidence in the result of their endeavours, while not less interesting are the pictures showing them busily at work mending their shoes or their clothes. But it is needless to particularize: those interested must examine the pictures for themselves. So many fine photographs necessarily make the price of the book somewhat high, though scarcely too high. In fine, this book is intended to give people in general a clear idea of the handwork that is being done in good elementary schools, and pictures show this better than words. It therefore fulfils its duty excellently, and is a useful addition to the literature of educational handwork. Everyone interested in elementary education in general, and this part of it in particular, must certainly see Mr. Legge's book.

MUSIC.

In the Hayfield.—No. 1 of Six Little Pieces for Little Hands.

By Alfred Earnshaw. (1s. each. J. Williams.)

This is a bright, tuneful little piece, which ought to prove interesting to all quite young students of the pianoforte.

On the Hillside.—No. 1 of Six Easy Pieces for Piano. By Frank Jephson. (1s. J. Williams.)

A moderately taking little piece, which some youthful pianists will delight to play.

Six Pieces for Children. Op. 22, for Piano. By Felix Swinstead. (1s. net. J. Williams.)

Felix Swinstead is a composer who thoroughly understands the needs of young pianoforte pupils, and he has written many really delightful pieces for them. The present are no exception, and the six pieces contained in this album are most musicianly, and such that children will love to play. Gavotte (No. 1) will make a special appeal, as will also No. 2, called “Jack Frost.”

Daffodils. By Alec Rowley. (3s. J. Williams.)

As a rule, young pupils like pieces in which the melody is played by the left hand. This little piece provides a delightfully melodious example and also has a most interesting middle section. It is quite good for young pupils.

The Yearbook Press (31 Museum Street, London, W.C.) now issue a series of excellent Unison and Part Songs especially suitable for use in schools. The series can be recommended thoroughly, as much for the general excellence of the printing and get-up as for the high quality of the music. The publishers worthily carry out what they state is their object, "to provide genuinely musical settings of really poetical works by past and present writers." Verses by such poets as Thomas Campion, Herrick, Peacock, Thomas Moore, William Blake, Hogg, Kingsley, and Scott are set by well known musicians, including Stanford, Parry, Mackenzie, Parratt, Percy Buck, Dunhill, John Ireland, Dr. Charles Wood, Harford Lloyd, and Dr. A. J. Silver. The series may be obtained in either notation at prices from 1d. to 3d. A feature that will recommend itself to all teachers is that the more recently issued numbers have both the tonic sol-fa and the old notation on the same copy, and this without any appearance of overcrowding. On the whole, these part songs are some of the very best issued for school use.

FICTION.

La Belle Alliance. By Rowland Grey. (6s. Smith, Elder.)

In the early chapters the heroine, aged fifteen, is at one of the public boarding schools for girls that were established in the eighties. There her mind is chiefly filled with hockey and cricket. Her family, including a grandmother with French proclivities, are not altogether satisfied, and the girl is sent to a very modern French boarding school in order to learn the *métier de femme*. Riding and dancing take the place of school games. The author describes and contrasts the life at the two schools with fulness of knowledge, with insight, and with skill. Incidentally we have pictures of English and French life during the holidays. The book will be read with enjoyment from cover to cover for its literary power no less than for its contents.

INDISPENSABLE ANNUALS.

The Schoolmasters Yearbook and Educational Directory, 1915. (12s. 6d. net. The Yearbook Press.)

The price at which this book is published may make the private purchaser hesitate, yet the information given is so exhaustive and so essential for all who would be well informed on educational matters that the hesitation must be overcome and the money paid. The volume contains particulars of nearly 16,000 names of teachers engaged in secondary, University, and technical education; it also contains a most useful list of secondary schools, with details as to fees, government, staff, &c. But of equal, if not of greater, importance is the well selected and carefully compiled compendium of general information, including administration, examinations, training, and many other matters. A reference to its pages will answer any inquiry that teachers or students may need to make in connexion with their work.

The Public School Yearbook, 1915. Edited by H. F. W. Deane and W. A. Evans. (5s. net. The Yearbook Press.)

This is the official book of reference of the Head Masters' Conference and is the twenty-sixth year of its publication. Full details are given of all schools the head masters of which are members of the Conference. There is also a list of preparatory schools. The information about scholarships, examinations for the Army and Navy, and other professions is very complete. The book is an absolute necessity for all who are engaged in education in connexion with the public schools, or the preparatory schools leading to them.

PUBLICATIONS RECEIVED.

EDUCATION.

Education Through Play. By Henry S. Curtis. Macmillan, 5s. 6d. net.
The Schools of Medieval England. By A. F. Leach. Methuen, 7s. 6d. net.
Teaching Children to Read. By Paul Klapper. Appleton, 5s. net.

CLASSICS.

The Histories of Tacitus: An English Translation. By George Gilbert Ramsay. Murray, 15s. net.
Sceneca: Dialogues X, XI, XII. Edited by J. D. Duff. Cambridge University Press, 4s. net.
Pliny: Selected Letters. Edited by G. B. Allen. Clarendon Press, 2s. 6d.

Caesar: De Bello Civili, II. Edited by A. G. Peckett. Cambridge University Press, 2s. 6d.
Homer: Odyssey, Books VI and VII. Edited by G. M. Edwards. Cambridge University Press, 2s.
Greek Exercises. By Rev. E. E. Bryant and E. D. C. Lake. Oxford University Press, 2s.

FRENCH.

The Soldiers' Language Manual. English-French. Marlborough, 3d.
Les Femmes Fortes. By Victorien Sardou. Edited by A. C. McMaster and F. B. Barton. Milford, 3s. net.
L'Homme au Masque de Fer. By Alexandre Dumas. Edited by E. A. Robertson. Cambridge University Press, 1s. 6d.
Bell's Sixpenny French Texts. (1) Le Journal d'un Emigré. By Chateaubriand. Edited by A. S. Treves. (2) Trois Contes. By Topffer. Edited by Marc Ceppi.
L'Amour Médecin. By Molière. Edited by Sydney H. Moore. Blackie, 8d.
Ce que Disent les Livres. Par Emile Faguet. Edited by H. N. Adair. Cambridge University Press, 2s. 6d.
Le Journal d'un Garnement. Livre de lecture à l'usage des élèves de deuxième année. Par A. S. Treves. Bell, with vocabulaire in French only, 1s.; with full French-English vocabulary, 1s. 4d.
French Examination Papers: On the Direct Method. By C. L. Freeman. Milford, 2s.

GERMAN.

The Soldiers' Language Manual. English-German. Marlborough, 3d.
Oxford Junior German Series. (1) Umzingelt: und Der Richtungspunkt. Von Detlev von Liliencron. Herausgegeben von A. M. D. Hughes. (2) Wolfdietrich. Von A. O. Klausmann. Herausgegeben von H. E. Adams. (3) Das Grüne Haus. Von Paula Dehmel. Herausgegeben von C. R. Ash. Each 1s. 6d.
Blackie's German Texts. (1) Der Stadtpfeifer (Riehl). Edited by Alfred Oswald. (2) Von Jenseit des Meeres (Storm). Edited by Alfred Oswald. Each 9d.
Ein Lustspiel (Benedix). Edited by Alfred Oswald. Blackie, 1s. 6d.

SPANISH.

Hossfeld's Spanish Dialogues. New Edition, revised by W. N. Cornett. Hirschfeld, 1s. 6d.
A Spanish Commercial Reader. By E. S. Harrison. Ginn,

ENGLISH.

Cassell's Illustrated Shakespeare, 3s. 6d.
The Granta Shakespeare. Second Part of Henry IV. Edited by J. H. Lobban. Cambridge University Press, 1s.
Shakespeare: King John. Edited by A. J. F. Collins. Clive, 2s.
Table Talks and Travel Talks. By Mabel Bloomer. Blackie, 1s.
R. L. Stevenson — (1) The Black Arrow. (2) The Master of Ballantrae. School Edition. Cassell, each 1s. 6d.
Chambers's Readers. (1) Chambers's Effective Readers, Book VI. 1s. 6d. (2) Chambers's Dramatic History Readers. In Norman and Plantagenet Times. By William Hislop. 1s. 3d. (3) Chambers's Supplementary Readers. Lamb's Tales from Shakespeare, 3d. (4) Chambers's Complete Tales for Infants. The Three Bears and The Water of Life, 2d. (5) Chambers's Narrative Readers. Set B. The Fir Tree and the Tinder Box, 2d. Set E. Lynette and Her Kitchen Knight, 2d.
Byron: Childe Harold's Pilgrimage, Canto III and IV. Blackie, 8d.
Leaders of English Literature. By A. F. Bell. Bell, 2s. net.
A Book of Northern Heroes. Compiled by A. J. Dicks. Ralph, Holland, 1s.
A Thackeray Reader. By Mrs. George Smith. Oxford University Press, 1s. 6d.
A New System of Analysis. By Lydia Winchester. Blackie, 1s.
The Faery Queen. Book V. Edited by E. H. Blakeney. Blackie, 1s. 6d.
Marlowe's Edward the Second. Edited by J. W. Holme and T. S. Sterling. Blackie, 2s.
Chaucer—The Nonne Prestes Tale. Edited by Lillian Winstanley. Cambridge University Press, 2s.
English Literature for Secondary Schools.—(1) British Orators. Selected by J. H. Fowler. (2) The Isle of Gramarye. Parts I and II. By E. P. Roberts. Macmillan, each volume 1s.
Macmillan's Stories.—(1) How and Why: Flower Stories. 3d. Little Seaside Folk. 3d. (2) Then and Now, Three Crosses—One Flag. 4d.
The Greyfriar Book of English Verse. Selected by Guy Kendall and Frank Fletcher. Longmans, 2s.
Follow the Flag. Poems written and selected by C. Turner Hallett. Relfe, limp, 10d.; cloth, 1s.
John Williams, the Shipbuilder. (The Pathfinder Series.) By Basil Mathews. Milford, 2s. net.

HISTORY.

- Outlines of European History. Part I. By J. H. Breasted and J. H. Robinson. Part II. By J. H. Robinson and C. A. Beard. Ginn, each Part, 1 dol. 50 c.
- Why the Nations are at War. By Charles Morris and L. H. Dawson. Harrap, 5s. net.
- The English Nation. By H. Court. Part I—Industry and Commerce; Part II—Government and Wealth. Relfe, each 1s. 6d.
- History made Easy. By John Gibson. Revised edition. Murby, 1s. 6d. net.
- Europe in the Nineteenth Century. By E. Nixon and H. R. Steel. Bell, 2s.

GEOGRAPHY.

- Physical Geography. By Philip Lake. Cambridge University Press, 7s. 6d. net.
- War Atlas. By B. V. Drbishire. Milford, 8d.
- The Atlas Geographies. Preparatory. British Empire beyond the Seas. Johnston, 10d. net.
- Junior Regional Geography. The Three Southern Continents. By J. B. Reynolds. Black, 1s. 4d.
- Bartholomew's Route Chart of the World. Cloth, folding, 1s. 6d. net.
- An Introduction to General Geography. By Alec A. Golding. Cambridge University Press, 4s.
- In Many Lands. By Samuel Gibson. Books I and II. Bell, each 1s.

MATHEMATICS.

- A Treatise on Statics. By George M. Minchin. Vol. II. Fifth edition revised by H. T. Gerrans. Clarendon Press, 10s. 6d.
- Subjects for Mathematical Essays. By Charles Davison. Macmillan, 3s. 6d.
- Teacher's Book for Macmillan's Reform Arithmetic for Rural Schools, Standards V to VII. By Pollard Wilkinson and F. W. Cook.
- Junior Algebra. By A. G. Cracknell and A. Barraclough. Clive, 3s., with answers: 2s. 6d. without.
- Blackie's Modern Business Arithmetic. By H. H. Talbot, 1s.

SCIENCE.

- A Text Book of General Physics. For College Students. By J. A. Culler. Lippincott, 7s. 6d. net.
- Practical Heat, Light, and Sound. By T. Picton. Bell, 1s. 6d.
- A First Course in Practical Chemistry for Rural Secondary Schools. By William Aldridge. Bell, 1s. 6d.
- Visual Botany. By Agnes Nightingale. Black, 6d.

HYGIENE.

- The Next Generation: a Study in the Physiology of Inheritance. By F. G. Jewett. Ginn. Supplement to the above.
- Physical Training for Boy Scouts. By Lieutenant A. G. A. Street, with foreword by General Sir R. S. S. Baden-Powell. Mills & Boon, 7d. net.

RELIGION.

- The Great Christian Theologies. Albrecht Ritschl and his School. By Robert Mackintosh. Chapman & Hall, 7s. 6d. net.
- Lessons from the Old Testament. By the Rev. A. S. Hill Scott and the Rev. H. T. Knight. Part II. Trinity Sunday to All Saints. Milford, 3s. 6d. net.
- A Plea for Christian Science. By C. H. Lea. Dent, 1s. net.

MUSIC.

- (1) National Songs of the Allies. 1s. net. (2) Unison School Songs. (3) A Children's Holiday. J. Williams, 3d.

MISCELLANEOUS.

- Fundamental Sources of Efficiency. By Fletcher Durell. Lippincott, 10s. 6d. net.
- Daily Telegraph War Books. With the French Eastern Army. By W. E. Grey. Hodder & Stoughton, 1s. net.
- Kaiser, Krupp, and Kultur. By T. A. Cook. Murray, 1s. net.
- Killing for Sport. By Various Writers, with preface by Bernard S. Shaw. Bell, 2s. 6d. net.
- Women in Industry. A Bibliography. Selected and arranged by Lucy W. Papworth and Dorothy M. Zimmern. Women's Industrial Council, 1s.
- Watching the War. Thoughts for the People. Part III. Allenson, 6d. net.
- The Voice of an Empire. Jarrold, 6d. net.
- Remember. Heffer, 1d.
- The Lover of the Nations: an Essay on the present War. By Louise E. Matthaëi. Heffer, 1d. net.

MATHEMATICS.

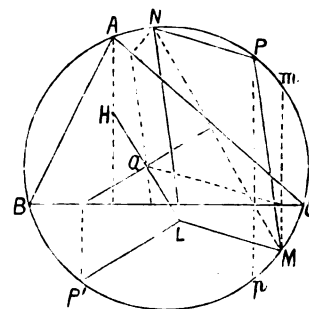
Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17927. (R. GOORMAGHITGH.)—The Wallace line of a triangle for a moving point of the circum-circle cuts this circle in two points. Find the locus of the intersection of the Wallace lines for those two points.

Solutions (I) by C. E. YOUNGMAN, M.A.; (II) by R. F. DAVIS, M.A.

(I) Let P be the moving point, and MN the other two, where its pedal (or Wallace) line cuts the circumcircle. Draw the chords Pp , Mm perpendicular to BC ; then since Ap is parallel to MN , the arc $AN = Mp = Pm$, so that Am is parallel to NP . Hence, if we complete the parallelogram $MPNL$, the sides LM , LN are parallel to the pedals of M and N . Find the orthocentre H ; the pedals bisect HM and HN , therefore their intersection Q bisects HL . And MN , bisecting both PH and PL , is parallel to HL .



Take P' on the circumcircle opposite to P ; then MP' , NP' are perpendicular to MP , NP , that is to LN , LM ; therefore LP' is perpendicular to MN , and consequently parallel to the pedal of P' . This pedal then (bisecting HP') must be the perpendicular at Q to HL .

Hence the locus of Q is the first pedal of Ferrers' hypocycloid, the pole being H : a quartic curve of the sixth class, consisting of three loops which cross one another at H . The tangents at H are parallel to the sides of ABC , for HQ vanishes when MN is BC or CA or AB . When HQ is maximum it is normal to the hypocycloid as well as to its pedal, and must be one of the three normals to the first which meet at H ; hence at the same time the parallel tangent MN passes through the centroid of ABC .

We have $HQ = 2R \sin \alpha \sin \beta \sin \gamma$, where α , β , γ are the inclinations of HQ to BC , CA , AB ; and this gives us the polar equation of the locus.

(II) The geometry of this Question is very interesting and instructive. The following are the steps of the proof:—If the Simson-line of any point E on the circumcircle of the triangle ABC intersects that circle in P , Q , then (i) the S -lines of P , Q are parallel to EQ , EP respectively; (ii) they intersect in a point T on the S -line of F , the extremity of the circum-diameter through E ; (iii) the line HT (H orthocentre) is parallel to PQ , and therefore perpendicular to the S -line of F ; (iv) the locus of T is therefore the pedal of the tri cuspid with respect to H .

We may note that, if e , p , q are the middle points of HE , HP , HQ , then e lies on PQ , and $\Delta Hpq = \frac{1}{4}\Delta HPQ = \frac{1}{2}\Delta EPQ = \Delta Tpq$, since $peqT$ is a parallelogram. See also the article in the *Educational Times*, for December, 1913, on "Sym-Simsonic" triangles.

17883. ("SOLIDUS.")—Prove that

$$\lim_{n \rightarrow \infty} \frac{P_n}{Q_n} = e,$$

where P_n is the number of permutations of n things taken n at a time, and Q_n is the number of such permutations as have no thing in the same place as it has in one chosen permutation.

Solution by MAURICE A. GIBLETT, B.Sc. Lond.

We have the theorem:—If there are N possible arrangements of n elements and r possible conditions, and if each condition is satisfied in N_1 arrangements, and if every combination of two conditions is fulfilled in N_2 arrangements, &c., and if all the conditions are fulfilled in N_r arrangements, the number of arrangements free

from all conditions is

$$N - {}^1C_1N_1 + {}^2C_2N_2 - {}^3C_3N_3 + \dots \pm N_n$$

[v. Whitworth, *Choice and Chance*].

Take any initial arrangement of n letters and derange them. Total of possible arrangements is $n!$ Number in which one particular letter remains in position is $(n-1)!$ Number in which two particular letters remain in position is $(n-2)!$ &c.

Applying the above theorem,

$$r = n, N = n!, N_1 = (n-1)!, N_2 = (n-2)!, \dots N_n = 1;$$

therefore ${}^nQ_n = n! - \frac{n}{1}(n-1)! + \frac{n(n-1)}{1.2}(n-2)! + \dots$

$$= n! \{1 - 1/1! + 1/2! - 1/3! + \dots + (-1)^n 1/n!\}$$

$${}^n P_n = n!$$

therefore

$$\lim_{n \rightarrow \infty} \{ {}^n P_n \div {}^n Q_n \} = \lim_{n \rightarrow \infty} \frac{1}{\{1 - 1/1! + 1/2! - 1/3! + \dots + (-1)^n 1/n!\}} = 1/e^{-1} = e.$$

17864. (E. R. HAMILTON.)—Find the envelope of a common tangent to circles of two coaxial systems which cut at a constant angle.

Solution by W. F. BEARD, M.A.

Let X, X' be two circles of a coaxial system, centres A, A' , cutting at C, C' at a constant angle 2α . Let BB' be a common tangent. Let r, r' be the radii. Draw $BN, B'N'$ perpendicular to AA' ; $CY, C'Y'$ perpendicular to BB' ; and BD perpendicular to CC' .

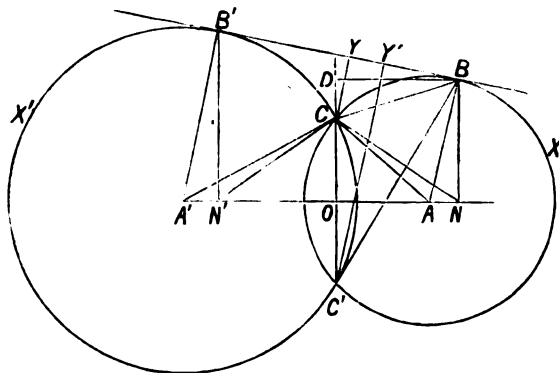
Let AA' meet CC' at O ; join $CB, C'B, CA, C'A, CN, CN'$.

(i) We will prove BD of constant length.

From the similar triangles $ABN, A'B'N'$,

$$AN/AN' = AB/A'B' = AC/A'C.$$

Because OC bisects BB' , therefore $ON = ON'$, and consequently $CN = CN'$.



Thus $\angle CNA = \angle CN'O = 180^\circ - \angle ON'A'$.

Hence in the triangles $CAN, CA'N'$ two angles are supplementary, and the sides about another pair of angles are proportional; therefore by the converse of a proposition the third pair of angles are equal; i.e.,

$$\angle ACN = \angle A'CN';$$

therefore $\angle NCN' = \angle ACA' = 2\alpha$;

therefore $\angle OCN = \alpha$ and OC is fixed; therefore ON is fixed; therefore BD is of constant length.

Now $CY \cdot 2r = CB^2, C'Y' \cdot 2r = C'B^2$, and $CB \cdot C'B = 2r \cdot BD$; therefore $CY \cdot C'Y' = CB^2 \cdot C'B^2 / 4r^2 = BD^2 = \text{constant}$; therefore BB' envelopes a conic with C, C' as foci and NN' as minor axis.

The length of the major axis is plainly $2CN$.

17901. (D. BIDDLE.)—One of the sides of an integral-sided right-angled triangle is given, as to length, and is the geometrical mean between two perfect squares, represented respectively by the sum and the difference of the two remaining sides (including the hypotenuse). Construct such triangle.

Solution by F. J. TURTON, B.Sc.

Suppose the given side is c , an integer.

Let a, b be the other sides.

Then, if $(a+b) = P^2, (a-b) = Q^2, c = PQ$,
and $a^2 - b^2 = c^2$, i.e., $(a+b)(a-b) = c^2$,
 a and b must be integers.

Resolve c^2 into prime factors. Then a solution is obtained by equating $(a+b)$ to the product of a number of factors, and $(a-b)$ to the product of the rest, subject to two conditions only: that the portion to which $(a+b)$ is equated is greater than that to which $(a-b)$ is equated, and that if c is even, each portion must also be even, since $(a+b), (a-b)$ are both odd or both even.

Note.—The solutions obtainable are of two types: those obtainable from the solution for a smaller value of c by multiplying each of a, b , and c by the same factor, such as all solutions obtained when c is even; and those that cannot be so formed, such as the unique solution obtained when c is prime. When c is odd, and contains m different prime factors, not including unity, there are 2^{m-1} solutions of the second and most interesting type.

Example.— $c = 45, 2^{m-1} = 2$.

Solutions of First Type.

a	b
339	336
205	200
117	108
75	60
51	24

Solutions of Second Type.

a	b
1013	1012
53	28

17520. (R. F. DAVIS, M.A.)—If O is the circum-centre and H the orthocentre of a given triangle ABC , and AH, BH, CH intersect the circum-circle again in U, V, W , prove that the parallels through U, V, W to OA, OB, OC respectively meet in a point P ; and that if OH be produced to H' , so that $OH = HH'$, then $PH' = OH^2/R$.

Solutions (I) by F. GLANVILLE TAYLOR;
(II) by Prof. J. C. SWAMINARAYAN, M.A.

(I) Given H orthocentre of ABC .

Through UVW lines drawn parallel to OA, OB, OC .

Prove (1) that these meet in a point P ;
(2) if OH be produced to H' , then

$$PH' = OH^2/R.$$

(1) H can easily be shown to be the in-centre of UVW ; therefore OA is perpendicular to VW (since A bisects arc VW); therefore P is orthocentre of UVW .

(2) Since R is circum-radius of UVW , let r' be the in-radius; H is the in-centre.

$$\text{Then } OH^2 = R^2 - 2Rr';$$

therefore

$$OH^2/R = 2(\frac{1}{2}R - r').$$

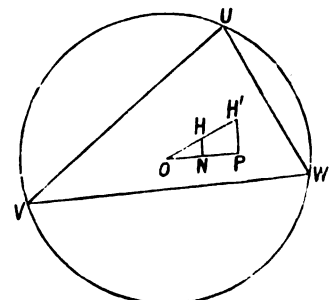
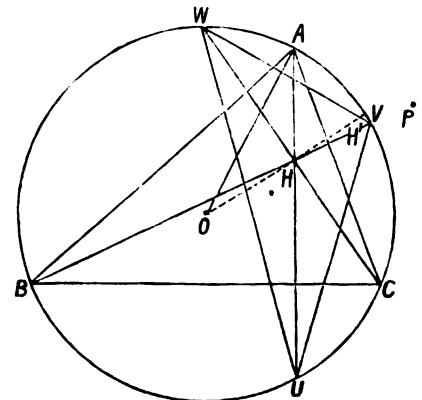
But N (the mid-point of OP) is the nine-point centre, and, by Feuerbach,

$$HN = \frac{1}{2}R - r';$$

therefore

$$PH' = 2HN = OH^2/R.$$

[Rest in Reprint.]



6963. (The Rev. W. A. WHITWORTH, M.A.)—Show that there are 220 triangles whose sides are integers not exceeding 100, and whose areas are also integral.

Note by W. F. BEARD, M.A.

The following corrections and additions may be made to the lists printed in the note by Dr. Martin (see *Reprint*, Vol. xxv (N.S.), pp. 76-78:—

In the Table taken from Tebay's *Mensuration*, the triangle 15, 36, 37 should read 15, 26, 37; 33, 56, 65 is right-angled; 51, 75, 78 is a multiple of 17, 25, 26;

which occurs in Mr. Heppel's list.

In the list taken from *The Mathematical Magazine*, 51, 75, 84 is a multiple of 17, 25, 28;

which occurs in Mr. Heppel's list.

In the list of 7 additional triangles discovered by Dr. Martin, 36, 51, 75 is a multiple of 12, 17, 25;

which occurs in Mr. Heppel's list.

These corrections reduce the total number of such triangles to 296. I have found the following additional triangles:—

17, 28, 39	15, 52, 61	34, 55, 87	41, 60, 95
25, 34, 39	29, 65, 68	44, 65, 87	51, 52, 97
17, 40, 41	26, 51, 73	41, 50, 89	26, 73, 97
37, 39, 52	39, 55, 82	17, 89, 90	51, 91, 100
5, 51, 52	35, 65, 82	26, 75, 91	
20, 53, 55	33, 58, 85	39, 58, 95	

There are 3 multiples of these 22 triangles with sides not greater than 100; and thus there are 25 in all to add to the previous total. Hence the whole number of such triangles is 296 + 25 = 321.

17912. (W. E. H. BERWICK.)—Find three positive rational numbers, each of which is greater than $1\frac{1}{2}$, and such that the sum of their squares is 10.

Solution by R. F. DAVIS, M.A.

The equation $m^2 + (m+1)^2 + (m+3)^2 = 10\Box$, is satisfied by putting $m = (20p+8)/(10p^2-3)$, where p may have any value whatever. Putting $20p = 11$ so as to make the denominator of m as small as possible, we get the solution 760/417, 761/417, 763/417.

Another type of solution can be got from the equation $(m+3)^2 + m^2 + (m-1)^2 = 10\Box$, which is satisfied by putting $m = (20p+4)/(10p^2-3)$, and the above special value of p gives the solution 599/329, 600/329, 603/329.

Change the sign of p and a third solution is 277/153, 280/153, 281/153, and so on.

17878. (Prof. J. C. SWAMINARAYAN, M.A.)—LMN is the Wallace line of the triangle ABC for a point P on the circum-circle. If OX represents in magnitude and direction the resultant of the forces OL, OM, ON, find the locus of X.

Solution by C. E. YOUNGMAN, M.A.

The locus is similar to that of the centroid of LMN, since this centroid trisects OX; and that is so when LMN is the pedal triangle of any point in the plane. Now when P moves uniformly along a straight line, L, M, N move also uniformly along BC, CA, AB; therefore their centroid as well describes uniformly a straight line. It follows that always the locus of the centroid is of the same degree as that of P; so the answer to the case in question is an ellipse.

17908. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Factorize completely (into prime factors) $N = 50^{2n} + 1$.

Solution by the PROPOSER.

Let $N_{2n} = y^{2n} + 1 = (2\eta^2)^{2n} + 1 = (2H^2)^2 + 1$, and let n be odd; so that $y = 2\eta^2$, $H_n = 2^{\frac{1}{2}(2n-2)}\eta^n$.

Then N_{2n} is always a Bin-Aurifeuillan = $L_{2n} \cdot M_{2n}$, where

$$L_{2n} = (2H_n^2 - 2H_n + 1), \quad M_{2n} = (2H_n^2 + 2H_n + 1).$$

Here $y = 50$, $\eta = 5$; $n = 1, 3, 5, 15$.

Resolving N_{30} into its irreducible algebraic factors,

$$N_{30} = N_2(N_6/N_2)(N_{10}/N_2) [(N_{30} \cdot N_2)/(N_{10} \cdot N_6)],$$

and (by the Aurifeuillan property) when $2n$ contains $2k$, then L_{2n} contains either L_{2k} or M_{2k} , and M_{2n} contains M_{2k} or L_{2k} .

Take $2n = 2, 6, 10, 30$ in succession; then

$$N_2 = 50^2 + 1, \quad n = 1, \quad H_1 = 5; \quad N_2 = L_2 \cdot M_2 = 41 \cdot 61;$$

$$N_6 = 50^6 + 1, \quad n = 3, \quad H_3 = 250; \quad N_6 = L_6 \cdot M_6 = 124501 \cdot 125501.$$

$$N_6 \div N_2 = (L_6 \div M_2)(M_6 \div L_2) = 2041 \cdot 3061 = (13 \cdot 157)(3061);$$

$$N_{10} = 50^{10} + 1, \quad n = 5, \quad H_5 = 12500; \quad N_{10} = L_{10} \cdot M_{10},$$

$$L_{10} = 312475001, \quad M_{10} = 312525001.$$

$$N_{10} \div N_2 = (L_{10} \div M_2)(M_{10} \div L_2) = 5122541 \cdot 7622561; \quad (\text{both primes}).$$

$$N_{30} = 50^{30} + 1; \quad n = 15, \quad H_{15} = 27 \cdot 5^{15} = 5^8 \cdot 107; \quad N_{30} = L_{30} \cdot M_{30},$$

$$L_{30} = 50^{15} - 10 \cdot 50^7 + 1, \quad M_{30} = 50^{15} + 10 \cdot 50^7 + 1,$$

$$\frac{N_{30} \cdot N_2}{N_{10} \cdot N_6} = \frac{L_{30}}{(M_{10} \div L_2)(M_6 \div L_2) L_2} \cdot \frac{M_{30}}{(L_{10} \div M_2)(L_6 \div M_2) M_2} = l_{30} \cdot m_{30} \text{ (suppose).}$$

Effecting the divisions;

$$l_{30} = 31900829079541, \quad m_{30} = 47851084180561.$$

The author has had compiled a table of solutions of the congruence $(x^5 \mp 1)(x \mp 1) \div (x^2 \mp 1)(x^3 \mp 1) \equiv 0 \pmod{p}$,

extending to $p \gg 50000$. This shows $x = 2500$ as a root modulo $p = 661$ and 23761, and no more divisors < 50000. Effecting the division $l_{30} = 661 \cdot 23761 \cdot 2031121$;

which leaves m_{30} unresolved (but containing no divisor < 50000). Thus this large number (51 figures) has been completely resolved, except the 14-figure factor m_{30} (the Proposer would be glad to receive the resolution of this factor).

17718. (Prof. E. J. NANSON.)—Solve

$$x^2/a + y^2/b = a^2/x + b^2/y = a + b.$$

Solution by W. F. BEARD, M.A.; W. F. MINDHAM, B.Sc., and others.

$$bx^2 + ay^2 = ab(a+b), \quad xy(a+b) - b^2x - a^2y = 0 \dots\dots(i).$$

These are the equations of an ellipse and rectangular hyperbola with a common point at (a, b) . The tangent at (a, b) to both conics is $x + y = a + b$. Thus the equations have two roots $x = a, y = b$. For the other common chord we have

$$bx^2 + ay^2 - ab(a+b) + \lambda[xy(a+b) - b^2x - a^2y] = 0,$$

one of the chords is $x + y - a - b = 0$; therefore the other is

$$bx + ay + ab = 0,$$

given by

$$\lambda = 1 \dots\dots(ii).$$

Hence the other roots of the equations are given by

$$abx^2 + b^2(x+a)^2 = a^2b(a+b) \text{ or } x^2(a+b) + 2abx - a^3 = 0,$$

$$x = a/(a+b) [-b \pm \sqrt{(a^2 + ab + b^2)}],$$

$$\text{and, from (ii), } y = b/(a+b) [-a \mp \sqrt{(a^2 + ab + b^2)}].$$

These and $x = a, y = b$ give the complete solution.

N.B.—The normals at these three points on the ellipse meet at the point $[a(a-b)/(a+b), b(b-a)/(a+b)]$ on the hyperbola.

QUESTIONS FOR SOLUTION.

17971. (H. WILLIAMS, B.Sc., F.C.P.)—Solve the differential equation $\frac{dr}{r d\theta} = \frac{(a^2 - r^2)^2 - 8a^2 r^4 \sin^2 \theta}{(a^2 - r^2)^2 \cot \theta}$.

17972. (Prof. R. SRINIVASAN, M.A.)—Show that

$$\int_0^{\pi} \frac{\theta^{2m} \sin \theta \sin r\theta}{1 - 2m \cos \theta + m^2} d\theta = \frac{1}{2} \pi (\log m)^{2m} m^{r-1}.$$

17973. (T. MUIR, LL.D.)—Prove that

$$\begin{vmatrix} a_1 & a_2 & a_3 & x_4 & x_5 & x_6 \\ b_1 & b_2 & b_3 & y_4 & y_5 & y_6 \\ c_1 & c_2 & c_3 & z_4 & z_5 & z_6 \\ -x_4 & -x_5 & -x_6 & a_1 & a_2 & a_3 \\ -y_4 & -y_5 & -y_6 & b_1 & b_2 & b_3 \\ -z_4 & -z_5 & -z_6 & c_1 & c_2 & c_3 \end{vmatrix} = \begin{vmatrix} a_1^2 + x_4 & a_2^2 + x_5 & a_3^2 + x_6 \\ b_1^2 + y_4 & b_2^2 + y_5 & b_3^2 + y_6 \\ c_1^2 + z_4 & c_2^2 + z_5 & c_3^2 + z_6 \end{vmatrix} \begin{vmatrix} -a_1^2 + x_4 & -a_2^2 + x_5 & -a_3^2 + x_6 \\ -b_1^2 + y_4 & -b_2^2 + y_5 & -b_3^2 + y_6 \\ -c_1^2 + z_4 & -c_2^2 + z_5 & -c_3^2 + z_6 \end{vmatrix}.$$

and thence show that the determinant on the left is equal to the sum of two squares.

17974. (J. HAMMOND, M.A.)—Referring to Question 17799, let $\Psi(n, x, y)$ denote the sum of terms of the form $P(2n-p)$, where p is an odd prime, and ranges from the next prime above x to y , or the next prime below it, according as y is or is not a prime. With this notation the formula in Question 17799 may be written

$$\Psi(n, 0, n) = \{P(n)\}^2 + \Psi(n, n, 2n).$$

Prove that, when $a + b = 2n$,

$$\Psi(n, 0, a) = P(a)P(b) + \Psi(n, b, 2n).$$

17975. (B. HOWARTH.)—If 13^3 be a factor of

$$1,000 \dots 001, 000 \dots 001, \dots, 000 \dots 001,$$

n a number consisting of 18591 figures, find the possible values of n , n denoting the number of figures in each of the groups 000...001.

17976. (NORMAN ALLISTON.)—In $a^2 = b^2 + c^2$, bc may be any odd-power number; but b and c may not both be odd-power numbers of like degree; that is, the equation $a^2 = b^{2n+2} + c^{2n+2}$ cannot subsist, unless $n = 0$.

17977. (Prof. J. E. A. STEGGALL, M.A.)—If

$$(a+c)/(1-ac) = 2kb/(1-b^2), \quad (b+d)/(1-bd) = 2kc/(1-c^2),$$

and $4k^2bd + (1-b^2)(1-d^2) = 0$,

then $4k^2ac + (1-a^2)(1-c^2) = 0$,

also.

17978. (J. MACLEOD, I.S.O.)—

$$(1+x)^n = 1+x+x\{(1+x) + (1+x)^2 + (1+x)^{n-1}\}.$$

17979. (C. M. ROSS, M.A.)—If $xy + yz + zx = a^2$, then prove that

$$1/[yz(a^2+x^2)] + 1/[zx(a^2+y^2)] + 1/[xy(a^2+z^2)] \\ = 2a^2/[xyz(a^2+x^2)(a^2+y^2)(a^2+z^2)].$$

17980. (The late Prof. LAUVERNAY.)—Construire la courbe

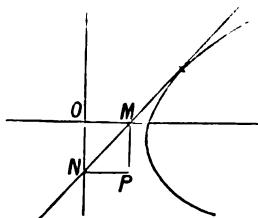
$$\rho = \text{tg } \frac{1}{2}\omega + \cos 2\omega.$$

17981. (C. E. YOUNGMAN, M.A. *Extension of Question 17068.*)—If normals to a cardioid at P, Q, R meet at M, then while M moves directly to or from the cusp, the circles PQR are coaxial, having one common point on the cardioid, and the other on a circle through its vertex. (Also true with tangents and cusp, instead of normals and vertex.)

17982. (W. N. BAILEY. *Suggested by Question 17625.*)—A circle touches a limaçon at P and Q, the points of contact being on different loops. Show that the locus of the point of intersection of the tangents at P and Q is a cissoid.

17983. (Prof. NEUBERG.)—Un angle droit AOB tourne autour de son sommet O. Trouver l'enveloppe de l'hyperbole équilatère qui passe par un point fixe C et a pour asymptotes les droites OA, OB.

17984. (The late Prof. COCHEZ.)—Etant donnée une hyperbole rapportée à ses axes, on mène une tangente qui rencontre les axes en M et N et on complète le rectangle OMNP auquel on circonscrit une hyperbole équilatère. Trouver (1) le lieu du point de rencontre de la tangente en O à cette hyperbole avec MN; (2) le lieu de la rencontre de la normale en O à l'hyperbole équilatère avec la normale à l'hyperbole proposée menée par le point de contact de la tangente MN.



17985. (Prof. K. J. SANJANA, M.A.)—A circle is described through one angular point A of a triangle ABC and a fixed point L in the opposite side BC. Let it cut AC, AB in M, N; find the envelope of MN. The circles about BLN, CLM touch at L; draw LX the common tangent meeting MN in X, and also find the locus of X.

17986. (W. F. BEARD, M.A.)—Two circles, centres A, A', cut at C, and BB' is a common tangent. Prove that (i) the bisector of the angle ACA' is a diameter of the circle BCB'; (ii) the radius of the circle BCB' is a mean proportional between the radii of the other two circles.

17987. (Prof. E. J. NANSON.)—Find the locus of the middle point of a chord of a circle when the chord subtends a right angle at a fixed point.

17988. (R. F. DAVIS, M.A.)—ABC is a triangle whose perpendiculars AX, BY, CZ counterintersect in the orthocentre H. From any point P on the circle whose centre is A and

$$(\text{radius})^2 = AY \cdot AC \text{ (or } AZ \cdot AB) \text{ PQ}$$

is drawn at right angles to PA to intersect BC in Q. Prove that AQ, PH are perpendicular.

17989. (R. VYTHYNATHASWAMY.)—If l, m, n be the distances of any point from the angular points of a triangle, the equation of its circumcircle is

$$a^4l^4 + b^4m^4 + c^4n^4 - 2b^2c^2m^2n^2 - 2c^2a^2n^2l^2 - 2a^2b^2l^2m^2 = 0,$$

where a, b, c are the sides of the triangle.

17990. (F. G. W. BROWN, B.Sc., L.C.P.)—If a circle can be inscribed in a cyclic quadrilateral whose area is Q, prove that

$$Qef = 4R\beta^2(e+f),$$

where e, f are the diagonals, and R, β the radii of the circum- and in-circles respectively. Show also that the sides of the quadrilateral are the roots of the equation

$$\beta^2x^4 - 2\beta Qx^3 + (Q^2 + \beta^2ef)x^2 - Q\beta efx + Q^2\beta^2 = 0,$$

and test the solution when $Q = 12\sqrt{10}$, $13\beta = 12\sqrt{10}$, and $ef = 76$.

17991. (E. G. HOGG, M.A.)—If P and Q be the two points in the plane of the triangle ABC whose pedal triangles are equilateral, prove that the areas of the pedal triangles of P and Q are

$$(\sqrt{3} \cdot \Delta \sin \omega) / [4 \sin(\frac{1}{2}\pi \pm \omega)],$$

where Δ is the area, and ω the Brocard angle of the triangle ABC, and that the distance PQ is $(2\sqrt{3} R \sin \omega) / \sqrt{1-4 \sin^2 \omega}$.

17992. (S. KRISHNASWAMI AİYANGAR, B.A.)—If $\sigma_1, \sigma_2, \sigma_3$ represent KA, KB, KC, where K is the Symmedian point of the triangle ABC, and m_1, m_2, m_3 its medians, prove that

$$(1) \sum a(b^2+c^2)\sigma_1m_1 = \frac{1}{2}abc(a^2+b^2+c^2) + \frac{3}{2}abc(a^4+b^4+c^4)/(a^2+b^2+c^2), \\ (2) \sum a(b^2+c^2)\sigma_1/m_1 = 4abc, \quad (3) \sum bc \cdot m_1/\sigma_1 = \frac{3}{2}(a^2+b^2+c^2).$$

17993. (Prof. J. C. SWAMINARAYAN, M.A.)—Without using the properties of orthogonal projection of areas, show that the area of a triangle in space whose vertices are $(x_1y_1z_1), (x_2y_2z_2), (x_3y_3z_3)$ is

$$\text{equal to } \frac{1}{2} \left\{ \begin{vmatrix} y_1 & z_1 & 1 \\ y_2 & z_2 & 1 \\ y_3 & z_3 & 1 \end{vmatrix}^2 + \begin{vmatrix} z_1 & x_1 & 1 \\ z_2 & x_2 & 1 \\ z_3 & x_3 & 1 \end{vmatrix}^2 + \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}^2 \right\}^{\frac{1}{2}}.$$

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

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Thursday, March 11, 1915.—Prof. Sir Joseph Larmor, M.P., F.R.S., President, in the Chair.

Messrs. C. E. Weatherburn and Tadahiko Kubota were elected members of the Society.

The President alluded to the deaths of Mr. G. W. Hill (Honorary Foreign Member), and of Prof. Lloyd Tanner, and spoke briefly of their mathematical work.

Major MacMahon read a paper on “*Investigations in the Theory of the Partition of Numbers by a new method of Partial Fractions.*”

Mr. T. C. Lewis read a paper “*Circles and Spheres, &c., Associated with a Triangle, Orthocentric Tetrahedron, &c.*”

The following papers were communicated by title from the Chair:—

“*On some Theorems in the Theory of Series of Orthogonal Functions*”: Prof. E. W. Hobson.

“*Reciprocal and Parallelogram Linkages*”: Col. R. L. Hippiasley.

“*A Pseudo-Sphere whose Equation is expressible in Terms of Elliptic Functions*”: Dr. J. R. Wilton.

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Vol. LXVIII No. 649

MAY 1, 1915

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A Meeting of Members of the College will be held on Wednesday, the 12th of May, at 5.15 p.m., when Frank Roscoe, Esq., M.A., will deliver a Lecture on "Educational Administration and the War."

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A Course of Twelve Lectures on Psychology and its Educational Applications, by Professor John Adams, began on the 11th of February.

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For Certificates of Ability to Teach	Last week in May
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Certificate and Lower Forms	28 June
For Teachers' Diplomas ...	30 August
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II. (Feb. 18.) *Experimental Methods.*—Value of the different kinds of psychology (a) old-fashioned descriptive, (b) empirical, (c) rational, (d) genetic: introspection: need for an objective standard: statistical method: correlation: different kinds of development of psychology in the school, the study, and the laboratory: use of apparatus: combination of rational and experimental psychology: various kinds of experiments: danger and difficulties of experimenting by teachers: need for "controls" of experiments: what the teacher may legitimately demand from the psychologist.

III. (Feb. 25.) *Sensation and Perception.*—Both sensation and perception are direct and deal with stimuli here and now present: limitations of pure sensation: the threshold of sensation: the introduction of meaning marks the emergence of perception: the so-called *training of the senses*: the theory of the fixed coefficient: prodigality of sense stimuli and the need for selection: "the preferred sense": common misunderstanding of the term: substitution of one sense for another: interpretation.

IV. (March 4.) *Ideas.*—The passage from perception to apperception: ordinary psychological meaning of *conception*: resulting abstraction: the "faculty psychology": ideas as modes of being conscious: idea as specialized faculty: presented content and presentative activity: interaction of ideas: fusion, complication, and arrest: place and function of each of these in the teaching process: the dynamic and the static threshold: the conscious, the unconscious, and the subconscious in relation to ideas: apperception masses and soul building.

V. (March 11.) *Memory.*—Retention and recall: mediate and immediate recall: association, convergent and divergent: use of suggestion: native powers of retention and recall: "brute" memory: possibility of "improving the memory": purposive element in memory: need for selection of material to be memorized: mnemonics and the educational applications: learning "by rote": attempted distinction from learning "by heart": verbal, pictorial, and rational memory: memory by categories: personal identity and memory: connexion between memory and reality.

VI. (March 18.) *Imagination.*—Interpenetration of memory and imagination: literal meaning of imagination: the series—*percept, image, generalized image, concept*: manipulation of images: unintelligent limitation of the term *imagination* to the aesthetic aspect: suspicions of serious-minded persons: the use of the imagination in science its place in the formation of hypotheses: clearly imaged ends: imagination as an aid and also as a hindrance to thinking: imagination should not be limited to the pictorial: nature of ideals: the case for day-dreaming.

VII. (March 25.) *Instincts and Habits.*—Nature of instinct: prevailing misconceptions: order of development of the human instincts: atrophy of

instincts: basis of habit: association as a general principle of organic development: relation of habit to instinct: racial and individual habit: formation of habits: the elimination of consciousness: turning the conscious into the unconscious: the upper and the lower brain: the breaking of habits: the possibility of habit forming being abused apart from the quality of the habits formed: accommodation and co-ordination: the growing point.

VIII. (April 29.) *Attention.*—The manipulation of consciousness: the prehensile attitude: state of preparedness for any one of a limited number of contingencies: the mechanism of attention: the vaso-motor, respiratory, and muscular elements: the span of attention: field of attention: distinction between area and intensity of attention: physiological rhythm of attention: psychological rhythm—alternation of concentration and diffusion beats: unsatisfactory classification of the kinds of attention: passing from the voluntary to the non-voluntary form: interaction between interest and attention: absorption.

IX. (May 6.) *Judgment and Reasoning.*—The narrower and wider meaning of *judgment*: distinction between understanding and reason: logical aspects of judgment: connotation and denotation: the laws of Thought as Thought: the syllogism: meaning of reasoning: relation between form and matter in thinking: the need for internal harmony: exact nature of thinking: the purposive element: fitting means to ends by the use of ideas: the two recognized logical methods—deductive and inductive: their interrelations: their special uses in teaching: analogy.

X. (May 13.) *The Emotions.*—Various theories of the nature of the emotions: evil reputation of the emotions among the philosophers: relation of the emotions to the intellect: Macdougall's theory of the relation between the instincts and the emotions: Shand's theory of the relation between the emotions and the sentiments: educational importance of this theory: Lange-James theory of the relation between the emotions and their expression: the mechanism of the emotions: the vascular theory and the nerve theory: manipulation of this mechanism by the educator.

XI. (May 20.) *The Will.*—Fallacy of the popular demonic view: unity of the ego and the will: unsatisfactory nature of the view that the will is "the choice between alternatives": nature of motives: fallacy of the popular view of "the strongest motive": relation between desire and will: the evolution of the will: relation of the will to the circle of thought: possibility of training the will of another: explanation of the phenomena of indecision: psychological meaning of the freedom of the will: the meaning of *aboulia*: fallacy of "breaking the will."

XII. (May 27.) *Character and Conduct.*—"Conduct is character in action, character is the accumulated capital of conduct": man's whole spiritual nature is involved in character: distinction among the terms *character, personality, individuality*: temperament and its relation to character: types of character: various classifications of characters by the French psychologists: mutability of character: views of Schopenhauer and others: examples of modification of character under external pressure: the sanction for such pressure: the conditions under which the educator may conscientiously seek to modify the character of the educand.

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The Educational Times.

THE COLLEGE CHARTER.

IN the April number the leading article ended with an expression of opinion that, so long as the College remained true to its Charter, administrative action would not be able to crush the soul out of secondary schools. It seems fitting to discuss this Charter and to point out what the College has done to carry out its provisions.

The College of Preceptors was established in 1846, sixty-nine years ago. At that time there was no other association of teachers in middle-class schools formed for the purpose of creating a profession of teachers. From its start the action of the College produced such a feeling of confidence in the soundness of its aims that the Government of the day had no hesitation in advising (three years later, in 1849) that a Royal Charter should be granted in order to set the seal of high approval on the work that was being undertaken.

It must be remembered that seventy years ago the standard of knowledge among teachers and pupils in middle-class schools was in most cases far from high. The richer schools secured for their staffs scholars from Oxford or from Cambridge. Only the sons of the fairly well-to-do could afford residence at one of these Universities. The University of London, founded in 1836, was in its infancy. For the education of women teachers there was little public provision: Bedford College was founded in 1849. It is important to notice that the College of Preceptors knew no distinction of sex, and that the benefits it offered were open to men and women alike.

It was this low standard of intellectual knowledge, existing seventy years ago in the majority of middle-class schools, that the College set itself to improve. Accordingly the Charter confers power to educate the intending teacher and to grant certificates after examination. At a time when the study of pedagogy was greatly neglected, the Charter specifically gives power to found or endow normal or training schools, or to institute lectureships on

"any subject connected with the theory or practice of education." It is to the credit of the College that it has always insisted upon the importance of the study of the theory and practice of teaching for those who are intending to teach. It would appear to be a self-evident proposition that those who are going to be builders should study how to build; but this is so far from being the case that even now teachers are appointed to schools in some instances without any inquiry as to their studies in education. Some hundreds of candidates for the Teaching Diplomas are examined every year by the College.

The provision of a Benevolent Fund for distressed members of the College was also authorized by the Charter. This Fund has been administered regularly.

The College was founded for the general purpose "of promoting sound learning and advancing the interests of education." The Charter gives authority to the College to do whatever is calculated "to advance the cause of education or the interests of the scholastic profession."

The College has carried out the intentions of its founders in the following principal ways:

- (i) In addition to the examination of teachers or intending teachers, it has established examinations for pupils in schools, girls as well as boys.
- (ii) It has established and maintained courses of lectures for teachers, and at one time founded a training college. [After some years the cost of this training college proved too great for the resources that were available.]
- (iii) It has provided club accommodation for its members, including a valuable library of 12,000 volumes.
- (iv) It has formed and maintained a Registry for Teachers, which is now part of the Joint Agency.
- (v) It has maintained the Benevolent Fund, and become Trustee for other funds bequeathed for philanthropic purposes.
- (vi) It provides its members with *The Educational Times*, the cost of which is only partly met by advertisers.

Very large sums of money have been spent during the sixty-nine years on these objects. What then are the resources that have enabled the College to undertake work that has been so helpful to the teaching profession? The answer to the question is that the money is the surplus of examination fees remaining after the expenses have been paid. It has sometimes been charged against the College that it is a money-making institution. No charge could be a more ludicrous perversion of the truth. The University of Oxford is not charged with being a trading concern when the Delegates for Local Examinations pay over to the University Chest a comfortable number of thousands as the profits on the year's working. Every six months several thousands of candidates are examined by the College of Preceptors: the number of schools sending in pupils is larger than the number of those receiving grants from the Board of Education. The examination fees remain low, perhaps lower than those of any other similar body; yet on the huge numbers examined there is an inevitable surplus after all expenses have been paid. This surplus is expended in the manner we have indicated. The making of money is not and never has been the object of the College. It has in all honesty and sincerity inaugurated work for the benefit of schools, middle-class schools, as the Charter says; secondary schools as they are now called. The surplus funds arising from its transactions can be spent only as the Charter allows. They are so spent. If these surplus funds did not exist and were not spent in the ways ordained, then thousands of secondary schools in England would feel the loss and suffer from the withdrawal of the support that the College by means of its surplus funds has been able to accord them.

An attempt has been made to ignore the examinations of the College of Preceptors. Emotions are said to be out of place in politics, and we say nothing of the ingratitude of such action: although it would be easy to show that no single Body has had more influence (or indeed nearly so much), in raising the standard of learning, and teaching in the secondary schools of this country, than the College has exercised during the last sixty-nine years. We content ourselves with pointing out the impossibility of leaving the College examinations out of count in any attempt to reorganize examinations for secondary schools. The College is in close touch with more schools than the Board of Education can control. Its examinations are recognized by twenty-two Professional Bodies, of whom the Board of Education is one. Not until the Board can come to terms with all the professional examining bodies, including the Civil Service and the Army and the Navy, can their proposals be deemed practical.

As has been said, the College was founded sixty-nine years ago, in 1846. For many years it stood alone as an organization of teachers. In 1861 it issued a circular to its members on the subject of the Registration of Teachers, which outlined the conditions of the present Register; and it promoted a Bill in Parliament for that object. In 1874 was formed the Association of Head Mistresses;

about ten years later, the Association of University Women Teachers, and the Association of Assistant Mistresses; soon afterwards the Teachers' Guild; and then came the other sectional associations.

The College of Preceptors is therefore no longer alone in its work. The future of secondary education lies with a combination of all the associations of teachers in secondary schools. The College has always welcomed the formation of the younger associations and shown its willingness for joint action. A sectional body is powerless. The combination of the sections proves irresistible. In itself the College represents all the sections: membership is open to any teacher, man or woman, head or assistant, in a secondary school, public or private, who is suitably qualified. On the particular point of the action of the Board of Education towards examining bodies, the College is strong enough to defend itself; and it can do more than this: it can inspire the teachers in secondary schools to defend as a holy privilege their liberties in teaching against the encroaching power of the deadening hand of State organization. On other points, such as the Registration of Teachers, the College will continue, as it has done in the past, to work with the sectional associations. There is much need for work in several directions. If teachers remain indifferent, pusillanimous, limiting their interests to the four walls of their school, they will find in some no very distant future that they have become soul-less machines, turning out their work to the pattern set by the administrative authority that moves the lever.

NOTES.

No one has worked more strenuously and successfully for the enlargement of opportunities in technical education than Sir Philip Magnus. For thirty-five years he has held the office of Superintendent of the Department of Technology of the City and Guilds of London Institute. The news of his retirement will be received with universal regret; while at the same time it serves to remind us of the immense progress that has been made during his years of office. In 1880 there were some 2,500 students; last year there were over 50,000. The spirit of "learning by doing" with which Sir Philip inspired the technical institutes has spread into educational institutes of all grades, and has had great influence in modifying the older order of things, in which the pupil learnt by reading and listening. Sir Philip's endeavour was to secure full opportunities for every child, in whatever rank of life he might be born. The same breadth of view has induced him, as President of the College of Preceptors, to support the private schools in providing far wider opportunities for secondary education than the State system affords.

THE Registration of Teachers is making more definite progress. Applications are now coming in at the rate of more than a thousand in the month. Let us repeat once more

Registration of Teachers.

for the benefit of inquirers that a post card addressed to the Secretary, Teachers' Registration Council, 2 Bloomsbury Square, W.C., will bring to the writer full particulars and a form to be filled up. In the report of the thirty-first year of the work of the Association of Assistant Mistresses, the aim of registration is well expressed :

The establishment and maintenance of a Register is only the first and dullest piece of work of the Council. The self-government and self-organization of the teaching profession is its ultimate aim ; and, as it consists by law of actual teachers, by registering in larger and larger numbers we are making this Council more and more representative of the whole profession, and, when it can be said that it has the majority of teachers at its back, we shall have the strongest possible voice to give expression to our wishes and the best qualified body to protect our interests.

MR. CREES writes again from the Crypt Grammar School, Gloucester, to the Editor of *The "An Outrage."* *Times Educational Supplement*, to show cause why teachers will not and should not register. He says that the "present Register is for the secondary teacher an outrage, for the elementary teacher a superfluous luxury." The main reason of the "outrage" appears to be that the learned schoolmaster who registers finds himself "surrounded by nondescripts." We have much sympathy with Mr. Crees's criticisms. We want to form a learned profession ; and for a term of years the Register is open to acting teachers whether qualified or not. It could not be otherwise. It would be a worse outrage to exclude from the Register those teachers who began work before the qualifications that are now demanded were available. No doubt Mr. Crees expresses the views of a large number of teachers ; but these views are, in our opinion, based on an entire misconception of the position. We want to form a self-governing profession. The teachers who hold aloof from the Register do nothing to forward this aim : those who register are making a move in the right direction. When the Register is once set up there will be formed a motive power that can gradually raise the standard of professional qualifications. Until then we are powerless.

So far as we have seen, this paper was the first to voice the suspicion that Circular 849 contained a menace to the freedom of teachers.

Circular 849. The ball, once set rolling, gathers increasing velocity. An article in the *Times Educational Supplement* for April endorses all the points that we have raised. The writer, who is clearly well informed, says : "The function of the Universities, as centres of advanced teaching and research, is now more clearly realized ; they have better work to do than the setting and marking of examination papers for schoolboys ; and in the long run they will enhance the esteem in which they are held if they forgo the somewhat petty patronage which they here dispense." The final paragraph is addressed to the Board of Education, and points out that the most valuable work of the Board is the advice given by Inspectors, quietly and unofficially, in the schools. The writer concludes : "A Board of Education which will abstain from issuing certificates and labels, which will encourage rather

than dominate, will earn the gratitude not only of present teachers and Local Authorities, but of the England that is to be." The Board have asked for criticism, and they have got it. In our opinion the Circular is ancient history.

WE have from time to time called the attention of our readers to the danger that threatens education from the spread of officialdom.

The Spread of Officialdom. Mr. Frank Roscoe is reported in the *Preparatory Schools Review* as saying to the head masters of preparatory schools : "Of course, I know that, in your individual cases, you are self-organized and self-governed ; that you will be able to remain self-organized and self-governed indefinitely is, in my judgment, not so certain. There are a good many signs that officialdom wishes to spread itself over all forms of educational work in the country. There are many enterprises of a national kind that can properly and appropriately be governed from the centre ; but the last enterprise that can properly and appropriately be governed by officials is education." These are carefully considered words and must have been uttered with a due sense of responsibility. But to be warned of the danger is half the battle. The Report of the Bryce Commission is nearly twenty years old, and we are only now beginning to realize the seriousness of the claim there made for freedom and liberty in education.

A UNIVERSITY Professor in Denmark who is a reader of this paper writes :—"I am quite at one with you on the question of school inspection. In this country members of the University very rarely meddle with school inspection. A few years ago the teachers of our secondary schools petitioned the Board of Education to exclude University teachers altogether from inspecting work." The secondary schools of Denmark are more "modern" than those in this country : that is to say, they are less influenced by the academic traditions of the Universities. But in England we are doing much to introduce more craftsmanship of various sorts into our secondary schools, and in our education we are relying less than formerly on those subjects of instruction which can readily be examined on paper. We are not attacking the University examinations as they exist, though they are capable of improvement. The Authorities have saved themselves by employing as examiners schoolmasters and ex-schoolmasters ; but we protest against the proposal to hand over to the Universities the entire organization of curriculum in secondary schools.

THE "Patriot" who writes letters to the newspapers, pointing out what the "nation" (always excluding himself) ought to do, and who decorates his bicycle or his house with the flags of the Allies, has been greatly perturbed by Canon Lyttelton's attempts to remind us of the fundamental Christian truths that we profess to reverence. A

"Head Master" writes that the Head Master of Eton should be deprived of his office. Had we the complete State organization of secondary education that some people desiderate, no schoolmaster would have dared the utterances that have aroused so much discussion, and no man of Canon Lyttelton's eminence would have remained in the teaching profession. "Canon Lyttelton," writes Mr. R. F. Cholmeley in the *Morning Post*, "made a mistake: he thought his countrymen capable of self-criticism; he should not have thought so, it appears. . . . Canon Lyttelton made another mistake: he dared to think of a time when Europe might be at peace—not merely the peace of exhaustion, but the peace that rests upon a recognition of the rights of others. He should not have thought of it; patriotism, it appears, requires the German view—that nobody has any rights except the conqueror."

THE first annual demonstration of the London School of Dalcroze Eurhythmics must have convinced many of the spectators of the value of the method. Mr. Dalcroze's chief aim is the development of musical appreciation in children. Incidentally the movement of the arms and feet produce a graceful carriage and afford a healthy exercise; but the method has in reality little in common with physical drill. Mr. Dalcroze thinks that a child of six should have three or four half-hour lessons a week up to the age of twelve. At this age the lessons may be reduced to two a week and continued throughout the school course. The work of the Dalcroze School in London is mainly directed to training teachers for schools. The normal training course lasts for three years. The method has been introduced into about forty schools in England. Mr. Dalcroze hopes to be in London at the end of the summer term.

THE Summer Shakespeare Festival, which is held at Stratford-on-Avon through the month of August, will this year include a Conference of Teachers of History. During the Conference as many of the historical plays as possible will be performed in their chronological order. The Conference will be held for the first two weeks in the month. Visitors may stay for one week or for two. The fee for each week is 10s. The program issued is full of interest, and will bring together a large number of teachers of history. As the accommodation is limited, early application is advised. Letters should be addressed to Miss D. M. Macardle at the Shakespeare Memorial Theatre. A numbered seat in the Conference Hall is allotted to each applicant in order of application. For information as to board (ranging from 27s. 6d. to 42s. a week) application should be made to Miss Rainbow, Memorial Theatre Box Office, Stratford-on-Avon. During the week beginning August 14 (Saturday) there will be a Conference on "New Ideals in Education." This Conference was inaugurated last year at Runton, and will

bring together many who wish to learn what place Montessorism can take in English schools.

THE Report of the Council of the College of Preceptors, presented to the March meeting of members, states that, in 1914, "a considerable increase was made in the amount paid for contributions to *The Educational Times*. This additional expenditure enabled the Editor to secure a marked improvement in the quality of the journal. In view, however, of the uncertainty of the duration of the War and its possible effects upon the finances of the College, the Council find it necessary to reduce the expenditure for the present." In accordance with this decision the paper will be reduced in number of pages; and in other ways economies will take place.

THE TEACHING OF ST. PAUL.* III.—THE EPISTLES OF THE CAPTIVITY.

By the Rev. ALEXANDER NAIRNE, D.D.

TO-DAY we are to read the Epistles which St. Paul wrote as a prisoner from Rome—Ephesians, Philippians, Colossians, and the little private letter to Philemon. Philippians was written to a city in Macedonia, and is a brave, hopeful outpouring of joy. Ephesus and Colossae were cities in Asia Minor, where the mystery-religions flourished with their strange, but often deep, guesses at truth, and in these two epistles St. Paul gives bold course to his own remarkably intellectual faith. The note to Philemon is beautiful. He was a householder of Colossae, and one of his slaves, Onesimus, "the helpful man," had run away to Rome. St. Paul became his friend, taught him the faith, and sent him back to Philemon, bearing this affectionate recommendation to his master and mistress, Philemon and Apphia.

There is a difference between these epistles and the earlier ones. If the earlier have fire, these have light; the earlier are strong in feeling, these in thought. The distinction must not be exaggerated into separation; here too there is abundant warmth of feeling; nor was there any lack of intellect before. But the apostle has entered upon a new stage of his ministry. Look at the quiet, happy lines with which Acts closes; then read these epistles, and you will see that this perilous captivity brought rest and peace. It was liberty after the straits of controversy; it was a retirement from the troublesome world. With a few dear friends about him St. Paul could think and talk and had leisure to draw out of his inmost soul what he had gathered by many experiences and broken meditations, but had never had opportunity before to set in order. Not that he let himself be cut off from life outside. "The whole praetorian guard" knew him, and some "of Caesar's household" came to him, and his friends were messengers, and old friends were not forgotten. Indeed, the main character of these epistles is their breadth and larger outlook—"One for all" and "All in one" pass into "All one man."

There is pleasure in the fancy when we try to see with the mind's eye St. Paul in "his own hired dwelling," with friends about him whose names we know. Mark is with him again; though that "good man" Barnabas is not there, he is affectionately named. There are Aristarchus, Demas, Luke; Jesus Justus; the slave and catechumen Onesimus; there are his postmen; Tychicus to the Ephesians, and Epaphroditus, who came from Philippi, was very ill in Rome, and then carried a message to his anxious friends in Macedonia. Mark was, perhaps, to go to Colossae, and Epaphras, who came from Colossae, sends greetings thither twice.

* Lectures given to the Association for the Teachers' Study of the Bible.

Messages go forth to Nymphas, and to Philemon, Apphia, and Archippus at Colossae. Timothy is associated with St. Paul in the opening lines of three epistles. If he was not the Apostle's clerk to whom he dictated Ephesians also, some one did him that good office. Nowhere is his habit of dictation more evident than in that epistle. Notice how twice he starts upon a prayer and thanksgiving, but is twice carried away by the run of his thoughts, and only at the third, "for this cause I," completes the great liturgical piece, Eph. iii, 14-21. And how interesting are the two unusual signature-phrases at the end of Ephesians and Colossians—"in uncorruptness," "remember my bonds."

That Philippians, too, was a dictated letter is plain from the sudden outburst in iii, 2: "Beware of the dogs," &c. Some disturbing news must have interrupted the flow of happy farewell at this point. The old Judaic controversy is forced upon the master again, and that "old man" in him—the quick temper, which was doubtless wrong, but so lovable in Paul—startled the scribe and made him look up, half amused and half afraid, till the ever-growing earnestness of the sequel awed him wholly into admiration. Well, that outburst was farewell to the worn-out controversy. When St. Paul wrote about Jew and Gentile in Ephesians and Colossians, he took his stand on settled peace, and thence adventured forth into anticipations of far grander unity. And even this outburst is fierce only at the beginning. It leads to perhaps the noblest of those personal confessions in which St. Paul mingles humility with confidence in Christ. It makes more deep and complex the chord of joy that sounds through this epistle: "Progress and joy . . . rejoice with me . . . finally, my brethren, rejoice in the Lord . . . my brethren beloved and longed for; my joy and crown . . . rejoice in the Lord always; again I will say, Rejoice . . . I rejoice in the Lord greatly."

It is a joy of comfort: "If there is therefore any comfort in Christ, if any consolation of love, if any fellowship of the Spirit, if any tender mercies and compassions, fulfil ye my joy"; of peace: "And the peace of God, which passeth all understanding, shall guard your hearts and your thoughts in Christ Jesus"; and of fortitude in righteousness: "Finally, brethren, whatsoever things are true, whatsoever things are honourable, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report; if there be any virtue, and if there be any praise, think on these things." The R.V. word, "guard," in the quotation just made from iv, 7 makes us think of the "whole armour of God" in Eph. vi, a passage founded almost entirely upon the Old Testament, and breathing a soldier's confidence in the long tradition of his army. The Dean of Wells, in his commentary, points out how terribly invincible this soldier in his panoply would show to the enemy. Nothing would be seen behind the great oblong shield except the tip of the helmet and the point of the sword; the defence complete, and behind it the living man with his weapon of offence ready for the assailant. Brave imagery indeed; yet St. Paul anticipates and refutes the vulgar use of it before he draws the picture. "Our wrestling is not against flesh and blood," he says. No man, no persons, are ever to be counted enemies. If otherwise, the whole purpose of these epistles would be spoiled. Their fellowship extends to all mankind; apostles, prophets, the perfecting of the saints, are but instruments and temporary stages in the building up of the body of Christ, the attainment of all unto one full-grown man (Eph. iv, 11-13).

Last month we noticed what a good companion to the study of St. Paul's dealings with Jew and Gentile was Hort's "Judaistic Christianity." His "Christian Ecclesia" is no less valuable for the study of the Epistles of the captivity. In his quiet, lucid way he expresses more exactly what Baur had grandly sketched about the emergence of the idea of the Church. In the earlier Epistles St. Paul speaks of churches, the several churches in the several regions. In Ephesians and Colossians he dwells on the idea of the one universal Church, which is "the body of Christ." Some would say that our Church grew by a kind of amalgamation of the separate churches. But St. Paul's language does not at all suggest a confederation for utility's sake. It is more like vision than observation. This magnificent unity is not yet realized; but, on the other hand, it is already His body who has been from the beginning, and whose "fulness" is foreordained from everlasting (Eph. i, Col. i). Nor is this Church simply a so-

ciety of the faithful, bound together by creed and institutions. It should be noticed how St. Paul prefers the metaphor of the "body" to that of the "building"—living growth to artificial structure. Even when he does talk of building he adds language which suggests free growth (Eph. ii, 21). This Church, which is the body of Christ, is pictured in its completion rather than in any temporary stage of its activity. And its completion means the bringing of the whole of mankind to a predestined maturity in God; in Col. i, 19 ff., he goes even farther, and says "it was the good pleasure of the Father that in the Son should all the fulness dwell; and through him to reconcile *all things* unto himself, having made peace through the blood of his cross . . . whether things upon the earth, or things in the heavens."

To people who, like Baur and Hort (and surely St. Paul himself), have brooded upon the Platonic philosophy, all this is a congenial line of thought. But Platonism is but glorified common sense, and when it appears in the New Testament it (as is also the Old Testament) is purified and simplified; the unessential is removed, the heart of the matter is presented. There is no reason why we should not all follow St. Paul's thought, though we are unable to follow it out to the uttermost. Everyone knows that process through which he goes when he has to master a complicated piece of business or scholarship. At first all seems vast and confused. Then we attack the details one by one. For a while we gain nothing but bits of apparently unrelated information. By degrees something here comes to fit in with something there. Still the clear view of the whole is hid from us; nor for all our diligence can we discover it. But if we have been really diligent up to this point, and if now we cease to be busy and anxious, leaving the perplexed results to settle and arrange themselves, presently the solution comes. It comes, as it seems, from without; it is given, not attained by us. The "idea" or "form"—we fall instinctively into Plato's phrase—emerges, explains everything; brings the separate parts into natural relations with one another; makes order. This is a frequent but always a very strange experience. It surprises us as though it were a "supernatural" act. That is why Plato spoke, in his poetic way, of the "ideas" dwelling in a world of their own; a real world from which they come down to give reality to the world of dim, confused appearances in which we habitually move. And, we should notice, not only does this "idea" clear up the difficulties and contradictions which we have met with in our task so far as it has already gone; it makes the future also clearer. It gives a principle which may be applied to larger problems yet to arise. We enjoy a hopeful vision of growing order in the whole world of thought and action. We guess, we get faith to believe, that in the end all the seeming many, with all the seeming contradictions, will prove harmoniously one: "There is one body, and one Spirit, even as also ye were called in one hope of your calling; one Lord, one faith, one baptism, one God and Father of all, who is over all, and through all, and in all. . . . All things when they are exposed by the light are made manifest; for whatsoever is made manifest is light" (Eph. iv, 4-6; v, 13, with the Dean of Wells's note).

Now to return to St. Paul and the Church. When he was brought by Barnabas to Antioch (Acts xi, 19-26) he found the disciples confronted with a problem—the mutual relationships of Jews and "Grecian Jews" in their midst (Acts xi, 20, R.V. margin). To St. Paul's daring and adventurous faith—or, as he and St. Luke would put it, under the compulsion of the Holy Spirit—the treatment of this problem soon developed into a more complicated problem. The Grecian Jews, or Hellenists, were men who held the Jewish faith, but had received Greek education, and held in many respects a broader form of Judaism; many of them had, even in their synagogue life, looked upon the Law with the same freedom as was defended by Stephen in his speech before the high priest (Acts vii). But now St. Paul carries the Gospel not only to these Grecian Jews, but to the Gentiles also. We have seen in our former study how startling their admission to the faith would be. Paul demanded liberty for them from the Law; they also brought new ideas of their own, which he was not willing to reject. Hence opposition, questions of order and theology continually arising, and an ever-threatening division between the Churches of Judæa and the new churches in Asia Minor and Greece. We see with what courage,

wisdom, and sympathy St. Paul dealt with these difficulties. Acts tells us that St. Peter and St. James, and the better Jewish Christians also, worked for a good understanding. But it was a troublesome task, and the epistles show how very complicated it was. Not merely was the whole society divided into many churches partly opposed to one another, but in the several churches themselves differences and divisions were apt to arise. Besides courage and sympathy, St. Paul had to exercise great diligence. Think of his careful attention to many details of order and worship at Corinth. Whenever he could he brought out some reconciling principle from the perplexity, as at Corinth in his recommendation of charity. By the time he wrote to the Romans he was able to elaborate a theology which brought into harmony a great many of the conflicting views. And, in each of these earlier epistles, he insists upon those plain rules of good conduct which always go so far in correcting disputable opinions.

But, throughout this earlier period, we feel, above all, that the apostle's patience is growing deeper and more beautiful. He works hard and he enjoys, whenever he can, quiet intervals in which the plans and anxieties seething in his mind may settle down. He waits for the harmonizing purpose of God to arrange things. In his voyage to Rome and in his captivity what he waited for came. The controversies and the difficulties fell into an order which explained them all. The idea of the one Church came down upon the whole, reconciling, giving light, opening a vision even of the far future. The one Church had been there all the time; now it was manifested. In its present details it was still imperfect, but its perfection in the end was certain. For this Church is not a mere building, not an institution. It is a divine life, the life of Christ Himself, and must therefore grow without failure to maturity, without failure and without ceasing "till we all attain unto the unity of the faith, and of the knowledge of the Son of God, unto a full-grown man, unto the measure of the stature of the fulness of Christ" (Eph. iv, 13).

The Church is sometimes described as being, so to say, the instrument of the Kingdom of God. The Church is a society, an army, limited by visible tests and bounds, to which the duty is entrusted of winning the whole world to the obedience of the Kingdom. When that work is done the Church will be, as it were, lost in the Kingdom. That is, perhaps, a legitimate description from one point of view. But it is hardly the point of view of these epistles. Perhaps indeed it might be said that, as in I Cor. xv St. Paul anticipates the "end," when even the Kingdom shall be "delivered up" and God shall be "all in all," so in Ephesians he anticipates a perfection in which "Christ and his body" shall pass into the still profounder metaphor of one "full-grown man" (Eph. iv, 13), when we "apprehend the breadth and length and height and depth," and "know the love of Christ which passeth knowledge," and are "filled unto all the fulness of God" (Eph. iii, 18 ff.). No words of human speech—Church, Kingdom, or even the title Christ—are adequate to eternal truth. But, so far as human words will go, St. Paul in these epistles does appear to picture the Church as participating in the eternal life of Christ. Not only is it the idea which lights up all time to come, but it has been in the purpose of God from the beginning. The call of the Gentiles, the effort of St. Paul, the "fightings without and fears within," did not create it; these did but prepare the ground for its emergence. This, however, we must readily admit, that though the idea of the Church is bound up here with the life of Christ, that idea remains subordinate to that life. The Church is not a person; Christ is the supreme person.

Christ, therefore, is the great subject of these epistles. The earlier epistles tell of Christ who died for us, in whom we live, who will come. In these epistles St. Paul gives an answer to the question, "And who is Christ?" They stand midway between the first interpretation for Jew and Gentile of the Messianic hope and St. John's doctrine of the Word of God.

In II Cor. iv, 4 Christ is called "the image of God." The same term is used in Col. i, 15. But in Colossians it stands in a context which gives it a more special and far-reaching significance. Christ is here described as "the Son of the Father's love . . . who is the image of the invisible God, the first-born of all creation; for in him were all things created, in the

heavens and upon the earth, things visible and things invisible, whether thrones or dominions or principalities or powers; all things have been created through him and unto him; and he is before all things, and in him all things consist." This touches deeply the secret of divine pre-existence. We cannot but think of what St. Paul wrote once to the Corinthians, "how that he was caught up into Paradise, and heard unspeakable words, which it is not lawful for a man to utter" (II Cor. xii, 4); and the bold advance that he has made since those days will be felt on comparing the magnificent but restrained opening of Romans: "Paul, a servant of Jesus Christ, called to be an apostle, separated unto the gospel of God, which he promised afore by his prophets in the holy scriptures, concerning his Son, who was born of the seed of David according to the flesh, who was determined to be the Son of God in power, according to the spirit of holiness, by the resurrection of the dead." Some reverent hearts have felt this earlier, reticent theology of the Apostle to be more acceptable. Some critical minds have doubted whether the later could have come from the same man as the earlier. It is not a doubt to be lightly set aside. But it is worth while to consider whether there has not been some parallel development, however faintly, in our own thought about the mystery of our Saviour's Godhead. Have we not found that whereas we once thought of Him as uniquely separate, and then the mere dogma conveyed no real meaning to us, we have later apprehended more and more meaning in the expanding idea which unites Him with all life, divine and human?

It is just such a living idea, with connexion on many sides, that we see in these Epistles. First, in Eph. i, the work of Christ passes into the thought of His eternal being, because all is bound up inextricably with the will of God. Read Eph. i, 3-14, and then consider this note in the Dean of Wells's exposition: "The twelve verses which follow baffle our analysis. They are a kaleidoscope of dazzling lights and shifting colours. At first we fail to find a trace of order or method. . . . But, as we read again and again, we begin to perceive certain great words recurring and revolving round a central point—

'The "will" of God' (vv. 5, 9, 11).

'To the praise of his glory' (vv. 6, 12, 14).

'In Christ' (vv. 3, 4, 6, 7, 9, 10 *bis*, 11, 12, 13 *bis*).

The will of God working itself out to some glorious issue in Christ—that is the theme. A single phrase of the ninth verse sums it up—it is 'the mystery of His will'."

This intimate conjunction of Christ with "the will" of God, the concrete with the abstract, the person with that which (like the name "Spirit of God") goes beyond our usage of the term "person," does open up strange lines of reflection about "pre-existence," which we ought to consider very carefully. But there is another connexion between the Person of Christ and universal life which appears pre-eminently in these epistles. They present Christ as not simply identical with the Lord Jesus, but as being the Lord Jesus together with all those who, as St. Paul continually expresses it, are "in him." This is a piece of apostolic doctrine which the Dean of Wells may be almost said to have recovered for our generation. His commentary on Ephesians is a necessary aid to any study of the theology of the captivity. The large book may be reserved for Greek scholars. The "Exposition of the Epistle," published separately by Messrs. Macmillan, is enough for other readers. We have already considered the doctrine in general. But in Ephesians it takes a special development; it appears not simply as a Christian application of the old Jewish doctrine—the inclusion of the people of God in the Messiah—it shows the Christ living by continual growth, being fulfilled by the gathering into Himself of all mankind. The right translation of Eph. i, 23, is ". . . the fulness of him who all in all is being fulfilled." Tennyson had grasped this truth when he wrote of "the Christ that is to be." It is the truth of Godhead revealed in communion rather than uniqueness, working not by exclusion, which is manhood's limitation, but by unlimited power of inclusion, which is divine.

In Philippians we find yet another connective faculty, the simplest, perhaps the most beautiful, certainly not the least significant. The interpretation of Phil. ii, 6 ff., has been much discussed. But can there be serious doubt that Mr. Warren has explained the passage rightly in his note (*Journal*

of *Theological Studies*, April 1911)? Mr. Warren's paraphrase is: "He considered His equality with God not as an opportunity of self-aggrandizement, but effaced all thought of self, and poured out His fulness to enrich others." It has been assumed that the Greek words, which are too literally translated "emptied himself," require something to be understood of which our Lord emptied Himself. "But," says Mr. Warren, "why not take the words as they stand as expressing exactly St. Paul's thought—viz., not that He emptied Himself of anything, but that what He poured out was Himself, emptying His fulness into us." Equality with God, fulness, pouring out Himself into us: here are all the deep thoughts of Ephesians and Colossians reduced—or shall we say exalted?—to the homeliest language of self-sacrificing affection. Here is Godhead shining through common life, with its common needs and common duties. That explains why St. Paul passes from his great vision of the Church that shall grow to one new man, and speaks in homely detail of its grades of service, evangelists, pastors, teachers (Eph. iv, 11). That is why he applies his mystery-lore to sanctify the relationships of husbands, wives, children, slaves. The more he meditates on the profundities of Jesus Christ, the more he perceives the divine in all the quiet things of earthly life; and in the terrible things too, such as his own peril in this Roman captivity, "having the desire to depart and be with Christ; for it is very far better: yet to abide in the flesh is more needful for your sake."

"The Word made flesh," as St. John says; "Christ very man and very God," as the Creed says; "All one man, all one, God all in all," as St. Paul says; this is the answer to St. Augustine's cry: "Thou hast made us for Thyself, and our heart is restless till it rests in Thee." But it would not be a real answer if that were left out which makes the high theology so difficult for the intellect to accept—the earthly sphere of limitations in which Jesus of Nazareth wrought out human love—One for all.

MORAL TEACHING AS LIFE-REVELATION.

By FREDERICK J. GOULD.

III.

DURING the progress of the simple lesson of which the full notes have been laid before the reader, the teacher has not once used the opportunity to tell the listening class what they ought to do. For fear of exaggeration, I hasten to add that I do not propose a rigid veto on any such expression as "You ought to act thus and thus." But what I want to convey is that the whole lesson should be one prolonged *ought*, implied in a dramatic presentation of life-facts and moral actualities. In effect, one says to the children: "You see how these people, pictured in our little stories, behaved; and you see how the world admired or scorned what they did, and you and I have given our judgment also." I have not the slightest doubt that the vast majority of young minds spontaneously fill in the conclusion. This is not affirming that they will forthwith practise the good quality which has been illustrated. Conscience, however, has reached a verdict, and that verdict is an indispensable first motion towards right action.

Of course the teacher deliberately selects the facts of history and biography, and the facts of legend—legend at its best being allotropic history, or history transformed by æsthetic. It is the power to select the facts that entitles the teacher to talk at all on the supreme subject of personal and social conduct. On what principle, then, does the teacher select? Why does he portray Aristides as just, or Judas as a traitor, or Washington as noble? What right has he to try to mould the child's feelings and thoughts towards a certain type of character?

The answer is that the teacher, in spite of those human frailties which beset even sages, and the critics of sages, is not laying down arbitrary maxims; he is showing the children the *is* and the *has been* of life and history. He is exhibiting the *ethos*, the *mos*, the use, the custom, the wont, the accepted manner of the ages, interpreted by the good sense and tact of the present moment. He reveals the moral life as it has been

realized. Either history is a "tale told by an idiot," or it is an incessant discovery, ever widening in scope, of the value of life as a service in family, in the civic sphere, and in the most universal relations possible to the soul of man. I desire to state my conviction with the utmost plainness; and I say that I believe history demonstrates this vital worth of service as a fact in the *ethos*, or *mos*, or custom of the world, and not merely as a pious aspiration. Moral instruction thus becomes an unfolding of this history, including the experiences of the present day, in such a way and in such a spirit as will most effectively influence (as far as teaching can naturally do so) the child's moral courage, discretion, and persistence. I put aside as idle and irrelevant the objection that talking about virtue, or virtuous deeds, often fails to result in the doing of good actions. The objection may be seriously considered when it is levelled at the general community of teachers represented by poetry, drama, folk-lore, fable, allegory, novels, and the pulpit; for all these agencies, in their purest forms, attempt to reveal the moral life, and they do so through the vehicle of words. Sane parents and teachers, and frequently public authorities, hasten to protect the young from the evil word, knowing its awful power. I believe the good word has equal power—nay, greater; and the good word can and does utter itself through the means just enumerated.

Some writers on education deprecate what they call "direct moral instruction," and, as an alternative or substitute, offer the method of suggestion. Very well; then I beg the reader to turn back to my lesson on (not Modesty, but) "Modest People," and ask whether it represents "direct moral instruction." Certainly the teacher intended to lend incarnate shape to the ideal of Modesty, but the first lines of the children's attention were captured by the Brahmin, the tailor, the young engineer, and the rest; nor were the pupils exhorted to exercise the virtue of Modesty. Hence this "direct moral instruction" (for such it undoubtedly is in purpose) turns out to be concrete suggestion. Why play with phrases? To tell the story of Leonidas, or Caesar, or King Arthur, or Joan of Arc, or Abraham Lincoln vividly and sympathetically is suggestion; history itself is suggestion; life itself, as revealed in the daily experience of mankind, and visibly recorded in social habits and institutions, is the most powerful of all suggestions, and dominates every one of its children. And to bid me, as a teacher, to illustrate morality by suggestion is simply to draw me round in a circle to my original standpoint, at which I ventured to assert that moral teaching should be a revelation of life.

As my observations have been carefully limited to the case of young folk up to the age of fourteen—the line of puberty—I am not obliged, strictly speaking, to discuss the case of adolescence—that is, let us say, the ages fourteen to twenty-one. Nevertheless, it may be convenient to allot a few words to that period of the ethical process. Life-revelation must still, for the adolescent, furnish the raw material of moral teaching; but at this stage it needs to be interpreted by analysis, or the Socratic method of definitions and criticisms. Hence in high schools and colleges the debating habit, guided and modified by the teacher, may be allowed liberal exercise.* The topics may be chosen, of course on a systematic plan, from a very wide range of history, biography, literature (including fiction), and current events and problems; and, before adolescence has reached its term, a serious study may be devoted to what are academically called "sanctions." But the true sanctions are synthetic, not analytic; the synthetic sanctions are the life-revelations in the pageantry of the soul—poetry, history, heroic myths, plays, stories, customs, institutions, sanctities (which are not the same thing as sanctions). And if even inquiring adolescence keeps returning to concrete manifestations of moral passion and endeavour, it is no wonder that nothing else will meet the need of the younger children, who eternally plead "Tell me a story," and who never say "Let us open a discussion."

The principle here supported is opposed to the absurd superstition, still lingering in remote corners of the world of schools, that education consists mainly in drawing out the child's capacities, intellectual and moral. Education is the

* A sound example will be found in Prof. F. C. Sharp's "Course in Moral Instruction for the High School," published as a bulletin of the University of Wisconsin, Madison, Wis., U.S.A.

training of youth to adapt its powers to the service of the social cosmos into which it is born as flesh of our flesh and bone of our bone. The teacher spells out to the child's imagination the message of this social cosmos, and invites the young soul to co-operate with it and assist in improving it. Education does not vaguely stimulate the capacities of youth without assigning a given end, and it does not (or ought not to) drop youth on an uninhabited shore and bid it shift for itself. It rather appeals in the spirit of the ancient writer who thought it was worth while to run the good race, "seeing we are compassed about with so great a cloud of witnesses."

If I say that the delivery of the message is effected chiefly by means of history, I do not mean the retailing of mere news. History, with its related literature, should be presented as if it conveyed a personal hint and challenge to the young audience. Hence I describe the moral teaching which employs history, biography, and the like as the parable method. This term, as I have happily discovered, is appreciated by the general public, and is not liable to any marked degree of misunderstanding. Everybody perceives that the point of the parable of the Good Samaritan does not lie in the Jericho locality or the precise sum handed to the inn-keeper, but in the straightforward humanity which aided a distressed neighbour with entire detachment from sectarian attractions or repulsions. The parable, told with simplicity and dramatic sense, carries its own moral without the battering-ram of maxims.* Moral teaching pursues the parable method when it employs biographical incidents and other material as means which are subordinated to the fine end of inspiration.

In making biography, ancient and modern, the staple of the instruction, we secure the wholesomeness and frankness of life itself and the unending interest of life's scenery and accessories. Manuals of ethics perform a useful function in their time and place, and I mean no disrespect to them when I say that even such a theme as duty assumes, in their pages, a somewhat haggard and unattractive aspect. But duty becomes a rich and warm reality in the person, say, of Washington farming his estate at Mount Vernon, heartening his weary soldiers at Valley Forge, and rendering his accounts to the exact shilling at the Treasury at Philadelphia, and even his eighteenth-century costume claims a passing note. The pedant who demurs to this dramatizing of morality must first settle the dispute with life itself, which, with its births, marriages, and deaths, and its infinite variety of forms and its far-spread theatre of earth and sky, insists on being picturesque. All the evils of narrowness, introspection, unpracticalness, and lack of humour are naturally opposed by this perpetual reference, not to abstract virtue, but virtue, so to speak, with a postal address, conditioned by place, date, economics, and all the changing accidents of joy, sorrow, tears, and laughter. But I am obliged to add that this advantage of actuality in teaching cannot be acquired on easy terms, for it can only result from a very considerable study of biographical and historical material. This, again, implies a certain capacity for sifting out of the miscellanea of life those things that are most morally significant in their appeal to the child-soul. And this, again, requires a discipline of the young teacher in the training college. It might even happen that the quest for ethical treasure would help towards a much-needed revolution in the treatment of history generally; perhaps also of the forlorn and half-starved subject of civics.

Character training, of which moral instruction is but the logical and verbal formulation, should be an organic factor of the social order and progress. It should be the conscious initiation of the young nature into the Mysteries (to use a Greek term) of the vital Whole. That is why fiction, however well written, cannot furnish its basic substance. That is why Church instruction, necessarily limited to Church ideals, cannot fulfil the civic need. That is why moral teaching cannot rationally be classified as a mere subject among a catalogue of school subjects. The development of the young personality for household and social efficiency and

service is the be-all and end-all of education. This ideal is the co-ordinating bond among the many spheres of knowledge. It is the only sensible and workable principle of correlation of studies. It illumines intellectual effort, consecrates physical and manual training, evolves a meaning from history, directs and energizes art, and alone makes life worth living. Here, and here only, will twentieth-century administration find a way out from the tangle and growing complexity of the overcrowded curriculum.

Of all the gross misconceptions to which the view of moral teaching put forward in this essay is liable, none could be grosser than to regard it as some newly invented system. What is here advocated, with such orderly adaptation as modern thought and taste demand, is the method that originated with civilization itself—the method of folklore, myth (which originally meant nothing but story), the Athenian and Latin dramatists, the Bible and other Scriptures, Plutarch, Froissart, Hakluyt, Cervantes, Gibbon, Boswell, Prescott, Grimm—in brief, I know not how to portray the opulence and diversity of the sources available. These sources are the recognized, classical, popular stores of moral illustration, and, so far as literature reflects the splendour and solemnity of life, literature adds to these sources from year to year, accumulating the myths and parables by which the experience of mankind passes on its ethical message to youth.

PATRIOTISM.

AN ADDRESS TO SCHOOLGIRLS.

By Dr. ELIZABETH DAWES.

Contemplate daily the power of your country, become passionately attached to it, and, when you conceive its full greatness, reflect that it was all acquired by men who were daring, acquainted with their duty, and full of an honourable sense of shame in their actions.—PERICLES, B.C. 430.

THUCYDIDES, the Greek historian of the Peloponnesian War, has preserved for us the funeral oration delivered in 430 B.C. by Pericles, the great statesman of Athens, over the bodies of those Athenians who had fallen in the first year of the war, and it is from that famous speech that I have chosen the heading for this address, for the words quoted are full of the sense of earnest patriotism, and it is on that subject I wish to speak to you, as it seems the most appropriate for this serious time.

You are all proud of being members of the British Empire, and proud, too, I feel sure, of the manner in which our women are coming forward and helping, either by personal service or in other ways, each according to her capabilities. You, too, are anxious to "do your bit"; and how can you do it better than by building up a character for yourselves which will make you beloved and respected by all, and will help, when you are grown up and living in different parts of the Empire, to keep the name and repute of "Englishwomen" high?

Now Pericles gives as characteristic of the true patriot, "daring," for without that rousing quality very little that is worth doing can be done. First of all, then, girls, dare to face difficulties and to overcome them. Do not be "shirkers"—there are too many already—and there is a fatal tendency among the schoolgirls of to-day to be so. Lessons are made so pleasant and teachers do so much explaining and helping of "lame dogs over stiles" that when a dog with all its legs in good condition happens to be left before a stile, it is apt to whine and complain that the stile is too high to climb over unaided! Away with laziness and love of ease; grapple with a difficult lesson until you know it perfectly; work your sum out twenty times or more until you do get it right; and do remember that it is your character you are building when you set your teeth and say "I will do it"—it is not only a lesson being learnt. And, after all, what is "difficulty"? "Only a word indicating the degree of strength requisite for accomplishing a particular object, . . . a bugbear to children and fools—only a mere stimulus to men."

Secondly, dare to speak the plain and absolute truth; do not let there be the least falsehood or insincerity either in your words or work, for it is the careless writing and hasty speaking that spread falsehood more frequently than direct lying. Strive to make all your life sound and true through-

* There are moments when childhood is charmed by a maxim or a motto, but these moments must announce themselves, and not be fixed by a school time-table.

out—true in a noble and pure simplicity—and you will have no need of deceit or of giving half-true, incomplete answers. We, in our teaching, strive to present to you only true and accurate facts, and endeavour to lead you to form just estimates of things and to arrive at fair conclusions, and so you on your side must be faithful to truth, avoid inaccuracy of every kind, endeavour conscientiously to understand what you learn, and be most careful that any work you give in as yours shall really be the product of your own memory or intelligence.

The second characteristic of a patriot is to be "acquainted with one's duty." "Duty" has in all ages and among all nations been the grand watchword of all the truly noble, of all firm patriots, of all great thinkers.

Not once or twice in our rough island story
The path of Duty was the way to glory.
He that walks it, only thirsting
For the right, and learns to deaden
Love of self before his journey closes—
He shall find the stubborn thistle bursting
Into glossy purples, which outtreden
All voluptuous garden roses.

At present your "Duty" lies clearly before you: it is to yield implicit obedience, not only to the wishes, expressed or only implied, of your parents, and to do all you can to make your home a centre of mutual affection and cheerfulness; at school diligently to obey the rules, conscientiously to learn all you possibly can, and to do your share towards maintaining the high tone of conduct and a high standard of work. Do your duty faithfully now, and you will find by the time you leave school that doing it has become a strong habit which will guide you aright in after life, no matter to what work God calls you. Ever keep your minds ready and your ears open, and when God calls, answer like little Samuel, "Speak, Lord, for thy servant heareth." Earth brings no higher happiness than the inward satisfaction of having steadily and faithfully fulfilled one's duty.

The significance of the third characteristic—"full of an honourable sense of shame, or reverence, in their actions"—may not be immediately clear to you. It means that these dead Athenians had felt that they were "citizens of no mean city," and that consequently their actions must correspond to the greatness of their city, and not by meanness or ignobleness prove themselves unworthy of it.

The old motto, *Noblesse oblige*, carries the same teaching.

If the Athenians felt this responsibility imposed upon them, how much more should we, the citizens of a world-wide Empire, feel that it behoves us individually so to act and conduct ourselves that we do not besmirch the fair honour of our name? Even-handed impartial justice, and the reliability of an Englishman's word (a sense of religious and moral responsibility for our fellow subjects), have been two strong forces in making our rule liked; so you must strive to be absolutely just and fair, not only in deeds, but in your words, and let your promise, once given, be as binding on you as a written bond; and consequently reflect before making a promise.

But you must carry this "honourable sense of shame" into all details of your life. When I ask you to take pains to speak nicely, read well, and avoid careless mistakes of spelling and style in your writing; to hold yourselves well, and not lounge about; to be careful of your behaviour in public places and conveyances; what is my reason? Simply this: that I should like British girls who have had a happy home and the boon of a good education to be nicer than all other girls in the world! Vulgarity, snobbishness, loudness, carelessness in speech and manner, should be abhorrent to them.

Is this too high a standard? I think not. An old text (Eccles. iv, 12) says: "A threefold cord is not quickly broken." So if you will take as strands of your cord the qualities of which I have spoken—*boldness* to do right and speak the absolute, unexaggerated truth, a will to do your *duty*, and an honourable sense of shame in all your actions—these strands will weave for you a strong, firm character, not easily to be torn by temptations or difficulties.

So, girls, go on bravely, looking upward every day; have high aims, and strive to attain them; and, in conclusion, let me say to you, as Jeremiah said to the Israelites, "Set ye up a standard in the land!"

Weybridge, February, 1915.

EXAMINATIONS IN SECONDARY SCHOOLS.

PROF. SADLER, in *Indian Education* for March, discusses Circular 849 and says:—

"There are three serious difficulties which the Board of Education's plan does not attempt to overcome:

"(1) In the first place, a large number of professions have entrance examinations of their own. In some cases these examinations could easily be replaced by the new tests which will be conducted by the Universities under the Board of Education's plan. But some of the professions hold tenaciously to the habit of conducting examinations themselves. All that the Board of Education can do is to express the strong hope that the professions will forgo their own examinations in order to relieve the schools from the burden of a complicated number of separate requirements. The Board have no control over the professions. They can only negotiate with them and reason with them. To give the State control over the conditions which admit to each profession would be to run counter to one of the fundamental things in English life, namely, the autonomy of each great profession under a charter granted by the State. The trouble arising from these conflicting professional examinations cannot be removed by a stroke of the pen. But it will gradually abate.

"(2) The second difficulty lies in the examinations conducted by the Colleges at Oxford and Cambridge for the award of College scholarships. These examinations are an exceedingly important part of the school experience of a clever English boy. There is no proposal to substitute for them the award of scholarships on a general examination. Such a change could be made, but it would interfere with the freedom of the individual Colleges, or groups of Colleges, in choosing the scholars whom they think most suitable. It would also mean pooling the Oxford and Cambridge scholarships together. In so far as each College (or group of Colleges) uses its scholarship examination as a means for picking out boys of real promise, and not simply for the mechanical selection of those who get most marks in the examination, any change which would curtail this right and opportunity of special judgment would be unfortunate. Many a boy has been taken at Balliol who would not have been elected at Trinity, Cambridge. The standpoint of different Colleges varies. They form a different judgment on a boy's promise. To some extent, this variety of judgment could be combined with a collective examination, and even with an examination uniting Oxford and Cambridge. But the variety in the papers of questions would disappear. On the other hand, the number of these separate College scholarship examinations causes serious interruption to the work of many boys during their last school year. The compensating advantage of variety of dates is that a boy has several chances. He may be 'off colour' at one time, in good form at another. The reasons, however, why some of the Colleges refuse to hold joint scholarship examinations with others do not spring wholly from educational motives, but from a desire to get the first pick of the basket. The probability is that, while the present scholarship system continues, separate examinations will be held, though the inconvenience of them is mitigated by certain College groups, in themselves unstable, holding their examinations in common. Anyway, it is significant that the present scheme of the Board of Education does not take the College scholarship examinations into account.

"(3) Third, the examinations conducted by Civil Service Commissioners for vacancies in the public services are not touched by the Board of Education scheme. But success in some of the Civil Service examinations is becoming increasingly important for many boys in secondary schools. The largest grade of Civil Servants is recruited from boys of secondary-school age. The attractions of the Civil Service are felt more widely than used to be the case. But the Civil Service examination is an individual test and a competitive test. It cannot be otherwise so long as entry to the public service is based on free competition. The great mass of public opinion favours the continuance of this system, which probably works better than any alternative. Therefore, Civil Service appointments cannot be given on the results of examinations confined to certain schools. To make this restriction would be an injustice to the candidates coming from private tuition or elsewhere. If, therefore, the purpose of the new secondary schools examination scheme is to eliminate individual competition from the course of every boy's secondary training, it will fail, because it leaves the Civil Service examination question untouched. In fact, it leaves the Civil Service examinations in a unique position and would enhance their attractions by sweeping away other competitive examinations which have served hitherto, in the public eye, as tests of a school's intellectual efficiency. But there are many signs that the opinion of secondary-school masters (whatever may be the case with school mistresses) is by no means unanimous in condemning the competitive element as an incentive to a pupil's work while at a secondary school. This body of opinion is much larger than might appear at first sight. It has not really been challenged by the Board of Education scheme

as it stands. If the Board's scheme had involved the abolition of the competitive examinations of College scholarships at Oxford and Cambridge, or of the competitive examinations for admission to the Civil Service, the protests of those who value competition as an incentive would have been loudly expressed. But the Board of Education themselves are probably not keen to abolish external competitive examinations root and branch. Some of those who have been influential in planning the scheme dislike this factor of individual competition very much. It is probably due to their influence that so much stress is laid on the first external examination in secondary schools being taken by whole forms instead of by selected pupils. But this part of the proposal is criticized by many schoolmasters, and it remains to be seen how it will work in practice.

"In effect it may be said that the Board of Education's plan will abate the inconvenience caused by the present unnecessary multiplication of external tests which individual boys in secondary schools have to submit to according to their intended careers in life. It will produce an abatement of the trouble, but will not remove it altogether. The fact is that individual entry for competitive tests is bound up with the whole structure of English secondary education. The time has come to lessen the nuisance which is caused by having more of these external tests than is necessary. But the Board of Education's plan does not really change the principle upon which English secondary education is organized. The only true alternative to the present system is the German plan of giving to the State control over the whole of secondary and higher education and over conditions of entry into the professions. We are less likely than ever to adopt this arrangement."

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on the 27th of March. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage-Smith, Mr. Bain, Mr. Barlet, Mr. Bayley, Rev. J. O. Bevan, Rev. J. B. Blomfield, Mr. Butler, Mr. F. Charles, Mr. R. F. Charles, Miss Dawes, Mr. Eagles, Mrs. Felkin, Mr. Longsdon, Mr. Maxwell, Rev. Dr. Nairn, Mr. Pendlebury, Miss Punnett, Mr. Rushbrooke, Mr. Starbuck, Mr. Vincent, Mr. White, and Mr. Wilson.

The Diploma of Associate was awarded to Mr. John Evans, who had satisfied the prescribed conditions.

The Dean was appointed the representative of the College on the Teachers' Registration Council for the triennial period beginning 1st July, 1915.

The Rev. J. O. Bevan, Mrs. Felkin, and Mr. Millar Inglis were appointed the representatives of the College at the meetings of the Imperial Union of Teachers in July, 1915.

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

By Mrs. W. E. BAYLES.—Blanc's Neuman, Baretti, and Seoane's Dictionary of the Spanish and English Languages (2 vols.), 1860; Buchanan's Technological Dictionary, 1846; Campano's Dictionnaire General de la Lengua Castellana, 1876; Cayotte's Dictionnaire des Rimes, 1908; Constancio's Dictionnaire Portatif des Langues Francaise et Portugaise, Part I, Francaise-Portugais, 1830; Houston's Pocket Electrical Dictionary, 1898; Lafaye's Dictionnaire des Synonymes de la Langue Francaise, 1858; Martinez-Lopez et Maurel's Dictionnaire Francais-Espagnol et Espagnol-Francais, 1858; McCreedy's Dictionary of Motoring; Millhouse's Italian Dictionary (2 vols.), 1857; Millhouse's Corso Graduato di Lingua Inglese, Part III, 1854; Prendergast's The Mastery of Languages, 1864; Rhode's Praktisches Handbuch der Handels-Correspondenz, 1872; Rogot's Thesaurus of English Words and Phrases, 1859; Scheler's Dictionnaire d'Etymologie Francaise, 1898; Simmonds's Commercial Dictionary of Trade Products, 1883; Sloane's Standard Electrical Dictionary, 1898; Tolhausen's Dictionnaire Technologique dans les Langues Francaise, Anglaise et Allemande (1877), and Supplement (1902); Tolhausen and Gardissal's Technologisches Worterbuch, 1855; Ullmann's Dizionario Commerciale-Tecnico Italiano-Tedesco e Tedesco-Italiano, 1879; Walker's Rhyming Dictionary, 1836; Weale's Dictionary of Terms, 1891; Weber's Worterbuch der Italienschen und der Deutschen Sprache; Worterbuch der Handels- und Geschaftsprache (German, Dutch, English, French, Italian, and Spanish).

By the GENERAL MEDICAL COUNCIL.—Minutes of the Medical Council, 1914; General Index to the Minutes of the Medical Council, 1903-1914.

By the OXFORD UNIVERSITY PRESS.—Adams's Klaussmann's Wolfdietrich; Allen's Selected Letters of Pliny; Ash's Dehmel's Das Grane Haus; Bartholomew's Atlas of Economic Geography; Bryant and Lake's Greek Exercises; Curme's First German Grammar; Darbshire's War Atlas and War Map of Central Europe; Freeman's French Examination Papers on the Direct Method; Gough's Copley's Essays; Hughes's Lillienron's Unzingelt and Der Richtungspunkt; Jones's Livy III; Mayne's Hawthorne's Wonder Book and Tanglewood Tales; Minchin's Treatise on Statics, Vol. II; Mutschmann's Passages for Translation into German; Scott and Knight's Lessons from the Old Testament, Part II; Shaw's Six Songs of War; Smith's Thackeray Reader; Taylor's Geography of Australasia; Wynne's Growth of English Drama.

By the UNIVERSITY TUTORIAL PRESS.—Collins's Macaulay's Horatius, Lake Regillus, and Armada; Fry's Principles of Physical Geography; Mackenzie's Manual of Ethics.

Register of Veterinary Surgeons.

Register of Members of the Incorporated Society of Musicians.

THE LIGHTER SIDE OF PEDAGOGY.

HE WAS QUITE SURE.

The head master of a public school told his form a humorous story, and added: "I fear it is rather an old story." "No, Sir," said one of the boys promptly, "it is not old; I have never heard it before." The boy was at that time fifteen years of age, and is now a distinguished legal luminary. Even at school he showed the power of certain and rapid decision which a judge should possess.

THE OPTIMISTIC ATTITUDE.

A midshipman who joined his ship last January, six months after leaving school, wrote to his former head master: "The general feeling on board is that there will be no more important naval engagements in this War; but I am more optimistic."

THE DISEASE DIAGNOSED.

Early in the morning a girl came to the house mistress and asked if she need go into school. She looked very distressed and was almost weeping. The house mistress looked at her, and, seeing no obvious sign of illness, said: "Go and do your practice now and come to me again before house prayers." She did not come, and when she was next seen her face was all smiles. "You did not come to me. Are you feeling all right now?" said the mistress. The girl looked surprised and then puckered her brow in an obvious effort of memory, and finally said: "Oh, it's all right now! I was in the hockey team, after all." It appeared that her name had been omitted by accident from the list put up in the early morning, and hence her tears.

IF I WERE RICH!

Margaret Rae, Strathmore Road, Wimbledon Park, in a letter to the *Star*, writes: "Sir,—Your article reminds me of a story which, although well known in Lancashire, may be new to your readers. Two boys were discussing the privileges of being King, when one said: 'Bill, what would tha' hav' if tha' were King?' Bill, after some thought, said: 'I would hav' a pair o' new clogs, as many treacle butties (bread) as I could eat, and a gate to swing on.' After giving expression to his idea, Bill asked his companion what he would have if he were King. The reply came as follows:—'Eh, lad, there's nowt left; tha's ta'en aw' best.'"

THE TYRANNY OF PARENTS.

The "Unofficial Diary" of the *London Teacher* gives the following as genuine letters received by teachers:—

Please don't worry me about Rachel Formen's teeth. All my children have had these teeth, and they have all fallen out.—Mrs. FORMEN.

Will you kindly give May S — back the needles what you took from her, you had no right to keep these when school was over they did not belong to you. If I do not get them to day I shall come up next Friday and then you will be sorry if I do, the needles are my belonging not Mary's and I have been in want of them this week, Oblige Mrs. C —.

A new terror has now come into the life of the schoolmaster, particularly of him who is in charge of a practical workroom. The following note was recently brought to such a master, and he so far yielded to the request as to show Freddie how the thing might be done:—"Dear Mr., Would you mend my teapot and kettle, it is only a little hole and I will pay you tell fred how much."

THE WAR IN THE NURSERY.

A lady resident at Penn, in Buckinghamshire, says the *Morning Post*, recently promoted a little competition in verse-making on the subject of the War, in which the children of the local elementary school took part. The efforts of the

youngsters reveal the fact that some of them at least are tolerably well acquainted with the main issues involved. One little boy aged ten puts the case thus :

This dreadful war is a terrible thing.
But we shall conquer the Germans,
God save the King.

Another one, aged twelve, has been pondering on the responsibility for the War of the Emperor William. This is what he has to say :

For when the course of war is run,
There's the reckoning to pay,
And God will ask the murderous Hun
To answer for "The Day."

The most optimistic of the competitors is the author of the following literary effort, whose mind has evidently been running on the good cheer that Christmas brings :

Our Christmas may be murky,
With the dogs of war let loose,
But we'll have a bit of turkey,
When we've cooked the Kaiser's goose.

CURRENT EVENTS.

AFTER providing for a tablet in the College Chapel and a portrait in School Hall, the balance of the Alfred Lyttelton Memorial Fund at Eton College has been invested in securities which will produce an income of about £40 per annum. This will form a scholarship of one year's duration to be held by the Newcastle medallist of the year.

HARROW SCHOOL loses by retirement this Easter one of its oldest and best known assistant masters, Mr. Louis Martin Moriarty, who has been at The Grove—the famous house bequeathed to Harrow School by the late Mr. E. E. Bowen—since 1908. He went to Harrow in 1889, and has been in charge of the Army Class since 1890. He was educated at Brighton College and Magdalen (Oxford), and was a Fellow and late Professor of French Literature at King's College, London.

AN Exhibition of £50 a year, tenable for two years, is offered each year by the Governing Body of Emmanuel College to a Research Student commencing residence at Cambridge as a member of Emmanuel College in October. The Governing Body may award additional Exhibitions of smaller value should properly qualified applicants present themselves. The Exhibitions will be awarded at the beginning of October. Applications, accompanied by two certificates of good character, should be sent to the Master of Emmanuel not later than September 24.

A VACATION COURSE will be held at the Training College, Bingley, from August 4 to August 18. It will not be limited to West Riding teachers, but will be open to all on payment of the fees. 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. The fee charged for the course will be £4. 4s. This will include not only tuition, but board and residence in the College, a separate bed-sitting room being provided for each member of the course. The Vacation Course Syllabus, containing time-tables and full particulars of the course, will be issued shortly.

THE service in St. Paul's Cathedral for members of the teaching profession will be held on the evening of Ascension Day, May 13. All teachers are invited and no tickets of admission are required.

THE new offices of the Teachers' Guild are at 9 Brunswick Square, W.C.

THE University of London announces that it seems undesirable at the present time to make any arrangements either for a Holiday Course for Foreigners to be held in London in 1915 or for a course for English and foreign teachers to be carried on at Ramsgate.

THE Educational Handwork Association send for publication the following resolution:—"We, as teachers, many of whom have lived and worked in the country, strongly protest, on educational grounds, against the employment of school children during the War until and unless in the direst necessity, and then only under the most stringent safeguards."

MISS PHIPPS, speaking at the meeting of the National Federation of Women Teachers, said she "agreed that we must have the harvest got in, but that some of the boys from Eton and Harrow should be employed in the fields. They were very much stronger and better fed than the little children who were the sons and daughters of agricultural labourers."

THE death has occurred, at his residence at Broadstone, Somerset, of Mr. William Grylls Adams, F.R.S., F.G.S., Emeritus Professor of Natural Philosophy and Astronomy in King's College, London, and formerly Fellow of St. John's College, Cambridge.

THE King has been pleased, on the recommendation of the Secretary for Scotland, to approve the appointment of the Rev. John Herkless, D.D., Professor of Ecclesiastical History in the University of St. Andrews, to be Principal of the University of St. Andrews, in succession to the late Sir James Donaldson, LL.D.

ON Friday, May 21, at 8 p.m., Dr. Kimmins will lecture to the Montessori Society on the results obtained in the Infant School at Sway, in Hampshire, where the use of the Montessori material was introduced as far back as 1912. Dr. Kimmins has conducted a personal examination of the children. The Montessori Society Committee feel that his lecture will excite great interest among very many who have not joined the Society, and they are arranging for a large hall. On sending 6d. per ticket, accompanied by a stamped addressed envelope, to the Hon. Treasurer of the Society, Dr. Jessie White, 49 Gordon Mansions, London, W.C., non-members will receive tickets.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE APRIL COMPETITION.

The best epigram on a schoolmaster or schoolmistress, either original or quoted.

This month we have an exceptionally large number of entries. But not all the competitors are sure of the exact meaning of an epigram. In at least some cases there is a tendency to confound *epigram* with *epitaph*. This is not altogether un pardonable, since the epigram was originally inscribed on tombs, temples, arches, and other suitable places. An epitaph may be an epigram, but all epitaphs are not epigrams. For example, one competitor sends in a panegyric on an American schoolmaster that must be very gratifying to the friends of the deceased, but has no claims whatever to rank as epigrammatic. Another competitor sends Hannah More's

To those who knew thee not no words can paint,
To those who knew thee well all words are faint.

Here we have an approach to an epigram, but there is no reference to a schoolmistress as such. Shenstone's "Matron old whom we schoolmistress name," on the other hand, has the reference all right, but certainly lacks the epigrammatic element. The

same remark applies to an extract from "On the Death of Sir Thomas Wyatt." Goldsmith's description of the village schoolmaster, that has been sent in by more than one competitor, comes nearer to the eligibility point without actually reaching it. No one has sent in Burns's lines on a deceased schoolmaster. These supply an example of the combination of epigram and epitaph:

Here lie Willie Michie's banes.
O Satan, when ye tak' him,
Gie him the schoolin' o' your weans,
For clever de'ls he'll mak' them.

Many send in descriptive verses that lack the unexpectedness and the tang that are essential to the epigram, as witness the following (original) quatrain on "The Schoolmaster," sent in by one of the competitors:

He looked on learning as a god,
On ignorance as crime;
Himself an instrument, a rod,
To rule with nod divine.

To the same class belongs the description taken from Sir Walter Besant: "Sam, again, he's only a poor, miserable schoolmaster. He's got the parson over his head to bully him and make him go to church and look humble. He's got nothing but his miserable salary."

More successful are the two following:—"A coiner of the country's capital" and "A Man among Boys, a Boy among Men." Without doubt, the following is the best paper sent in. No doubt it is rather a series of epigrams than one epigram; but most of them are good and some very good. By the terms of the competition, the question of originality is not raised.

THE SCHOOLMASTER.

His life is a noble profession; his living a sorry trade. His work is so simple that grocers and novelists instruct him, and so peculiar that the only persons fit to undertake it are those who have never taught.

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He remains a pathetic figure—the most derided, the most exhorted, the most censured, and the most patient of men. No visible memorial remains as the seal of good work. As he tends his garden in the solitude of old age, he reflects: "If in this life only of worldly success and honour I have hope, I am of all men the most disappointed."

The second best paper is eclectic, and offers the following seven to choose among:—

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A Half-guinea Prize is awarded to Mr. J. Vine Milne, The Birches, Burgess Hill, Sussex; and a Second Prize to Mr. W. D. Roberts, 16 Cheriton Gardens, Folkestone.

SUBJECT FOR MAY.

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THE COLLEGE OF PRECEPTORS.

HALF-YEARLY GENERAL MEETING.

THE ordinary Half-yearly General Meeting of the members of the Corporation was held at the College of Preceptors, Bloomsbury Square, on Saturday, March 27.

MR. R. F. CHARLES was appointed Chairman, and the SECRETARY read the advertisement convening the meeting.

The minutes of the last meeting, copies of which had been circulated among the members present, were taken as read and confirmed.

THE CHAIRMAN said that the members of the College were met once more under the shadow of a great and terrible war, and no doubt some of them had come in sorrow and all in anxiety. He was glad, however, to be able to report that, in spite of the stern stress of the war, the College of Preceptors had been able to proceed quietly with its usual work. When one contemplated the deplorable moral and intellectual effects of the influence of the State upon education in Germany, and the efforts that were being made by the Board of Education in this country to obtain complete control of education, one realized the importance of the work of the College, which stood for individuality, variety, and freedom. He referred in feeling terms to the death of the Rev. Dr. Douglas Scott, formerly senior Vice-President of the Council.

THE CHAIRMAN having appointed Mr. Eagles and Mr. Walters to act as scrutators, the meeting elected twelve members of the Council and three Auditors as follows:—

MEMBERS OF THE COUNCIL.

Prof. J. W. Adamson, B.A., 44 Whitehall Park, Highgate, N. S. Barlet, B. ès Sc., F.C.S., 97 St. Mark's Road, North Kensington, W.

J. Bayley, Wellington College, Wellington, Salop.

A. D. Hardie, M.A., Linton House School, Holland Park Avenue, W.

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AUDITORS.

H. Chettle, M.A., 76 Ridge Road, Hornsey, N.
 A. E. C. Dickinson, M.A., LL.D., L.C.P., Grove House, Highgate, N.
 J. Blake Harrold, F.C.R.A., A.C.I.S., 61 Streatham Hill, S.W.

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

REPORT OF THE COUNCIL.

The Council beg leave to lay before the members of the College the following Report of their proceedings since the issue of their last Report:—

1. A Course of Twelve Lectures to Teachers on "Problems in School Practice" has been delivered by Prof. John Adams, and a Course of Twelve Lectures on "Psychology and its Educational Applications" was begun on the 11th of February. More than 50 students are attending the latter Course.

2. The Christmas Examination of Teachers for the College Diplomas began on the 28th of December and ended on the 4th of January. It was attended by 249 candidates—9 for the Fellowship, 62 for the Licentiate, and 178 for the Associateship. Since the issue of the last Report, the Diploma of Fellow has been conferred on 3 candidates, that of Licentiate on 30 candidates, and that of Associate on 110, who had satisfied the prescribed conditions. Practical Examinations for Certificates of Ability to Teach were held in October and February; five candidates were examined.

3. (a) The Christmas Certificate and Lower Forms Examinations were held on the 7th–12th December, and were attended by 3,496 candidates.

(b) For the Professional Preliminary Examination, which is to be held on the 9th, 10th, and 11th March, the number of entries is about 420.

4. Since the issue of the last Report eleven members have been elected, and four have withdrawn from membership. The Council regret to have to report the death of the following members:—Mr. W. E. Bayles, Mr. W. Carpenter, Mr. H. T. Dawson, A.C.P., Miss E. Day, Mr. C. S. Jago, Mr. J. A. Leriche, Miss J. P. Mears, Sir Owen Roberts, the Rev. Dr. Douglas Scott, Mr. J. Thurnham, and Mr. T. Wyles. Miss Mears left to the College £35 Great Western Railway Five per Cent. Rent-charge Stock, for the purpose of providing prizes for proficiency in Domestic Economy. The Rev. Dr. Douglas Scott was a member of the Council for thirty-four years, and a Vice-President of the Council for four years.

5. Meetings of members were held on the 19th of November and the 17th February. At the November meeting a lecture on "The War" was delivered by Prof. A. F. Pollard, M.A., Litt.D., and at the February meeting an address on "The Strategy of the War" was given by Mr. Hilaire Belloc. Further meetings will take place on the 17th of March and the 12th of May. At the first of these Prof. Pollard will lecture on "The War and its Prospects"; at the latter Mr. Frank Roscoe will lecture on "Educational Administration and the War."

6. In spite of the adverse influence of the War on certain departments of the College work, the result of the financial operations of the year, which included provision for exceptional expenditure on repairs and on the *Educational Times*, is satisfactory. After due allowance for depreciation of leasehold premises, furniture and Library, the Income and Expenditure Account shows a surplus of £244. 7s. 4d. Of this surplus the Council propose to transfer £233. 17s. 4d. to the general Capital Account.

7. In accordance with the announcement made in the Report of the Council for March, 1914, a considerable increase was made in the amount paid for contributions to the *Educational Times*. This additional expenditure enabled the Editor to secure a marked improvement in the quality of the journal. In view, however, of the uncertainty as to the duration of the War and its possible effect upon the finances of the College, the Council find it necessary to reduce the expenditure for the present. Voluntary contributions from members to the matter of the *Educational Times* will therefore be welcome. Such contributions should be addressed to the Editor.

8. (a) Representatives of the Council have taken part in the work of the Teachers' Registration Council, the Federal Council of Secondary School Associations, the Teachers' Training Committee, the Joint Scholarships Board, the Committee of the Conference of Educational Associations, the League of the Empire, the Educational Kinematograph Association, the Joint Scholastic Agency, and the Joint Agency for Women Teachers.

(b) The number of applicants for admission to the Register of Teachers fell off during the autumn of 1914 as the result of the War. Of late, however, the weekly average of applications has greatly increased, and it is now at the former level of about 150. Up to February about 5,400 applications had been received, and of these 5,300 have been accepted. The Council have had under consideration several matters of general educational interest, notably the proposals of the Board of Education in regard to Secondary School Examinations as outlined in Circular 849. The first Official List of Registered Teachers is now being prepared for publication.

(c) At the meeting of the Federal Council which was held on the 17th of February, a resolution was passed expressing general approval of the Board of Education Circular 849. It appeared to be the general opinion of the members that the University Preliminary Local Examinations should not be taken by pupils of schools receiving the Government grant; and, with some important exceptions, the members expressed a similar view with regard to the University Junior Local Examinations. They supported generally the suggestion that examinations should be postponed until the pupil had reached the age of sixteen years. As the Circular had not then been discussed by the College of Preceptors, the representatives of the College were unable definitely to state the views of the College.

(d) At the first meeting of the Educational Kinematograph Association interesting addresses were given with regard to the prospective work of the Association. The circular which was issued with the invitations to the meeting, and which explained the objects of the Association, was somewhat unfavourably criticized and was referred to a Committee for consideration. No further meeting has been called.

(e) During the past year the Joint Scholastic Agency has introduced 272 Masters to various scholastic appointments, and the commission paid by those Masters is less by £556 than it would have been had the same posts been obtained through business agencies.

The Joint Agency for Women Teachers is in a thoroughly sound financial position. It has recently removed to commodious premises at Oakley House, Bloomsbury Street, W.C. It is hoped that the more central position of the offices will help to increase the business of the Agency. During the year 1914 it has filled 306 permanent posts and 76 temporary posts.

Members of the College who have vacancies on their school staffs are urged to send prior notice to the Joint Agencies. By so doing they may assist in lightening the burden of Assistant Teachers, as the scale of fees charged is lower than in the case of other agencies.

With reference to paragraph 5, Mr. VINCENT said that the Lectures were highly appreciated, as was evident from the large attendances.

With reference to paragraphs 6 and 7, the TREASURER expressed gratification that in spite of the adverse influence of the war the balance of the accounts was on the right side. The Council had expended a considerably larger sum than formerly on the *Educational Times* in order to make that journal more powerful and more strongly representative of the interests of the College. The Council were convinced that their policy in this matter was the right one; but in existing circumstances they considered it prudent for the present to reduce the expenditure. He expressed his high appreciation of the way in which the work of the accounts had been done by the office staff.

In reply to inquiries, the Treasurer stated that five annuities were being paid out of the proceeds of the Hopkins Benevolent Fund for Teachers, and that only one application for a grant from the College Benevolent Fund had been received in consequence of circumstances arising out of the war.

The CHAIRMAN expressed the opinion that the *Educational Times* had been greatly improved under the present editorship and that during the last year it had been much more readable and interesting than formerly. He instanced the admirable leading article in the last number on the attempts of the Board of Education to hamper the work of the College of Preceptors.

The Report of the Council was adopted.

The Report of the Dean, which was as follows, was adopted:—

THE DEAN'S REPORT.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you some details concerning the Christmas Certificate and Lower Forms Examinations, together with extracts from the reports of the Examiners.

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The Examinations were held on the 7th to the 12th of December at the following places in the United Kingdom:—Aberdeen, Bath, Bewdley, Birmingham, Blackburn, Blackpool, Bournemouth, Brentwood, Brighton, Bristol, Cardiff, Carlisle, Carmarthen, Cheltenham, Chulmleigh, Clapham, Colwyn Bay, Croydon, Ealing, Edinburgh, Exeter, Frome, Fulwood (Preston), Glasgow, Harlow, Harrogate, Hastings, Herne Bay, Holsworthy, Jersey, Leeds, Littlestone-on-Sea, Liverpool, London, Manchester, Margate, Muswell Hill, Newcastle-on-Tyne, Newport (Mon.), Newquay (Cornwall), Norwich, Nottingham, Ongar, Plymouth, Portsmouth, Reading, Richmond Surrey, Ripley, St. Leonards, Scarborough, Selby, Sheffield, Shirley, Shoreham, Steaford, Southampton, Southend, Southport, Sunderland, Taunton, Torquay, Warrington, Weston-super-Mare, Woodford, Worthing, York.

The Examinations were also held at the following Colonial and Foreign Centres:—Batticaloa, Colombo, and Manepay (Ceylon); Rangoon (Burma); Harbour Island (Bahamas); Grenada, St. Vincent, and Trinidad (B.W.I.); Johannesburg and Uitenhage (South Africa); Accra and Cape Coast (Gold Coast); Abeokuta and Lagos (S. Nigeria).

The total number of candidates who sat for the Certificate Examination was 2,725—2,243 boys and 482 girls.

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

	Examined.	Passed.	Percentage.
BOYS.			
Senior	235	146	62
Junior	886	601	68
Preliminary	607	460	76
GIRLS.			
Senior	105	37	35
Junior	136	103	76
Preliminary	192	156	81

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (364 in number) who entered for certain subjects required for professional preliminary purposes.

The number of candidates who sat for the Lower Forms Examination was 771—510 boys and 261 girls. Of these, 364 boys and 170 girls passed, or 71 and 65 per cent. respectively.

EXTRACTS FROM EXAMINERS' REPORTS.

Scripture History.

Senior.—Old Testament: The knowledge which candidates displayed seemed to want some historical background. Main facts, such as the Assyrian invasions of Israel and Judah, Ahab's introduction and support of Baal worship, Judah's reliance upon Egypt, were hardly grasped by the writers: so that the mission of the Prophets, and in general the religious training of the Jewish people, as set forth in the books studied, was not fully appreciated. But instructive incidents of the history, and of the lives of leading characters, were correctly recorded. New Testament: Good answers were given to the questions on the last twelve chapters of the Acts, and this was the best part of the work. In the Gospel it was noticeable that the Parables and Sayings were not always explained in their reference to Christ Himself: e.g. "counting the cost" of discipleship, not of any undertaking. Several showed that they had read the Epistles carefully.

Junior.—Of the Old Testament subjects nearly all the candidates selected the Second Book of Samuel. The prominent characters in the Book were generally well described and distinguished in the answers; but Abner's position as head of the party of Saul was not quite understood, and few noticed the mournful side of David's retreat from Jerusalem on Absalom's rebellion, and his view of it as retributory suffering. The appointment of shorter parts of books of the New Testament for study has evidently relieved students, and the narrative of events in the last seventeen chapters of St. Luke was well known, as were also the stories of the Parables. But in setting forth the teaching contained candidates were less successful. Many passed by the main and obvious lesson of a parable to bring out some doubtful sidelight or piece of mere worldly wisdom: e.g. the Parable of the Lost Piece of Silver teaches "that we should hunt carefully for anything we lose." And the great Sayings of this Gospel were less familiar to the writers than might be expected. The second part of the Acts was done excellently by many candidates, and well by most. Only here again one could have wished more to quote readily: "It is more blessed to give than to receive." On the whole the improvement continues. Those who fail often do so because they have answered only two or three questions. The large percentage of

“Distinctions” shows how well religious knowledge is imparted in many schools.

Preliminary.—That these papers were better than usual was the impression made while reading them, which has since been confirmed by an analysis of the marks. The number of failures was below the average, while more than usual reached the mark assigned to “Distinction.” There were very few papers hopelessly bad. It is often said that in the teaching of the Old Testament a pupil should learn nothing in the early stages which he has to unlearn in the more advanced. That this is desirable can scarcely be questioned. It is also not difficult. Teachers are on safe ground so long as they confine themselves to the careful and methodical study of the subject-matter of selected narratives, and to those moral lessons of character which form an undying element in the book of Genesis. Taking, then, these two points to test the value of the work, the result is satisfactory. Candidates showed good knowledge of the text, while the questions which were set on some points in the character of the lives of patriarchs and kings were answered with more detail and intelligence than at the corresponding examination last year. In Section D (the New Testament), the answering was as a rule good, and sometimes excellent. Many candidates wrote very good answers to the last question, D 6, showing the teaching of Jesus on real purity.

Lower Forms.—These papers do not call for any particular remark except that they were rather above than below the usual standard. There was but little slipshod work. The knowledge of the text was good, speaking generally, but as an example of confusion of thought may be cited the mistake which many candidates made in not properly discriminating between the healing of blind Bartimeus and the blind man at Bethsaida. Very few answers were given to Question F 5, which asked for an explanation of some elementary and significant Gospel words.

English.

Senior.—On the whole, the work showed an improvement on that of previous years. A large majority of the candidates took a single Literature subject, and therefore could not gain the number of marks required for distinction. Those who attempted two Literature subjects were (with the exception of two schools) mostly conspicuous for scamped work; they did two things badly instead of one well, and many obtained fewer total marks with two Literature subjects than others obtained with one. The Analysis and Parsing were not so good as with the Juniors, but Analysis reached a higher standard than a year ago. Many candidates seemed to find the time available for the Essay insufficient, but, in a few cases, very skilful compositions were produced.

Junior.—About half of the candidates took Grammar and half a “Literature” alternative, and most of the latter offered either “Julius Caesar” or “The Tempest.” As a rule, the Shakespeare was done well—i.e. the answers were mostly accurate, relevant, and concise. This poet seemed to exercise a considerable charm over the greater part of the candidates. Strange to say, however, mere memory appeared to be their weakest point: they would forget who uttered certain words, yet appreciate acutely the dramatic skill of the passage. Another incongruous feature was the fact that so many candidates displayed genuine literary enthusiasm, while at the same time they expressed it in words and phrases of the most illiterate character. The whole of the Grammar paper was done well (in certain cases remarkably well), and the improvement in Analysis was very marked. The question least successfully answered was the one which asked for suffixes for changing nouns into adjectives. The Essays were well written, but hardly well composed. Most writers seemed to go on from hand to mouth, without any definite plan. There was much sense and information exhibited. What the Essays lacked was vigour and some charm of expression.

Preliminary.—Literature: The set books had evidently been carefully read, and the details were, as a rule, well known. Some of the candidates, however, introduced a good deal of irrelevant matter, and the time allowed for the paper was not always distributed to the best advantage: insignificant items frequently received too lengthy treatment, while more important matters were insufficiently dealt with. Of the Poetry books, “Hiawatha” produced the best results, the answers being almost uniformly good. The Tennyson papers were also very creditable, but very few candidates took “The Call of the Homeland,” and their answers were only moderate. In the case of all these papers there was a tendency to reproduce large sections of the original poems instead of presenting the answers in narrative form. “Tales of a Grandfather” had been read by a good number of candidates, and the result was good. “Robinson Crusoe” was not so satisfactory, though the main facts were known by nearly all.

Grammar: The answers to the two questions dealing with Parsing were not at all satisfactory. A large proportion of the candidates had great difficulty in naming the parts of speech of the words taken from the selected passage, and the reasons given for the cases of the

nouns and the relations of the different words to one another were confused and in many cases absurd. In certain instances information which was apparently correct was so vaguely expressed as to be practically worthless. The new terminology seemed little known. The remaining questions, which consisted of examples (supplied by the candidates themselves) of various grammatical details, were quite satisfactory, and, in a great measure, redeemed the failures in the earlier part.

Composition: Many candidates dealt with the Composition part of the paper in a hurried and perfunctory way. There was a fair proportion of good Essays, but too many were disfigured by colloquialisms and bad punctuation and spelling. Many of those who had plenty of ideas spoiled their efforts by presenting them in haphazard fashion. Few candidates either began or finished their letters properly or inserted date and address. The writing of the candidates was, on the whole, tidy and easily read.

Lower Forms.—Dictation, Reproduction, Handwriting: The percentage of failures in Dictation was not high; such words as “straight,” “individuals,” and “corpulent” were the chief stumbling-blocks. Long sentences and inappropriate words were the main defects in the composition. The handwriting was very fair, but about 25 per cent. showed want of training.

Grammar: The average work was very satisfactory. Though the questions on derivation and verbs were new features, a few of the best candidates gave accurate answers; the majority showed only a slight knowledge of the verbs. The distinction between prepositions and conjunctions was fairly explained by most of the candidates. In illustrating the use of “much,” both as an adjective and an adverb, there was often a lack of discrimination. Analysis seems to receive special attention in the preparation of candidates.

Literature: There was very little of either inaccuracy or irrelevance in the answers, and marks were lost chiefly through the omission of essential particulars. Punctuation was, in a few instances, most carefully attended to, but is still too often entirely neglected.

English History.

Junior.—The average work seemed to show some improvement and to give evidence of better teaching. The worst feature was the maps, which were very badly done. It was specially disappointing that so little knowledge of the geography of the Low Countries was shown. Modern history, as usual, was little known, except the story of the Indian Mutiny. Very few could say what statesmen were responsible for Roman Catholic Emancipation or the great Reform Act. Few could distinguish properly between Benedictines and Franciscans.

Preliminary.—There was, as is generally the case, great disparity in the work sent up from different schools and localities. The obvious deduction is that, while the questions were well within the grasp of the candidates at the better prepared schools, many of whom did very satisfactorily indeed, there were other schools which fell much below their standard. On the whole, quite contrary to the examiner's usual experience in these examinations, Papers B (1399–1714) and C (1689–1902), especially the former, were much more satisfactorily answered than Paper A (55 B.C.—1399 A.D.). The candidates generally, including the best who took this period, had obviously paid little attention to the history of England before 1066, such knowledge as they displayed being very meagre and scrappy. In Period B many candidates showed bad judgment in taking Question 4, many of those who wrote of Irish affairs in the reign of Charles I being apparently ignorant of the Rebellion of 1641, whilst others wrote details of the massacres of Drogheda and Wexford, which occurred later than that reign. Too many candidates, in dealing with the claim of Henry VII to the Throne, appeared to be ignorant that, beyond the mere right of the conqueror, he had no claim at all outside the sufficient one of acceptance by Parliament. The marriage of his grandfather to Henry V's widow, which was generally stated as conferring some kind of claim, was quite unimportant in this connexion. In Period C there was a great tendency to confound the steam-engine with the locomotive in answering Question C 7. Quite a considerable number of candidates appeared to think that Stephenson preceded Watt, and that the latter improved on the former's work; and at least two-thirds of the candidates who attempted to deal with Cartwright's invention wrongly described it as the jenny. Apparently the majority of the candidates who attempted this period had been taught something about the reformation of the Calendar, but not one in twenty of those who tried to answer the question could give anything like an intelligent explanation of the circumstances. The question on the taxation of the American colonies was also inadequately answered. Throughout the whole paper in all the periods there was much confusion between names presenting some points of similarity. Thus David Bruce was obviously confounded with Robert Bruce, King Edgar with Edgar Ætheling, the Petition of Right with the Bill of Rights and vice

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versa, Lord George Gordon with the hero of Khartum, Lord John Russell with Admiral Russell, &c. There were a few instances of colloquial and offensively flippant expressions, but, on the whole, the style of the answers showed some improvement on those examined in some previous years. On the other hand, the spelling seems each year to be steadily deteriorating, some of the worst instances being found in papers which otherwise were meritorious.

Lower Forms.—There was a considerable number of quite good papers, but, on the other hand, too many candidates had practically no knowledge of history at all beyond a few infantile stories of doubtful authenticity and absolute unimportance. As in the Preliminary Examination, the papers in this grade showed considerable disparity between different schools. The most striking weakness throughout the unsatisfactory papers was the tendency to confuse kings bearing the same name. Thus Ethelred II was confounded with Ethelred I, James I with James II, Charles I with Charles II, William III with William IV. Again, the wars of Victoria's reign were a subject of much confusion, showing weakness in geography, Khartum and Sebastopol being associated with the Indian Mutiny by some candidates. Some candidates owed their failures to confusing the Jacobite Rebellion of 1715 with that of 1745, the marks lost by writing about the latter when asked about the former (Question C 2) being more than enough in the case of those a little "below the line" to have bridged the gap. Many candidates, with entire disregard of chronology, wrote of Anne of Cleves' photograph being submitted to Henry VIII; Elizabeth Wydvil was confounded with her daughter (Henry VII's queen); surprisingly few who took the question could write anything like an adequate account of Robert, Duke of Normandy. The question on the grounds of Edward III's claim to the Throne of France was, on the whole, better done than might have been expected. It was apparent that not a few schools used textbooks of a very inferior character, and in the use of those of a higher class the teachers had not discriminated between important and comparatively trivial facts. The spelling, on the whole, was bad, in some instances grotesque.

Geography.

Senior.—The quality of the work presented was not of a very high standard: only one distinction was gained, and there were many failures. Want of any special preparation in geography as taught on modern lines was far too commonly apparent. There was evidence

here and there of the use of antiquated textbooks. Four questions were, as a rule, well done—viz., those on the formation of a Delta, on the Gulf Stream—though few candidates seem to have heard of recent theories as to its overrated influence—on the geographical position of Belgium, and on the requisites of a successful coal-field. The most unsatisfactory attempts were those in answer to Question A 1—the contour map. Very few candidates seem to have had any experience at all, either of reading or drawing contour maps. Very few, too, could enter into the causes and consequences of things—e.g. the cause of Monsoons, or the importance of Africa's highland areas. This defect often led to the writing of mere descriptions, when causes and consequences were point-blank asked for, as in Question A 4 (origin of certain scenic effects), Question A 10 (influence of geographical factors in distribution), Question B 17 (site advantages of towns). On the other hand the measurements of Question A 2, the weather of Question A 6, and the magnetism of Question A 9, were attacked with fairly satisfactory results, showing that there was no dearth of good material amongst the candidates.

Junior.—These papers were, in general, of a satisfactory nature, though some were very poor; in fact about 15 per cent. of those who entered for this examination had not the slightest chance of passing. The special regions were usually well known, the maps being quite good. North America and the Monsoon Region of Asia were better known than South America. In the case of the latter, the statement that Peru and northern Chili are the wettest parts, and Brazil and Venezuela the driest, is very common. Students should be taught that proximity to the sea does not of necessity imply a heavy rainfall. The general geography of the world was not so well known, but this is to be expected. The winds, currents, rainfalls, and climates of the large continents or seas might receive more attention. The Physiography section was badly done by most of those who attempted it. Very few had any idea of drawing a contour map, and of seasons, winds, denudation, glaciers, dew, tide on the English coast, little was known. Those who take up this part of the subject should devote more time to it, and make use of a good elementary textbook.

Preliminary.—These were not altogether a satisfactory set of papers. The map was very meagrely filled in. The lines of latitude and longitude were frequently omitted or wrongly numbered. It is not surprising that the position of Sunningham or Fishguard was not known, but it seems remarkable that few candidates could locate Middlesbrough. Many placed it in the middle of England. In

answer to Questions B 7 and C 7, physical features were frequently interpreted as climate. In Questions B 5 and C 5, glacier was imperfectly described, and in many cases was confused with avalanche or iceberg. In Questions B 6 and C 6, the advantages derived from position were frequently ignored or very imperfectly expressed. Many candidates could only see strategic advantages—e.g. Madrid being inland could not be bombarded by ships. In Question A 2, (c) seemed to cause much trouble, while (c) in Question B 8 drew forth most ingenious answers, but very few correct ones. Questions C 8 (b) and C 8 (c) were, on the whole, unsatisfactorily answered.

South African candidates: Quite a satisfactory set of papers. Question 1, the map, was well filled in, the majority of the candidates putting in and correctly numbering the lines of latitude and longitude. Question 2 produced the most unsatisfactory results. Few candidates realized the purport of the question. Little fault can be found with the answers to the other questions, but in Question 3 (a), "irrigation" was frequently interpreted as "navigation." The answers were, for the most part, neatly and methodically set forth.

Lower Forms.—A very praiseworthy set of papers. The map was well done by most, though some few placed mountains across rivers. The answers to Questions 2, 3, and 4 were highly satisfactory, but those to Question 5 left much to be desired; "iron ore" was frequently treated as two substances. The reasons in Question 6 were, in many cases, omitted. In Question 7, "head of navigation," was a mystery to many candidates; some seemed to be under the impression that it referred to an official. There was more exactness noticeable in giving localities, and the answers throughout were neatly and methodically set forth.

South African candidates: Considerable vagueness was noticeable in giving localities in Question 2. The answers to Question 3 were not good, and the poor illustrations betoken want of practice in drawing diagrams. The answers to Questions 4 and 5 were far from satisfactory, the "reasons," for the most part, being ignored; and Question 7 produced astonishingly poor results. Question 8 (c) brought no correct reply. The answers, on the whole, were neatly and carefully set forth.

Arithmetic.

Senior.—The sets of answers provided by the candidates showed very different degrees of excellence. The solution of a question was very often reduced to the simplification of a fraction, and much time was wasted in trying to express the fraction in lower terms. Also there were many altogether useless reductions, and as a consequence very long calculations. Some of the candidates might with advantage learn how to form the true remainder when short division is used; also the meanings of "varies as" and "correct to pence," and to appreciate that the latter expression does *not* mean that the total number of pence in the sum under consideration is to be given.

Junior.—The general results of this examination may be considered quite satisfactory, though certain points of general weakness appeared. A considerable proportion of the candidates appear to have had no proper drilling in approximation; in many cases far too many figures were used, in other cases not enough to get the answer to the required degree of correctness. The meaning of the phrases "to the nearest farthing," "to four places of decimals," &c., was evidently not understood, and the question about the error caused by the multiplication of an approximate result was hardly ever done intelligently. In the Metric System there was great carelessness in the position of the decimal point, and another weak point was the value of a remainder in a division sum where the divisor was a fraction.

Lower Forms.—The work on this paper was not so neat as usual, and there was much inaccuracy in performing even the simplest operations. The 24s. of Question 3 was often treated as the price per *cwt.*, instead of *ton*; in Question 4 much conscientious labour was wasted by reducing the money to pence before division; in Question 5 there was considerable confusion between *a.m.* and *p.m.*, and many forgot the extra day; in Question 6 only a few quite correctly figured to themselves the arrangement of the pipes; the fraction in Question 7 was often given as irreducible, or the G.C.M. was correctly found, but not used for reduction; the "bill," too, was rather more inaccurate than usual.

Algebra.

Senior.—Many candidates sent up good work, and showed a satisfactory acquaintance with the subject, but there was also a very large proportion who seemed very ill acquainted with the work included in the syllabus. More attention should be given to the following sections of the syllabus—indices, variation, progressions.

Junior.—The paper proved to be well within the compass of the candidates, and the percentage of passes was high. A larger number than usual obtained Distinction, and there were several cases where the paper was practically floored. Failures in Questions 1 and 4 were mainly due to the fact that the various steps were not sys-

tematically set out. In Question 5 (i) and (iii) early simplification was not always applied, with the result that a maze of figures was presented. In Question 6 (iii) x was frequently involved in both terms of the answer. Questions 7 and 8 were attacked *con amore*. Question 9 was done by many, but often with a confused sense as to the result. Occasionally the formula was employed for the solution of a quadratic—not with encouraging results. Question 10 (a) was obtained, but often by a long round. Question 10 (b) when tried, which was but seldom, was generally brought to a right answer.

Preliminary.—The paper was fairly well answered. Gross errors were rarer than usual. The most noticeable weak points were errors of brackets in Question 6 equations, and weakness in factors, other than quadratic factors, shown in Questions 5 and 7.

Lower Forms.—The work on the four simple rules was quite satisfactory, the multiplication and division being particularly well done. The chief weaknesses were in Question 1 (ii) and in Questions 8 and 9. Most candidates who attempted the solution of Question 9 on correct lines failed to notice that it was the price *per yard* that was asked for, and gave the total value instead. There was much confusion of thought amongst those who attempted Question 8.

Geometry.

Senior.—Although only a very small percentage of the candidates gained the marks required for distinction, yet there was a very creditable number who showed a good grasp of the whole subject of the paper and had no difficulty in obtaining a pass. A considerable number wrote out their bookwork answers at quite unnecessary length, and appeared to have had no time left to do justice to the riders. In other cases there were many omissions, and points which should have been clearly proved were assumed. Some very good work was done in the Practical Geometry, and many of the candidates who took this paper did very well also in the theoretical work.

Junior.—There was a great number of very poor papers—in some cases apparently due to slowness of work, as if the candidates had not practised writing under examination conditions, but usually from inability to argue properly from given data. The Practical Geometry (Paper C) was generally good, except in Question C 4, which seemed to be beyond the reading of the majority. In Question A 1 (B 1, C 5) it was surprising how many gave the Euclidean proof, and, in most cases, gave it well. Among those who attempted the modern proof, too many drew a perpendicular or a median instead of the angle-bisector, and not a few drew the perpendicular bisector of the base. Evidently their attention had not been drawn to the error of assuming properties that had not been proved or to the danger of reasoning in a circle. In Question A 2 many candidates evidently thought that diagonals of a parallelogram always bisect the angles. Very few could manage Question A 5 (B 5). Most seemed to think they had to place P on the angle-bisector. Question B 6 (C 7)—Bookwork—was usually very badly done indeed. The candidates confused their data and their conclusions in the most lamentable manner. Very few seemed able to state clearly what they were going to assume and what they were going to prove. Question B 7 (C 8), though often well done, was too often very poorly attempted, many of the candidates apparently not attempting to ensure that the circle should *touch* the given circle at B , and confining their attention to making it pass *anyhow* through A, B . Question A 8 was done by only two or three candidates. Some few papers were excellent, and one candidate obtained full marks for a very able paper. The chief fault was inability to work from given data to a required conclusion. Systematic practice in this is much needed, the data being clearly stated and each ticked off when utilized in the proof.

Preliminary.—A very large proportion of the work was unsatisfactory. The propositions were written out in a way which gave the impression that the principles were not understood, and the attempts to solve the riders were very poor indeed. Very few could give correct definitions of *straight line*, *triangle*, and *equilateral triangle*, the answers usually containing either too much or too little. But the great weakness was in dealing with the congruency of triangles. Until a pupil realizes completely under what sets of conditions two triangles can be congruent, very little progress can be made. In attempting to prove a property of a rhombus no notice was taken by the majority of the fact that the adjacent sides of the rhombus formed the corresponding sides in the congruent triangles. The easier practical work was usually done well, but, as in the paper on Euclid, the work on Theoretical Geometry was poor. The definition of a *parallelogram* almost always erred in excess, and no notice was taken of the request in the question that the properties of the parallelogram should be proved from the definition. More attention should be paid to neatness and style in writing out geometrical proofs.

Lower Forms. The easier constructions were usually done well, but the majority of the drawings were insufficiently explained. The two questions involving the equality of the areas of two triangles on

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the same base were done correctly in only two cases. The work on parallels was poor.

Trigonometry.

The general standard attained was hardly satisfactory. Much of the detail in the answers to the elementary questions was done very carelessly. Very few had any clear idea of the meanings of the trigonometrical function for angles greater than a right angle. The graphical work was very poor, and in logarithms only the more elementary question was done accurately, as a rule. In the solution of triangles, no candidate gave a correct answer to the question in which two sides and the included angle were given. All the attempts were based on the formula $a^2 = b^2 + c^2 - 2bc \cos A$. Consequently the work was extremely long, and the subsequent inaccuracies were in no way surprising.

Mechanics.

Senior.—In most cases the principle employed in the solution of the problems was sound, but there was weakness in the working.

Junior.—An excellent attack was made on the paper, but the quality of the work was doubtful. It was clear, however, that the candidates were beginning to form an idea of the difficult, but interesting, problems involved. The illustrations required in Questions 7 and 8 were satisfactory.

Book-keeping.

Senior.—The definitions were again poorly done. General ignorance was, as before, shown in the answers to the question on "goodwill," which point had been purposely repeated in order to ascertain whether the matter had been taken up by teachers. The improvement in the working of the last exercise was again manifest.

Junior.—The previous improvement was maintained on the whole. Some batches of papers were still weak on the Cash Book, but fewer candidates contented themselves with doing the Journal only. Some ledger postings were well done. The Questions were (except in the papers from the Colonial centres) poorly answered, although a choice was given, as before, in order to afford every opportunity to the candidates to display their knowledge.

Preliminary.—The Cash Book was, as before, the weakest point. The Journal and Ledger were again creditably done, and

the Questions were usually attempted, although in many cases poorly, and in some apparently with the idea that a wild shot might hit the target—e.g. "P/N" means "Please note," and "Post Date" means "Date you post the letter, which is stamped on it." Guess-work of this nature should be discouraged.

Mensuration.

Senior.—There were a fair number of sound papers and a few excellent ones, but in a very great number of cases there were signs that the subject had not been studied seriously and intelligently. Question 1 was very easy, and yet it was generally very imperfectly done, and in some cases not understood. Question 2 required careful thought and appreciation of the real nature of the problem. A few answers were excellent, and a fair number started in the right way, but were unable to estimate the extra height needed for each successive row after the second. A great number calculated the volume of a bar, and then estimated how many bars could go in if there were no waste spaces, which, of course, was quite useless. In the remaining questions, volume and surface were curiously confused, and the work was generally very unsatisfactory in substance, besides being untidy and inaccurate. Very few knew how to calculate the volume of a wedge (Question 7), and in Question 4, the pipe weight was calculated as if it were solid, or errors were made in the outer and inner diameters. In Question 6, many gave the volume of a solid of the given dimensions instead of the area of the surface. In fact the work showed, in the majority of cases, a good deal of ignorance, untidiness, and lack of intelligence. To this there were some excellent exceptions, but unfortunately they were exceptions.

Junior.—On the whole the work was very satisfactory, most of the papers showing that the subject was being carefully taught. The questions best done were the first two and the last, which were generally handled rightly, though numerical slips were not infrequent, and in many cases the work was untidy. Question 5 was hardly ever done, and apparently was seldom properly grasped. A good diagram would have been of great assistance; and yet this was given in only one or two instances. Questions 3, 4, and 6 were generally taken in hand rightly, and correct answers were obtained, but there were some curious answers to Question 6, one candidate bringing out the weight as some millions of tons. There were few or no signs of the adoption of rough checks to obviate grotesque errors, but this may have been partly due to shortness of time. It was remarkable that

the formula for the area of a triangle most frequently used was $\sqrt{s(s-a)(s-b)(s-c)}$, whereas the use of the perpendicular was obviously the straightforward method. The chief point to which attention should be drawn is the need for cultivating neatness of work and clear statement of argument.

French.

Junior.—The majority of the candidates showed a sufficient knowledge of French to deserve a certificate of success. It was generally indicated in the work that the language had been studied on sound lines. The general weaknesses were those to which attention has already been called: (1) want of care, both in studying the French passage for translation into English, and in choosing the right English equivalent; (2) thoughtlessness and hurry, rather than want of knowledge, in answering the grammar questions and in writing French.

Welsh.

Senior.—The translation of set passages was on the whole correct, and showed in some cases a quickness of perception in catching the *nuances* of the language. This was particularly so in the prose translation. The poetical passage which was set was not so well translated. It would be well if the pupils practised reading poetical passages as well, and as often, as prose. The essays showed command of fluent and idiomatic Welsh. This was particularly evident in the case of those who took in preference to the essay the translation of the English set passage. This division, however, showed the same evident weakness as is referred to in the lower divisions. The grammar was not well known. Probably candidates are allowed to depend on their everyday working knowledge of their mother tongue, and not so much care is taken in the mastery of the grammar as is shown in teaching any other modern language which is a foreign one to the pupils. Whilst questions referring to nouns, adjectives are answered by the majority of the pupils, those which required knowledge of the pronouns and verbs were but scantily touched. Explanations of difficulties were also lacking, or missed the point.

Junior.—The translations from Welsh into English and English into Welsh were, as a rule, well done, particularly the rendering of the English into Welsh, which showed an idiomatic use of the mother language. The grammatical questions were but fairly done. The meaning of words likely to be confused with one another was generally well known. The inflexion of nouns and adjectives was correct, but the construction of the verbs was lacking in fullness and exactness of expression. More translations into Welsh than essays on the subjects set were offered, and these in all cases were well rendered.

Preliminary.—The passages set for translation were all attempted by the several candidates, and their renderings were on the whole correct and idiomatic. The pupils require more exercise in the writing out of literary Welsh. Their tendency was to write colloquially. The questions in grammar were not satisfactorily answered, and it is evident that greater care is needed in teaching the grammar of the language from the start of the pupil's career. The pupils showed acquaintance with the rules concerning the nouns, but none concerning the verbs.

Latin.

Junior.—Set Books: The general work was somewhat below the usual standard. Although several of the translations were accurate, faithful to the original, and well expressed, the majority were loose and slovenly and gave signs of careless preparation. The knowledge of the subject-matter of the books was satisfactory.

Unprepared Translation: It was obvious that the candidates had not had sufficient practice in this subject, and that few had been trained in right methods. Those who attempted the passages had for the most part an adequate vocabulary, but few used it with intelligence. Random rushes were usually made at the sense, constructions were disregarded, and accident ignored.

Grammar: The percentage of failures was high, but a few centres did really good work. Questions on the declension of substantives, adjectives, and pronouns, and on degrees of comparison were fairly well answered. The parsing of verbal forms showed improvement, both as regards accuracy and completeness, but the answers to other questions on verb-accidence were lacking in accuracy and intelligence. The question on syntax was not well handled.

Composition: The sentences set for translation into Latin were easy, and called for the use of only the most ordinary constructions. A small proportion of the candidates did very fairly, and showed signs of thorough and judicious teaching; but the general work was unsatisfactory, except as regards vocabulary, and the majority of the versions contained serious blunders in accidence as well as in elementary syntax. Special attention should be paid to the concord of the relative, to the accusative and infinitive construction, and to interrogative sentences, both direct and indirect. Only a few candidates had sufficient knowledge of syntax to enable them to deal with the continuous passage successfully.

Light and Heat.

Senior.—The answers were well distributed over the question paper, save that few candidates knew anything about the connexion between heat and energy. In Question 6 a number of candidates attempted to describe the direct vision spectroscope. The ordinary instrument serves equally well, and is easier to understand. The distinction between mirrors and lenses, and, still more, between the convex and concave varieties, is surprisingly unknown. Question 1 was, on the whole, not answered nearly so well as the corresponding question in the Junior paper. The "method of mixtures" is not an alternative name for the "method of cooling," as a number of candidates stated.

Junior.—The answers, as a whole, were satisfactory, though one batch of candidates knew nothing whatever about either subject. Question 2 (on reflexions between parallel mirrors) was unpopular, and the second part of Question 5 (on the method of recombining the rays from a prism) was not well done. Many candidates gave the rule for the conversion of the Fahrenheit into the Centigrade correctly, but omitted to explain how it was arrived at. The curves showing the changes in volume which take place when ice is heated were too much out of scale. The rough proportion between the volume of ice and the water it forms at least should be known.

Magnetism and Electricity.

Senior.—Apart from those from one centre, the papers sent in were weak. The electrostatics questions appear to have been found too difficult; in particular, no correct replies to Questions 4 and 5 were returned. In magnetism few seemed to know the proper use of the magnetometer to measure the force on the axis of a magnet, and, as usual, the intensity of magnetization proved a stumbling-block. The current electricity was better; still, few knew the difference between a primary and a secondary cell, or were able to calculate the currents in the parallel circuits. The electrolysis was good. The small number of candidates who attempted Question 6, on the electrostatic induction machine, merely showed that they did not properly understand the Wimshurst. This was only to be expected, and it would seem desirable to make clear to the students one of a very simple pattern, such as Kelvin's Replenisher or Belli's Doubler.

Junior.—As at former examinations, too many candidates seemed to think that a magnetic substance is necessarily a magnet. The dip is not familiar; a number confused it with the declination and very few mentioned that the needle must swing in the magnetic meridian. Many candidates thought that the chain was *the* feature of the Leyden jar. Question 6, on the distribution of electricity over a charged conductor, received fewest answers, and those mostly quite wrong. The electric bell mechanism described by a large batch of candidates was neither that in common use nor an improvement on it.

Elementary Physics.

Junior.—On the whole examination, the work done by the candidates was good. The experiments were clearly described with due regard to practical details. The description of a simple machine was generally unsatisfactory, and, in many cases, the Parallelogram of Forces was not understood. Many of the candidates gave good sketches of the apparatus necessary for the experiments.

Elementary Science.

Preliminary.—The quality of the work done by the candidates was moderate. A general weakness was apparent in the description of practical work, resulting in the omission of essential details. This was particularly noticed in the determination of relative densities, and also in the simple measurement of the distance along a road. "Add the lengths of the straight pieces to the lengths of the curved pieces," without further explanation, is typical of many careless answers. The construction of a thermometer was generally described with due regard to practical details. It was surprising to find that many of the candidates were not familiar with the properties of such common substances as washing soda, chalk, and lime. In many cases clear sketches of apparatus were given, but a number of the sketches were very small and indistinct.

Chemistry.

Senior.—The papers, on the whole, were fair. Some of the candidates displayed good knowledge of the subject, but many of the rejected candidates showed an utter lack of preparation. It was evident that the relationship between equivalent and atomic weight was not generally understood, since more or less correct definitions of the terms were advanced, whilst no explanation of the relationship was attempted. An elementary knowledge of valency would be expected for this question. Most of the candidates gave a poor description of the apparatus for the preparation of ozonized oxygen, and, generally, sketches of apparatus were lacking in clearness. Little attention was paid to the possibility of obtaining ammonia by

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the distillation of coal; the oxidation of ammonia was not understood; and no reference was made to the important oxidation of ammonia to nitrates in natural waters. Some candidates gave good accounts of the process of dialysis for obtaining silicic acid, but, generally, the importance of this process had not been realized. The preparation of ethylene was generally well described.

Junior.—The papers as a whole were moderately well done. In the answers in both sections the candidates showed surprising lack of knowledge with regard to the hardness of water, and many impossible softening processes were described. Satisfactory answers were given to the question involving the relationship between the weight and volume of a gas. The description of apparatus was fairly satisfactory, but in many cases the sketches were inaccurate and untidy. In Section B the important question as to the presence of gases in water, although generally attempted, was not well done, and the significance of the dissolved gases was discussed only in a few cases. When required to describe a method of preparing crystals many candidates neglected to mention the drying of the crystals, thus leaving the preparation incomplete. It is satisfactory to record that many of the experiments were described as though they had been actually carried out or seen on a lecture table, and not merely read from a textbook.

Practical.—The work was satisfactory on the whole, and a fair proportion of good reports were obtained. There was a general weakness in reporting on changes brought about when a simple substance—namely bismuth subnitrate—was heated. There was also inability to distinguish between the various metals of the second group, bismuth being returned as lead in many cases. The failure of a certain number of candidates to detect nitric acid in bismuth subnitrate was due to lack of method in testing for acid radicles. The analysis of the mixture was, generally, accurately carried out, and good reports were made. Very few candidates attempted the simple volumetric problem, and no satisfactory results were reported.

Drawing.

Senior and Junior.—In Model and Memory Drawing the tests are always chiefly addressed to the application of the same few "grammar" rules; and, while a few candidates showed marked ability and others displayed an equal inability to deal with the problem, the majority of pupils reached the stage at which their drawings are on the verge of being both pleasant to look at and

practically valuable as truthful representations. In such cases it is probable that the further necessary accuracy and decision would be attained by additional practice. Model Drawing, both Senior and Junior, showed some improvement in the management of horizontal surfaces: that is, there was less of the tendency to a bird's-eye view which is due to preoccupation with the true forms of the objects, but the perspective relations of parallel lines were not often really mastered. In a great number of cases this is no doubt owing to the fact that the candidates have never seen their drawings as a whole, their eyes being all the time far too close to the paper. At a distance of four feet or more even a feeble draughtsman can generally detect and correct most of his obvious faults in perspective. In both stages there might have been better drawing of the ellipses partly hidden. The rim of the basin, the lower circle of the flower-pot, and the relations of the drawing-boards to the objects placed on them, were but poorly observed.

Senior.—Memory Drawing: Faults of actual drawing were often less conspicuous than defects of constructive reasoning—for instance, as to the possibilities of balance in a coal-scuttle either when lifted by its handle or when standing on its base. Only four candidates attempted Perspective and Mechanical Drawing. None showed great merit.

Junior.—Memory Drawing: The Axe proved an easy subject, and the results were generally satisfactory. Drawing from the Flat: The body and foot of the Vase were better observed than the remainder. Here again, if candidates could be persuaded to keep their eyes further from their work they would not only realize more strongly the importance of balance, of "live" unbroken curves, and of good quality of line, but would attain these things more easily. There seems to be some recrudescence of "lining in": if the novelty of the printed instruction has worn off its importance has not diminished.

Preliminary and Lower Forms.—In both grades the practice of "lining in," either with a heavy, careless pencil or with pen and ink, has reappeared. In papers of the Lower Forms the average of recent attainment has, upon the whole, been satisfactorily reached. It seems, however, that this average would have been exceeded if drawing the essential structural skeleton had been more general. It should have been a matter of course to begin with vertical and horizontal axes plus a subsidiary vertical line. But it is evident that large numbers of candidates, having drawn the vertical axis, had

no idea of the desirability of further "scaffolding." Hence many who could draw each single curve well, or even beautifully, had to receive marks but little exceeding bare passes, while their awards would have been considerably raised had the main positions been planned out first by means of such a construction as that indicated. The general sense of quality is fully maintained by candidates of the Preliminary Grade in their Freehand exercises from the Flat. This is clearly shown by the number of papers which received good marks. In some measure, however, the lack of forethought in planning the large forms, to which allusion is made in the report on Lower Forms work, is also to be found here. The desirable scheme of construction is, of course, less evident in this than in the lower grade, but all pupils should, first of all, consider the relation of the width on each side of the central feature as compared with the total height, thus avoiding drawings either excessively wide or decidedly attenuated. In a good many cases candidates have been in too great a hurry and have proceeded to details which would not fit properly into their places because the sweep of the main curves was not accurate. Still, when all deductions have been made, the general level of attainment is very fairly satisfactory. The Model Drawing was distinctly good for this grade. It is to be regretted that the papers are so few in number.

A vote of thanks to the Chairman terminated the proceedings.

CORRESPONDENCE.

THE BOARD OF EDUCATION AND THE COLLEGE OF PRECEPTORS.

To the Editor of "The Educational Times."

SIR,—Most sincerely do I hope that your readers will seriously consider the four proposals named in the first paragraph in your Leader in the March number of *The Educational Times*, which, if carried into effect by the Board of Education, would result in a "submarine blockade" of the College of Preceptors. I further trust that your last words—"the College has been ignored, and must accept its legitimate claim to the position and responsibilities that devolve upon its Council"—will have the effect of a trumpet call to arms.

Surely the Board of Education cannot have perused the charter of incorporation (granted to the College sixty-six years ago) under the light of what the College has done for teachers and their pupils or they would have discovered and candidly admitted that it has faithfully and efficiently discharged its duties from its birth in 1846 to the present day, in face of many difficulties and discouragements. Neither the College nor its Council has ever lost, or will ever lose, courage. Let all teachers who love justice and liberty "join the colours" of the College. "All in one" is strength.

Careful and unbiased attention to all that the College has accomplished would have revealed the further fact that it has laboured diligently for more than half a century, not only to "advance the cause of education," but also to secure for the scholastic profession legal recognition, independence, and self-government.

In June 1860 a private member of the College moved and carried a resolution at a Special General meeting of the College that an effort should be made to obtain a Scholastic Registration Act analogous to the Medical Registration Act. The Council subsequently issued a circular-letter condensing the scheme in the following words:—"All teachers now engaged in the profession, of whatever class, would be entitled to be registered; but, after some future date to be specified, only persons holding degrees, recognized diplomas, or Government certificates could be registered, without which no person would be in a position to prosecute any claim for scholastic instruction in the courts of law. Thus, all interference with 'vested interests' would be carefully avoided, while year by year those who are unfit to hold the office of educator would gradually be eliminated from the profession. A Scholastic Council formed on a plan analogous to the constitution of the General Medical Council would represent the interests of education and of educators, without favour or partiality towards any particular college, society, or system of education, while teachers would be as free and independent in the management of their schools and in their methods of teaching as at present. Qualified educators would be registered irrespectively of their religious opinions or denominations, the only conditions being competency to instruct and good moral character."

A Committee was immediately formed by the Council "for the purpose of bringing the question before the public, the Government, and the Legislature." The Committee developed into the Scholastic Registration Association, in order to include non-members as well as members of the College. Conferences, public meetings, deputations to Ministers of Education; interviews with Royal Commissions, ex-

tensive correspondence, &c., resulted in the laying of a firm foundation.

After some ten years of hard and incessant work, circumstances unexpectedly arose which led the Association to transfer its work to the Council of the College. It was fortunate that at the time of transfer the President of the Association—the late Rev. Dr. Haig-Brown, Master of Charterhouse—was also President of the Council, and the Hon. Secretary, with other leading members of the Association, members of the Council. This secured unbroken continuity of action, which the Council carried on with wisdom and enthusiasm, both in and out of Parliament.

At last we have the Registration of Teachers, but no satisfactory provision for their independence and self-government. Still, part of a loaf, however small, is better than no bread.

It is to be hoped that when the Board of Education fully recognize the fact that the College was the *first* incorporated body of teachers; the *first* to examine the teachers of secondary schools, with power under its Charter "to ascertain and give diplomas of the acquirements and fitness for their office"; the *first* to examine the scholars of secondary schools, under authority likewise given in its Charter; and the *first* to endeavour to secure the consolidation of teachers into a legally recognized and self-governed profession, they will not hesitate to give the honour due to the College.

Nor must the Board of Education forget that to dishonour the Charter would be to dishonour the memory of the most noble and illustrious Queen who granted it. Never will the College allow its Royal Charter to be treated with disrespect by any Authority, however exalted or however powerful.

In the meantime, and without delay, the College must prepare for the vigorous defence of its rights and privileges, and for strenuous opposition to any act of injustice to the teacher or to the cause of education.—Your obedient servant,

Kenworth, Cissbury Road, Worthing.

March 6, 1915.

IS OUR ENGLISH PRONUNCIATION "CARELESS, SLOVENLY, AND SLIPSHOD"?

To the Editor of "The Educational Times."

SIR,—I must apologize to Mr. A. Millar Inglis if I have misinterpreted his first letter. That letter, however, certainly appeared to me to be a collection of erroneous statements made by a person who was, at the time of writing, ignorant of the real facts of English pronunciation.

In his second letter Mr. Millar Inglis admits, and even states as indisputable, "that many words have two forms of pronunciation, according as they are stressed or unstressed." But in his first letter he referred to the stressed forms as "correct," and to the unstressed forms as "incorrect." Indeed, the chief purpose of that letter seemed to be to protest against the so-called "incorrect" forms. Now if, while writing that first letter, Mr. Millar Inglis had at the back of his mind a clear admission of the validity of both forms, why should he have used the terms "correct" and "incorrect"?

As a matter of fact, the so-called "incorrect" forms occur far more frequently than the so-called "correct" ones. Take, for instance, the phonetic transcription given by Mr. Daniel Jones (in "The Pronunciation of English," pages 112-113) of a pronunciation (that of Dr. E. R. Edwards) which the author describes as "typical educated Southern English." The word "was" occurs eight times in all. Only twice is it pronounced in what Mr. Millar Inglis calls the "correct" way, while on the remaining six occasions the so-called "incorrect" form is used. We have here an exceptionally large proportion of so-called "correct" forms. Taking the word "of" as another example, we may note that it occurs seven times, and that on all occasions it is pronounced in the so-called "incorrect" manner. The words "at" and "that" each occur three times, and in all cases are rendered in the so-called "incorrect" way. As for the word "and," Dr. Edwards not only uses the weak form in every case, but also drops the final *d* whenever the word occurs before a consonant. And so we might go on. To sum up, we may say that the forms dubbed by Mr. Millar Inglis in his first letter as "incorrect" are those usually adopted by our good speakers, even when reading carefully.

It is not for me to say exactly what was the state of affairs in the mind of Mr. Millar Inglis when he wrote his first letter. I leave it to phoneticians who have read the correspondence to judge whether that letter might be taken as indicating ignorance of the real facts of good English pronunciation. On that judgment depends any justification that is possible of the somewhat sharp rebuke contained in my previous letter.

What the precise value of my little book on English phonetics has to do with the matter in dispute, I fail to see. But, if the book is to be publicly condemned, Mr. Millar Inglis might at least furnish some first-hand evidence. "Criticism is cordially invited and will be gratefully received" (Preface, page ix). *Unfounded* abuse, however, is not criticism. The only ground which the letter of Mr. Millar Inglis

leaves me to imagine that he has for agreeing with the condemnation of Dr. Krusinga is that he is excessively annoyed with me on account of my attempt to rebuke what I, rightly or wrongly, considered to be the misleading remarks of an unqualified person.

I fail also to see what the alleged shocking neglect by me of other matters has to do with the point at issue. I might be the most disreputable person in the world; but that would not in the least affect the question as to what is the "correct" pronunciation of many of our unstressed monosyllabic words.—I am, Sir, your obedient servant,
BENJAMIN DUMVILLE.

REVIEWS.

The Schools of Medieval England. By A. F. Leach.
(7s. 6d. net. Methuen.)

When the conscientious reviewer has read through the 332 large closely printed pages of this handsome book he is inclined to be complacent. He soon realizes, however, as he reflects on what he has read, that the volume is one of those that come along now and again to serve the excellent end of keeping the professional critic humble. When a man who has made himself the chief authority on a subject presents such a mass of matter, it ill becomes the reviewer, however competent he may be, to pit his journeyman's knowledge against a master's. It is extremely dangerous to attack Mr. Leach in regard to matters of fact, as is conspicuously illustrated by his treatment of certain of his critics in the present volume. He is a fighter by natural preference, and is as keen on what may be called prophylactic defence as on the positive counter-offensive that normally follows attacks. It is with great regret that he announces that the plan of the series in which the present book appears—Methuen's popular series of "Antiquary's Books"—"excludes references to authorities." But he is not to be balked of his challenge, for he adds: "There is, however, not a single statement in this book not founded on verifiable authority."

Those who are acquainted with Mr. Leach's writings will find in this volume a good deal with which they are familiar. This is hardly surprising when one glances over the three pages of small type given up at the beginning of the book to an enumeration of the works on the history of schools from our author's pen. These contributions, however, are distributed over so many different magazines, proceedings, and separate volumes that the reader who is interested in the subject will be glad to have the new presentation now before us.

It cannot be said that the book forms a unity. The nature of the case makes this practically impossible. There is so much matter and of such diverse kind that the only way in which it could be reduced to an organic whole would be by assuming a general theory and subordinating the presentation of facts to the working out of that theory, which is precisely the sort of thing that is abhorrent to the mind of Mr. Leach. What he aims at is the presentation of all the relevant facts with a running commentary and criticism. He places all the data before his readers, and then draws his conclusions, leaving to his readers the power of criticism that comes from the possession of all the known facts. In consequence, the reader is left with the sort of feeling that accompanies the reading of a dictionary, or at any rate a small encyclopædia. The mass of detail presented makes the reading a little jerky, and for the plain man somewhat difficult. But he is rewarded time and again by illuminating generalizations that he is able to accept without fear of error, since he has worked for them by mastering the details on which they are based.

The book makes a double appeal, a particular and a general. The detail with which the foundation and history of certain schools are treated will inevitably have a strong attraction for those who are specially interested in these schools; and the fact that there is so much that is controversial in such histories will only increase the interest. On the other hand, the students of the general history of education, and even those "educationists" that in the text are placed within the humiliating inverted commas, will find their satisfaction in the generalizations Mr. Leach is able to reach and justify. The monks are somewhat severely handled, and their claims as school founders rejected on what appears to

be satisfactory evidence. Greek and Roman models are treated in the most enlightening way. Everywhere there is a freshness of presentation that rouses the interest and clears the views of those who have perhaps become somewhat stale in their way of regarding the commonplaces of educational theory and history. We are all familiar, for example, with the tiresome discussions regarding the various ways in which the educational theorists of the past have been classified, and most of us will read with some satisfaction the vigorous presentation of the facts of humanism to be found in these pages. The essence is gathered up in the sentence: "It was the substitution of humanism for divinity, of this world for the next as the object of living and therefore of education, that differentiated the humanists from their predecessors." Not, perhaps, the final word on the subject, but one that pays for its passage by encouraging thought. Intelligent schoolmasters who are not keen about theory are often anxious to know what exactly took place in the old schools. These will find a great deal to satisfy their curiosity, particularly in the chapter on "Henry VIII and the Schools." Those who are fond of statistics will find at the very end of the volume a most interesting inquiry, after the manner of Mr. Hilaire Belloc, into the number of grammar schools actually available in the pre-Reformation period. On what is technically called a conservative estimate Mr. Leach gives one grammar school to every 5,625 people, which, as compared with to-day, "is not to the disadvantage of our pre-Reformation ancestors."

As one might infer from the series in which it appears, the book has a strong attraction for those who have leanings towards archaeology. It is full of quaint old-world lore, and the forty-three admirably reproduced illustrations add greatly to the charm of the book, while the copious index increases its usefulness.

The Child and the Nation. By Grace M. Paton.
(1s. net. Student Christian Movement.)

This little book is prepared for social workers. The Student Christian Movement has evidently made up its mind to provide guidance for those who are willing to serve the State by taking part in the wise bringing up of children. The book gives a very clear account of what is at present done by the Government in the way of education, medical inspection, and feeding. All the opportunities for private voluntary effort are set forth, and the interested reader can hardly fail to find some outlet that meets his individual powers and tastes. Chapter V makes encouraging reading. We are glad to learn that vigorous steps are being taken to organize the processes by which the child finds his way from school to life work. "Finding the Child a Job" is a heading that appeals not only to the social worker, but also to the parent—even the selfish parent. That vocational guidance that is assuming such importance in America is not altogether neglected here. The typical letter given on page 107 to a boy who is shortly to leave school is one of the most hopeful signs we have seen. The work of the Juvenile Labour Exchanges promises exceedingly well. Altogether the reader of this little manual will be not only stimulated by the magnitude of the work to be faced, but encouraged by the progress already made and inspired by the possibilities suggested. The book is evidently intended to be used by reading circles, for each chapter is followed by a set of "Questions for Investigation." These provide excellent bases for discussion, and there is, in addition, a useful bibliography. The author has to be congratulated on producing an eminently workmanlike and useful manual.

OVERSEAS.

The *Pedagogical Seminary* for March contains a very interesting article on instruction in city schools concerning the War. It is based on the answers to a questionnaire sent out to city superintendents, State Commissioners of education, and various organizations. From an examination of the record and the known opinions of the 257 city superintendents who were appealed to and of whom 148 did not reply, the writer of the article comes to the conclusion that "the political game" exercises too potent an influence on the freedom of opinion of officials. The replies represent 39 States and a population of over 18,000,000, the total number of teachers

concerned being approximately 60,000. The War is taught in 87 cities (including New York, Chicago, San Francisco, and Seattle), the whole representing a population of about 14,000,000. The War is not taught in 22 cities (including Boston, St. Louis, and Philadelphia), representing a population of 4,250,000. A selection is given of the reasons that have determined the superintendents for or against having the War taught in schools. The main reasons against are the presence of so many different nationalities in the schools and the unreliability of the information available. Some give reasoned statements, but some are rather incoherent. Superintendent Richey, of McKeesport, Pa., for example, explodes as follows: "So cruel, so uncalled for, so barbarous, so heathenish, so, so, so . . . Let us try to forget it." On the other side, Superintendent Shafer, of Cripple Creek, Colo., maintains that: "It is folly to think that you can prevent the discussion of any matter so universally of interest to the American public and to the school public." The article then proceeds to discuss the best way of teaching the War in order to get the most satisfactory results out of it. It is correlated with most of the school subjects, but some of our English teachers will be inclined to think it is carrying matters too far to drag in hygiene, and especially eugenics, in the school teaching of such a subject.

Education for March has a rather dismal note on the itinerancy of teachers in some parts of the United States. In Louisiana, apart from New Orleans, only 2·14 per cent. of teachers have been ten years or more in the same school, 2·76 per cent. for five years only, 9·49 per cent. for three years only, and 54·07 per cent. for one year only. The remedy suggested is that there should be a certain moderate increase of salary with the length of service. A more cheerful note is struck when we turn to a bulletin from the Department of Education at Washington, for there we learn that the truant officer is passing from the mere "kid-cop" stage and is becoming a preventive rather than a punitive person. Feminists will trace the working of cause and effect when they read that women are taking their place in this hitherto questionable work. In several cities we are told this new type of officer is a college graduate.

The *English Journal* (Chicago) is as interesting and valuable as usual. Its March number has an excellent article on "The Laboratory Equipment of the Teacher of English." We are familiar with most of the equipment suggested, but there is a touch of freshness in what is said of the stereograph and the phonograph. British teachers of English will do well to keep an eye on the organ of their American colleagues.

The *American Journal of Educational Psychology* is depressed at the slow percolation of psychological knowledge into the brains of educational administrators, and gives a lamentable example. "Obviously," it remarks, "President Nichols has not become saturated with recent studies in educational psychology." A timely note is given on "The Lecturer's Illusion." This consists in the feeling of satisfaction that is apt to arise in the mind of the lecturer because his method is easy, clear, correct, and without friction. The pupil's difficulties are kept decently out of sight. "The fallacy lies essentially in the fact that this feeling of satisfaction attaches to the achievement of the lecturer instead of that of the pupil." The *Journal* believes that "the information lecture would disappear if those who use it examined the grounds of their feelings of satisfaction with it."

A significant indication of America's yearning after nationality is afforded by the Lewis Bill now before Congress to create a National University at Washington, and to appropriate 500,000 dols. for the first year.

Prof. W. H. Heck, of the University of Virginia, is at present concluding an investigation into the matter of Home Study. *The School Review* (Chicago) for March gives some of the salient results. Of 1,785 elementary pupils questioned, 3 per cent. study at home before going to school in the morning, 21 per cent. on the afternoon of school days, and 73 per cent. in the evening of the entire week. Three per cent. study on Sunday. Practically the same results are obtained in the case of secondary pupils. In answer to the question, "Would you rather have your present school day longer, with more time to study at school, or shorter with less time to study at school, or about the same as it is now?" the vote is as follows:—Elementary pupils: longer, 156; shorter, 518;

same, 1,064. Secondary pupils: longer, 131; shorter, 309; same, 618. To the testing question, "Can you prepare your lessons better at school or at home?" the answers are:—Elementary pupils: school, 555; home, 1,176. Secondary pupils: school, 250; home, 760. We look with interest for the complete statement of Prof. Heck's research.

There is a movement in America for a speeding up of the work done in schools so as, among other advantages, to enable the students to enter the University sooner than at present. As great an authority as President Lowell believes that pupils become stale at school, since "maturity may easily become over-ripe." He maintains that "the average age (eighteen and a half) of Harvard freshmen represents at least a year of educational waste." Here is matter for the consideration of our English educational authorities.

GENERAL NOTICES.

CLASSICS.

T. Livy: Ab Urbe Condita, Liber III. Edited by T. Thoresby Jones. (3s. 6d. with Vocabulary, 2s. 6d. without. Clarendon Press.)

The text and apparatus criticus of this edition are taken from the Oxford edition of Profs. Conway and Walters. Mr. Jones has furnished the introduction, commentary, and vocabulary, and has performed his task very ably. In addition to brief accounts of the life, sources, credibility, and style of Livy, the introduction contains an historical sketch in which an admirably lucid summary of the origin and development of the Roman "Comitia" is given. In the commentary, which is very well done, the editor shows a wide knowledge of the linguistic usages and subject-matter of his author, and shirks no difficulties, grammatical or historical. We heartily recommend the book.

A Latin Note Book. Arranged by C. E. Hodges, M.A. (2s. Cambridge University Press.)

This notebook is so arranged as to exhibit when filled a complete accidence and syntax of elementary Latin. The method is such as most teachers follow with their pupils. The page is divided into columns; at the top the usage illustrated is named, and one example given. A blank space follows for the pupil to fill in other examples. The advantage of having the headings printed is that uniformity is attained, and reference facilitated. Teachers should find the book very useful.

A Latin Prose Grammar. By E. L. Churchill, B.A., and E. V. Slater, M.A. (3s. 6d. Bell.)

This grammar has been compiled chiefly with a view to Latin Prose Composition. Everything which is not of practical use for Latin Prose has accordingly been omitted. Part I contains the accidence of Latin; Part II deals with the simple sentence, and contains lists of verbs and adjectives which require particular cases for reference and for memory work. Part III explains all the ordinary constructions met with in the Latin compound sentence. The authors have also given an alphabetical list of Latin relative and subordinative conjunctions, with their various meanings and constructions. Part IV, besides the usual sections on the Roman calendar, money, &c., contains two somewhat novel and very useful features. The first is an alphabetical list of the principal Latin verbs that have anything noticeable in their construction. The second consists of a large number of instances of English words and idioms that present difficulties in translation with their Latin equivalents. These are arranged in alphabetical order of the English words, with notes and explanations on the opposite page. The book thus forms an excellent guide to the writing of Latin.

FRENCH.

The French Romanticists. By H. F. Stewart and Arthur Tilley. (4s. net. Cambridge University Press.)

This anthology contains illustrations of poetry from Lamartine (15 pages), de Vigny (9 pages), Hugo (40 pages), Gautier (6 pages), de Nerval (1 page), Musset (37 pages); and, of prose, Chateaubriand (17 pages), Nodier (5 pages), Lamennais (3 pages), Thierry (8 pages), Michelet (12 pages), Quinet (3 pages), Mérimée (6 pages), Sainte-Beuve (3 pages), Hugo (16 pages), Balzac (16 pages), George Sand (8 pages), Gautier (7 pages). All poems but one are given in full. "Le Réquisitionnaire," of Balzac, and Mérimée's "L'Enlèvement de la Redoute" are given in full. Chateaubriand is represented by a number of short passages; as the authors say, René and Atala must be read in full. This, indeed, is true of other works, but much may be gained by an intensive study of short selections. This volume is, of course, a companion to "The Romantic Movement in French

Literature," and should be used with it; all the more, as examples of de Vigny's and de Musset's prose will be found there, and further examples from Sainte-Beuve and Gautier; while other authors, e.g. Mme de Staël, not represented here, are illustrated there.

Contes de la France Contemporaine. By W. M. Daniels. (2s. without, 2s. 6d. with Vocabulary. Harrap.)

The introductions contain quotations from Henry Béranger, Norbert Sevestre, and Emile Moselly. Some of the stories are already well known, others deserve to be. They are arranged as follows:— (1) "Conteurs de la Vie des Provinces": Anatole le Braz, "Histoire Pascale. Le Puits de Saint-Kado"; René Bazin, "La Boîte aux Lettres"; Emile Moselly, "Le Trompion"; Paul Arène, "Propos de Chasse"; Charles le Goffic, "Plat de Carême"; Paul Féval, "La Chanson du Poirier"; Alphonse Daudet, "La Dernière Classe"; Auguste Manin, "Les Clefs du Maître Jaune." (2) "Conteurs de la Vie Nationale": Georges d'Espèrès, "Un et Indivisible"; André Lichtenberger, "La Croix de Saint-Louis"; François Coppée, "La Vieille Tunique"; Paul Bourget, "L'Ami d'Enfance"; Guy de Maupassant, "Les Prisonniers." (3) "Un Conteur de la Vie Contemporaine": Guy de Maupassant, "Mon Oncle Jules." (4) "Un Conteur de la Vie d'Autrefois": Anatole France, "Le Jongleur de Notre-Dame." There is some weakness in the language notes, which are limited mostly to translation: e.g. page 31, "cuire"; page 43, "fiéfé"; page 65, "mèche"; or the phrase, page 49, "N'y a pas de danger, pour ce que c'est beau." Surely the phrase, page 117, "J'en ai-t-i vu," is a false interrogative. The origin is suggested in the note, but not plainly stated. Further examples are needed of this common, popular form. From the preface we learn that the Sixth Form at the Westminster City School have chosen the stories and compiled the notes and vocabulary. Boys, master, and publishers all deserve congratulations on this attractive volume.

HISTORY.

Outlines of Ancient History: From the Earliest Times to the Fall of the Roman Empire in the West, A.D. 476. By Harold Mattingly, M.A., Fellow of Gonville and Caius College, Assistant in the Department of Coins and Medals in the British Museum. (10s. 6d. net. Cambridge University Press.)

Mr. Mattingly takes Ancient History "in the ordinary geographical acceptation" of the term, so as to include the history of the Nearer East, of Europe, and of the North of Africa, and to exclude the history of China and India. A classical man, he practically follows the classical tradition; or, perhaps, rather the classical tradition was adopted by the Syndics of the Cambridge Press and prescribed for a Cambridge classic. Anyhow, apart from the first chapter, the work is simply a condensed narrative of the history of Greece and Rome. At the same time, the condensation is accomplished with distinctive ability and judgment, the main points being set out clearly and effectively and the movement of cause and effect kept steadily in view. In the Roman history, indeed, there are points, both constitutional and political, where the views of Mommsen might have been advantageously submitted to criticism and superseded. There is no further place for the figment of *conclia plebis tributa* (page 259). The expression "his [the Emperor's] *edicta, constitutiones, and acta*" (page 363) gives the misleading impression that *edicta* were not *constitutiones*. *Lex Voconia* (page 297) should, of course, be *Lex Voconia*. But the main thing is that the general presentation, in view of the limited space, is of a high order. The first chapter is the freshest and most interesting. It deals with the peoples east and south of the Mediterranean from Babylonia and Assyria, through Palestine and Egypt, to Carthage; and we should gladly have seen it in more ample form, especially the section on Crete and Gnosus. There are twelve most useful maps and twenty-six illustrations.

English Economic History: Select Documents. Compiled and edited by A. E. Bland, B.A., of His Majesty's Public Record Office, P. A. Brown, M.A., Lecturer in the University of Durham, and R. H. Tawney, B.A. (6s. net. Bell.)

There is just one thing that we dislike about this book, and that is the painfully apologetic tone of the Introduction. It is obviously hopeless to expect to please everybody by supplying him with every particular document he wants; and that might be taken for granted. But if anybody thinks he could produce a more comprehensive and more pointedly illustrative selection of documents for the use of students of English Economic History from the Norman Conquest to the Repeal of the Corn Laws (1846), within 700 pages—and at the cost of six shillings—by all means let him try it. In spite of all defects inevitable defects—this book will be an invaluable manual for students, not only for what it contains, but also for what it suggests. It is divided into three parts, corresponding with large developments: 1000-1485; 1485-1660; 1660-1846. Each part is subdivided into sections relating to some particular aspect of the subject, and each section is introduced by an explanation of the significance of the extracts it contains. A large proportion of the documents are here

published for the first time. The term "documents," too, is to be taken in a wide sense, for there are literary extracts as well as passages from the archives. An important aspect of them is that they bring out the influence of individual initiative as well as the movement of State action. The compilation has been manifestly most arduous and thoughtful, and we heartily commend the work.

MATHEMATICS.

A First School Calculus. By R. Wyke Bayliss, M.A., Mathematical Master at the Whitgift Grammar School, Croydon. (4s. 6d. Arnold.)

To describe this as an ordinary textbook would hardly be correct, for it aims at teaching the elementary principles of the calculus by means of a system of question and answer. It can best be described as a large collection of carefully selected problems, both practical and theoretical, so arranged that the various steps in the work are developed quite naturally and in correct sequence. The usual proofs are mostly derived from the questions themselves, but there is a large amount of very necessary explanatory matter added to make the work clear. A useful feature is the insight that is given into the practical application of the calculus, a feature that will make the book especially applicable to all forms of technical work. Another advantage is that the student's previous mathematical training need not have extended beyond the ordinary fundamental elements of algebra, geometry, and trigonometry, as opportunity is afforded during the course outlined to pick up such additional information as may be found necessary. On account of the variety of problems available for demonstration purposes and the general novelty of the treatment the book should appeal especially to teachers, and they ought to obtain a copy. It is difficult, however, to express any decided opinion as to whether the use of the book would prove altogether satisfactory in the case of students working alone. The answers are particularly complete. There is an unfortunate misprint on page 136.

Percentage Trigonometry. By John Coleman Fergusson, M.I.C.E. (3s. 6d. net. London, New York, Bombay, and Calcutta: Longmans.)

Simplification of trigonometrical calculation, and the reduction of much of it to arithmetical work, these are the essential characteristics of the method of angular measurement briefly discussed by the author in the present textbook, and treated by him with much greater fullness in his recent large work entitled "The Percentage Unit of Angular Measurement, with Logarithms." Messrs. Longmans have been responsible in each case for the publication. The volume now under consideration was compiled in deference to the wishes expressed by expert readers of the more important treatise, who desired that the general principles there explained should be available in a form accessible to the ordinary student. If Mr. Fergusson's method meet with such approval as to be widely employed, then the detailed work in plane trigonometry will undergo much modification. It is, of course, impossible within the limits of a brief notice to sketch, even in outline, the ingenious mode of angular measurement detailed by the author. We may, however, mention that the uniform element used as the basis of his system is not an angle of constant magnitude; hence, also, it is not an arc of unvarying length. It is, in fact, 1 per cent. of half the length of the tangent line to a fundamental circle which is formed by any side of the circumscribing square. Complementary angles play an important part, and are still those whose sum is equal to a right angle, but their measures of the percentage unit are reciprocal in value. The radius of the fundamental circle is always regarded as unity. In the diagrams to the volume which illustrate leading principles of the new method one often meets "old friends with new faces." In a future edition many misprints existing in the present one must be corrected.

"Mathematical Monographs," No. 13.—*The Theory of Numbers.* By Robert D. Carmichael. (4s. 6d. net. New York: John Wiley & Sons. London: Chapman & Hall.)

Material arranged for lectures which were delivered by the writer to students at the University of Indiana forms the basis of the text of the present treatise. The course of reading suggested is strictly of an introductory character, and, except in the final chapter of the volume, those portions of the Theory of Numbers are alone treated which are essential to the initial stages of any serious study of the subject. The close of the work, however, consists of a brief consideration of a few of the directions in which the student possessed of a knowledge of the first principles of the theory may proceed in order to broaden and deepen his acquaintance with one of the most interesting branches of mathematics. The author discusses the various well known propositions both concisely and lucidly, and weaves the threads of his instruction into an attractive whole. The textbook belongs to a series of mathematical monographs, many of which have long been before the public, although originally they were issued in combined instead of separate form.

PUBLICATIONS RECEIVED.

EDUCATION.

- The Life and Teaching of William Honyman Gillespie. By James Urquhart. Clark, 1s. net.
 The Child and the Nation. By Grace M. Paton. Students' Christian Movement, 1s. net.
 Handwork as an Educational Medium. By P. B. Ballard. Second Edition. George Allen, 3s. 6d. net.

CLASSICS.

- A Short History of Classical Scholarship: from the Sixth Century B.C. to the Present Day. By Sir John Edwin Sandys. Cambridge University Press, 7s. 6d. net.
 The Oxford Latin Course. Part I, From the Elements to the Text of Caesar's Campaigns in Britain, modified to avoid the use of the Subjunctive Mood. By R. L. A. Du Pontet. Clarendon Press, 2s. 6d.
 Lingua Latina: P. Ovidi Nasonis Elegiaca. Edited by L. R. Strangeways. Clarendon Press, 2s.
 The Year's Work in Classical Studies, 1914. Edited by Cyril Bailey. Ninth year of issue. Murray, 2s. 6d. net.

FRENCH.

- C'est la Guerre: Six Nouvelles. Par Marc Ceppi. Bell, 1s. net.
 Harrap's Modern Language Series—(1) Lectures Historiques (1610-1815). Editées par Emma Moffett. 2s. 6d.; without vocabulary, 2s. (2) De la Terre à la Lune. By Jules Verne. Edited by R. T. Currall. 1s. 6d. (3) Cinq Semaines en Ballon. By Jules Verne. Edited by J. E. Mansion. 1s. 6d. (4) Voyage au Centre de la Terre. By Jules Verne. Edited by E. R. Shearer. 1s. 6d.

GERMAN.

- Die drei Gerechten Kammacher. Von Gottfried Keller. Edited with notes and vocabulary by Harry T. Collings. Heath's Modern Language Series, 1s. 6d.
 Erstes Deutsches Lesebuch. Von Martin Schmidhofer. Mit Bildern von Joseph Kahler. Heath's Modern Language Series, 2s.

FLEMISH.

- De Eerste Steppen om Engelsch te Leeren. By T. W. Cox. For Flemish-speaking Belgians to learn English. McDougall's, 6d. net.

ENGLISH.

- Practical English Composition. By C. M. Gerrish and Margaret Cunningham. Edited and arranged for use in English Schools by E. W. Edmunds. Heath, 2s. 6d.
 Poetry and Life Series.—(1) Cowper and his Poetry. By James A. Roy. (2) Marlowe and his Poetry. By John H. Ingram. Harrap, 1s. each.
 Tennyson: Oenone and other Poems. Introduction and notes by F. J. Rowe and W. T. Webb. Macmillan, 1s. 9d.
 Spenser: The Faerie Queene. Book I. Edited by Lilian Winstanley. Cambridge University Press, 2s. 6d.
 Milton. By John Bailey. Home University Library. Williams & Norgate, 1s. net.
 The Children's Cameos of Poetry and Prose. For use in Schools. Patriotic and National. George Philip, paper 4d.; cloth 5d.
 Ting-a-Ling Stories. By K. E. Gilbert. Madgwick, 1s. net.
 Great Names in English Literature. Vol. II, Dryden to Burke. By Edith L. Elias. Harrap, 1s. 3d.
 Essays in Criticism. Second Series. By Matthew Arnold. Macmillan, 1s. net.
 Kidnapped. By Robert Louis Stevenson. School edition. Cassell, 1s. 6d.
 Everyman's Library.—Young's Travels in France. Dent, 1s. net.
 Everyman's Library.—(1) Scottish and other Miscellanies. By Thomas Carlyle. (2) English and other Critical Essays. By Thomas Carlyle. Dent, 1s. net each.
 The Progress to Literature.—Stage I, Wendy's Friends. 10d. Stage II, The Home of the Lost Boys. 1s. Stage III, The Chimney Corner. 1s. 3d. Stage IV, The Church Porch. 1s. 6d. Stage V, Masterful Men. 1s. 8d. Stage VI, King's Treasuries. 2s. Edited by Richard Wilson. Illustrated. Macmillan.

HISTORY.

- A History of the Ancient World. From Earliest Times to the Fall of Rome. By Hutton Webster. Harrap, 6s. net.
 Readings from Historical Romances. Book I, Caractacus to John. Book II, Henry III to Edward IV. Book III, Richard III to Charles II. Book IV, James II to Victoria. Selected and arranged by Walter Higgins. Harrap, 1s. each.
 The Story of Thomas Becket. By Susan Cunningham. Harrap, 1s.
 The Pupils' Classbook of English History. Book I, From Early Times to 1485. By Ed. J. S. Lay. Macmillan, 6d.

- Outlines of Roman History. By Mary Agnes Hamilton. Clarendon Press, 1s. 6d.
 The British Empire. Six Lectures. By Sir Charles P. Lucas. Macmillan, 2s. net.
 The Inductive English History.—England before the Normans. Book I. By F. G. Snowball and T. H. Bowtell. 1s. 6d. Teachers' Handbook to same, 1s. net. Harrap.
 The Expansion of Russia. By F. H. Skrine. Third edition. Cambridge University Press, 6s. net.
 Everyman's Library.—The French Revolution. By F. A. M. Mignet. Dent, 1s. net.
 Home University Library.—(1) Belgium. By R. C. K. Ensor. (2) Political Thought in England from Spencer to To-day. By Ernest Barker. Williams & Norgate, 1s. net each.
 Cassell's Modern School Series.—Historical Section. (1) The Tale of the Law. 1s. 4d. (2) The Tale of the Towns. 1s. 3d. By A. E. McKilliam.

BIOGRAPHY.

- Reminiscences and Letters of Sir Robert Ball. Edited by his Son W. Valentine Ball. Cassell, 16s. net.

GEOGRAPHY.

- Principles of Physical Geography. Adapted from "A Textbook of Geography." By G. C. Fry. Clive, 1s. 6d.
 Cambridge County Geographies.—(1) Clackmannan and Kinross. By J. P. Day. (2) Moray and Nairn. By Charles Matheson. Cambridge University Press, 1s. 6d. each.
 The Teaching of Geography. By B. C. Wallis. Cambridge University Press, 3s. 6d. net.
 Rambles in Rural England. By William J. Claxton. Harrap, 1s.
 Philip's Relief Model Map of Central Europe. 4d. net.
 Philip's Pictorial Pocket-Atlas and Gazetteer. With War Supplement. 1s.
 Johnston's War Map of the Dardanelles and Bosphorus. Unmounted, 6d. net.
 Bacon's Picture Map of the Western War Area. On cloth, rollers, and varnished, 3s. 6d. net.

MATHEMATICS.

- Descriptive Geometry. For Students in Engineering Science and Architecture. By Henry F. Armstrong. Chapman & Hall, 8s. 6d. net.
 The Cambridge Elementary Arithmetics. By J. H. Webster. Books I to VII. Prices, in paper covers, rising from 3d. to 6d.; bound in cloth slightly higher price. Books V, VI, and VII, with answers. Teachers' Book IV, 1s. 6d. Other Teachers' Books in preparation.
 Longmans' Explicit Arithmetics. Pupils' Book V, paper, 4d.; cloth, 5d. Teachers' Book V, 1s.
 The Mathematical Analysis of Electrical and Optical Wave-Motion: on the Basis of Maxwell's Equations. By H. Bateman. Cambridge University Press, 7s. 6d. net.

SCIENCE.

- A Pocket Synopsis of the Families of British Flowering Plants. By W. B. Grove. Manchester: University Press, 1s. net.
 The Story of Plant Life in the British Isles. Vol. III. By A. R. Horwood. Churchill, 6s. 6d. net.

HYGIENE.

- An Introduction to School Hygiene. By W. B. Drummond. Edward Arnold, 3s. 6d.
 Defective Children. Edited by T. N. Kelynack. Bale, 7s. 6d. net.

HANDWORK.

- The Little Girl's Sewing Book. Edited by Flora Klickmann. Girls' Own Paper, 1s. net.

UNCLASSIFIED.

- Great Schools of Painting: A First Book of European Art. By Wilfred Turner. Sidgwick, 5s. net.
 English Folk-Song and Dance. By Frank Kidson and Mary Neal. Cambridge University Press, 3s. net.
 Short Stories in the Making. For Writers and Students. By R. W. Neal. Milford, 3s. net.
 Home University Library.—A History of Philosophy. By Clement C. J. Webb. Dent, 1s. net.
 Board of Education.—(1) Memorandum on the Teaching of Engineering in Evening Technical Schools, 6d. (2) The Experiment in Rural Secondary Education, Conducted at Knaresborough, 4d. (3) Imperial Conference Papers. British Honduras, 1s. St. Lucia, 1s. 6d. Falkland Islands, Fiji, St. Helena, 1s.
 Business Prospects (1) In India. 2s. net. (2) In Russia. 4d. net. By A. T. Stewart. Francis Hodgson.
 War and Peace Pamphlets.—(1) What about Norman Angell now? By Gerald Roberts. 1d. (2) Can Trade be Captured? By Norman Angell. 1d.
 Is it to be Hate? By Harold Picton. George Allen, 3d. net.

MATHEMATICS.

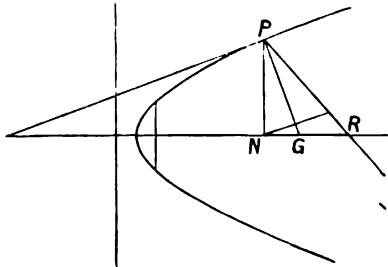
Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17928. (S. KRISHNASWAMI ATYANGAR.)—Rays are incident parallel to the axis of y on the reflecting parabola $y^2 = 4ax$. Show that the caustic after reflection is $27ay^2 = x(x-9a)^2$.

Solutions (I) by Rev. A. L. WATHERSTON, M.A.;
(II) by J. MACMILLAN, M.A., and H. R. WALES.

(I) NP, PR being the incident and reflected rays at the point $x'y'$, and PG being the normal, we have
 $y'^2 = 4ax'$ (1).



Also $\tan NPG = 2a/y'$,
 $\tan NPR = \tan 2NPG = (4a/y')/(1-4a^2/y'^2) = y'/(x'-a)$;
therefore the equation to PR is

$$y - y' = (a - x')/y' \cdot (x - x'),$$

whence, putting $y'^2 = 4ax'$,

$$yy' = x'^2 + (3a - x)x' + ax \dots \dots \dots (2).$$

Differentiating this and (1) with respect to x' ,
 $y \cdot dy'/dx' = 2x' + 3a - x, \quad y' \cdot dy'/dx' = 2a$;
therefore $2ay'/y = 2x' + 3a - x \dots \dots \dots (3).$

We have to eliminate x', y' from (1), (2), (3). (1) and (3) give us, by multiplication, $2a yy' = 4ax'(2x' + 3a - x)$,

or $yy' = 4x'^2 + 2(3a - x)x' = x'^2 + (3a - x)x' + ax$, from (2);
therefore $3x'^2 + (3a - x)x' - ax = 0$,

whence $x' = \frac{1}{3}x$ or $-a$. The latter gives an impossible value to y' , the former gives $y^2 = \frac{4}{9}ax$. Squaring (2) and substituting these values for x', y' , we have

$$y^2 \cdot \frac{4}{9}ax = [\frac{1}{9}x^2 + (3a - x)\frac{1}{3}x + ax]^2 = \{\frac{1}{9}[2x(9a - x)]\}^2,$$

and, finally, $27ay^2 = x(9a - x)^2$.

[Mr. Watherston observes that this problem was set in Parkinson's *Optics*, Chap. IV.—ED.]

(II) In the figure to Solution (I), let P be the point $(at^2, 2at)$, NP an incident ray, PG the normal, PR the reflected ray, then
 $\angle NPG = \angle GPR$;

therefore $\angle PRX = \frac{1}{2}\pi + 2NPG$. Now, $\tan NPG = 1/t$; therefore
 $\tan PRX = -\cot 2NPG = (1 - t^2)/2t$;

therefore equation of PR is $y - 2at = (1 - t^2) \cdot (x - at^2)/2t$; therefore
 $at^4 - (x - 3a)t^2 - 2yt + x = 0 \dots \dots \dots (1).$

Differentiating with respect to t ,
 $2at^3 - (x - 3a)t - y = 0 \dots \dots \dots (2).$

From (1) and (2), $(x - 3a)t^2 + 3yt - 2x = 0 \dots \dots \dots (3).$
From (2) and (3), $6ayt^2 + (x^2 - 10ax + 9a^2)t + (x - 3a)y = 0 \dots \dots \dots (4).$

Therefore, from (3) and (4),
 $t^2/[3y^2(x - 3a) + 2x(x - a)(x - 9a)] = t/[-12axy - y(x - 3a)^2]$
 $= 1/[(x - a)(x - 3a)(x - 9a) - 18ay^2]$;

therefore $[3y^2(x - 3a) + 2x(x - a)(x - 9a)] \times [(x - a)(x - 3a)(x - 9a) - 18ay^2] = y^2(x + 3a)^4$.
This reduces to $[27ay^2 - x(x - 9a)^2][y^2 + (x - a)^2] = 0$;
therefore the envelope of PR, i.e., the caustic, is $27ay^2 = x(x - 9a)^2$.

17905. (C. M. ROSS, M.A.)—Show, without using contour integration, if possible, that

$$\int_0^\infty \frac{\sin ax}{x(1+x^2)^2} dx = \frac{1}{4}\pi [2 - (a+2)e^{-a}].$$

Solution by W. N. BAILEY and K. B. MADHAVA.

The tests for the differentiation of infinite integrals used below are given in Appendix III of Bromwich's *Infinite Series*. Calling the integral I, we have, by Weierstrass's M-test,

$$\frac{d^2 I}{da^2} = -\int_0^\infty \frac{x \sin ax}{(1+x^2)^2} dx = -\int_0^\infty \frac{\sin ax}{x(1+x^2)} dx + I.$$

Therefore $\frac{d^2 I}{da^2} - I = -I'$ (1),

where $I' = \int_0^\infty \frac{\sin ax}{x(1+x^2)} dx$.

This can be differentiated once by Weierstrass's M test, and a second time by a slight extension of Dirichlet's test, if $a \neq 0$, and we get

$$\frac{d^2 I'}{da^2} = -\int_0^\infty \frac{x \sin ax}{1+x^2} dx = -\int_0^\infty \frac{\sin ax}{x} dx + I'.$$

Therefore, if $a > 0$, $d^2 I'/da^2 - I' = -\frac{1}{2}\pi$,
so that $I' = \frac{1}{2}\pi + Ae^a + Be^{-a}$.

Now $|I'| = \left| \int_0^\infty \frac{a^2 \sin y}{y(a^2 + y^2)} dy \right| < a^2 \int_0^\infty \frac{dy}{a^2 + y^2} < \frac{1}{2}\pi \cdot a$.

This can only be true for large values of a , if $A = 0$.

Also, as $a \rightarrow 0$, $I' \rightarrow 0$, since $|I'| < \frac{1}{2}\pi \cdot a$. Hence $B = -\frac{1}{2}\pi$.
Therefore $I' = \frac{1}{2}\pi(1 - e^{-a})$.

From (1), we now get

$$I = \frac{1}{2}\pi - \frac{1}{2}\pi \cdot ae^{-a} + Ce^a + De^{-a}.$$

Now $|I| = \left| a^4 \int_0^\infty \frac{\sin y}{y(a^2 + y^2)^2} dy \right| < a^4 \int_0^\infty \frac{dy}{(a^2 + y^2)^2} = \frac{1}{4}\pi \cdot a$.

Hence, as before, $C = 0$, and $D = -\frac{1}{2}\pi$. Therefore

$$I = \frac{1}{2}\pi - \frac{1}{2}\pi \cdot ae^{-a} - \frac{1}{2}\pi \cdot e^{-a}.$$

Hence, if $a > 0$, $I = \frac{1}{4}\pi [2 - (a+2)e^{-a}]$.

If $a < 0$, $I = -\frac{1}{4}\pi [2 - (|a|+2)e^{-|a|}] = -\frac{1}{4}\pi [2 - (2-a)e^a]$.

If $a = 0$, $I = 0$.

Of course the integral can be evaluated quite easily by contour integration.

17892. (A. M. NEBBITT, M.A. Suggested by Question 17756.)—A fixed conic S and a variable conic S' have two fixed points B, C, in common, and the pole of BC for S' lies on S, while S' also passes through a fixed point A. Prove that CD, the other common chord of S and S', envelopes a fixed conic through B, C, and that AB, AC are tangents to the envelope.

Solution by MAURICE A. GIBLETT, B.Sc. Lond.

Project points B, C into the circular points at infinity. The fixed conic becomes a circle O and the variable conic becomes a circle O', passing through a fixed point P', and having its centre on the fixed circle.

Required to find envelope of line EF. Draw P'M perpendicular to EF.

Since EF is radical axis of circles O, O',

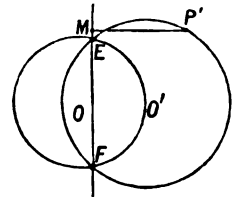
$2P'M \cdot OO' =$ difference of squares on tangents from P' to circles O, O' = square on tangent from P' to circle O = constant;

therefore P'M = constant;
therefore envelope of EF is a circle, centre P'.

Hence, in original proposition, envelope of common chord of conics is a conic passing through points B, C and touching lines AB, AC at B and C, since P' is the projection of A.

The following solution is due to the PROPOSER:—

If $S = ax^2 + 2\alpha fyz, S' = \Sigma lyz$,
CD is $lax + 2y(lh - fn) + 2z(lg - fm)$.
Also pole of $x = 0$ for S'—co-ordinates $(-l, m, n)$ —lies on S, so that $al^2 + 2(fmn - gnl - hlm) = 0$.
By virtue of this relation CD touches the fixed conic
 $a^2 yz = 2x^2 (af - 2gl)$.

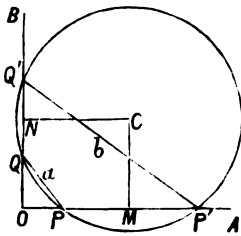


17868. (Prof. E. J. NANSON, M.A.)—Two rods PQ, P'Q' move with their extremities P, P' on a fixed straight line OA, and their extremities Q, Q' on a fixed straight line OB, so that P, Q, P', Q' are concyclic. Find the locus of the centre of the circle PQP'Q'.

Solution by C. M. ROSS, M.A.

For the sake of simplicity, suppose the given lines OA, OB are at right angles. When OA, OB include an angle either > or < 90°, the formulæ for determining the co-ordinates of the centre of the circle on which the points P, P', Q, Q' lie become rather unwieldy, hence the above assumption.

From the figure, if (x, y) be the co-ordinates of C,



$$x = OM = a \cos \alpha + \frac{1}{2}(b \sin \alpha - a \cos \alpha) = \frac{1}{2}(a \cos \alpha + b \sin \alpha) \dots (1),$$

$$\text{and } y = ON = a \sin \alpha + \frac{1}{2}(b \cos \alpha - a \sin \alpha) = \frac{1}{2}(a \sin \alpha + b \cos \alpha) \dots (2),$$

where $a = PQ$, $b = P'Q'$, and $\angle OQ'P' = \alpha$ (1) and (2) give

$$\sin \alpha = 2(bx - ay)/(b^2 - a^2),$$

$$\text{and } \cos \alpha = 2(by - ax)/(b^2 - a^2).$$

$$\text{Hence } (bx - ay)^2 + (ax - by)^2 = \frac{1}{4}(a^2 - b^2)^2$$

is the locus of the centre of the circle and is an ellipse.

17874. (The late Prof. CROFTON.)—A floor is ruled with parallel lines at a distance d apart. An equilateral triangle of side d is thrown on the floor. Find the chance of its falling on a line.

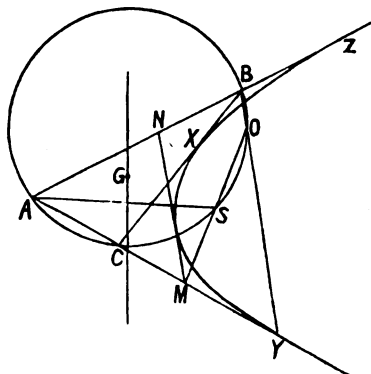
Solution by the PROPOSER.

One solution is:—Let the sides of the triangle be named a, b, c : the chance that a falls on a line is $2/\pi$, by Buffon's problem: but if it does, then either b or c also meets the same line, and they are equally likely to do so. Hence the chance that a and b meet a line is $1/\pi$: likewise for a and c , likewise for b and c . Hence the whole chance that the triangle meets a line is $3/\pi$.

17878. (W. F. BEARD, M.A.)—The centroid of a triangle circumscribed to a parabola is on the directrix. Show that the joins of each vertex to the point of contact of the opposite sides are concurrent at a point on the circum-circle of the triangle.

Solution by the PROPOSER.

Let a parabola touch the sides of the triangle ABC at X, Y, Z, and let G, the centroid of ABC, be on the directrix; let the tangent parallel to BX meet AC, AB at MN. Join AS; let MS meet BY at O.



By a recent theorem in *The Educational Times*, the polar of G goes through M.

But when G is on the directrix S is also on the polar of G.

Therefore MS is the polar of G.

By another recent theorem the polar of G passes through the meet of BY, CZ.

Thus BY, CZ meet at O.

By parallels $\angle ABY = \angle ANM = \angle ASM$, because S is on the circle AMN;

therefore AB, OS are on a circle,

i.e., O the meet of AX, BY, CZ lies on the circle ABC.

Conversely.—If AX, BY, CZ meet at a point on the circum-circle of ABC, then G must lie on the directrix.

17857. (A. P. SMITH.)—Sum the series

$$\sum_{k=1}^r (2k-1)(2k+1) \sin [(2k-1)\pi/r].$$

Solution by W. J. MARTYN.

$$\text{Let } S = \sum_{k=1}^{k=r} (2k-1)(2k+1) \sin \frac{(2k-1)\pi}{r} \dots (1).$$

Writing this series in the reverse order, and remembering that $\sin(2\pi - \theta) = -\sin \theta$,

$$\text{we have } S = - \sum_{k=1}^{k=r} [2r - (2k-1)][2r - (2k-3)] \sin \frac{(2k-1)\pi}{r} \dots (2).$$

Adding (1) and (2), we get

$$2S = \sum_{k=1}^{k=r} \{ (2k-1)(2k+1) - [2r - (2k-1)][2r - (2k-3)] \} \sin \frac{(2k-1)\pi}{r} = -(4r^2 + 8r + 4) \sum_{k=1}^{k=r} \sin \frac{(2k-1)\pi}{r} + 8(r+1) \sum_{k=1}^{k=r} k \sin \frac{(2k-1)\pi}{r}.$$

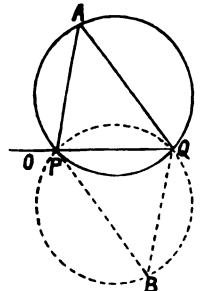
$$\text{Now } \sum_{k=1}^{k=r} \sin \frac{(2k-1)\pi}{r} = 0, \text{ and } \sum_{k=1}^{k=r} k \sin \frac{(2k-1)\pi}{r} = -\frac{r}{2 \sin \pi/r},$$

unless $r = 1$, in which case it is 0. Hence $S = -2r(r+1)/\sin \pi/r$, except when $r = 1$, in which case $S = 0$.

18507. (R. F. DAVIS, M.A.)—A is a given point on a given circle; PQ a variable chord passing through a given point O. Find the envelope of the nine-point circle of the triangle APQ.

Solution by C. E. YOUNGMAN, M.A.

Complete the parallelogram APBQ; then the circles APQ, BPQ are equal, and equidistant from O; therefore the envelope of BPQ is two circles with centre O. The nine-point circle of APQ is BPQ shrunk half-way towards A; therefore its envelope is two circles whose centre bisects AO.



14567. (H. W. CURJEL, M.A.)—Construct with ruler and compasses a harmonic pencil O(AC, BD); the angles AOD, BOC being given.

Solution by W. F. BEARD, M.A., and M. P. MESHENBERG.

Draw the given $\angle AOD$. Take any point E on OD and cut off

$$EF = EO.$$

On EF draw a segment of a circle containing an angle equal to a given angle BOC, cutting AO produced at G, G'.

Draw OB, OC parallel to GE, GF.

Draw GH parallel to OD,

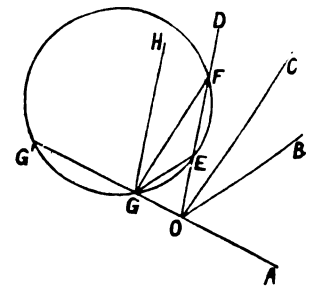
because $OE = EF$;

therefore $G(OF, EH) = -1$;

therefore $O(AC, BD) = -1$ by parallels.

Also the angles AOD, BOC are those given.

There is another solution with OB, OC parallel to G'E, G'F.



QUESTIONS FOR SOLUTION.

17894. (F. G. W. BROWN, B.Sc., F.C.P.)—A rope, l feet in length, weighing w lb. per foot, is suspended from two points P, Q, whose difference in level is h feet, and whose horizontal distance apart is a feet. The tension of the rope at the highest point P is T lb.; find (1) the co-ordinates of the lowest point with reference to P, (2) the gradient at P. If the span a is increased by a small amount δa , find how much the lowest point will be raised (1) when P and Q are at the same horizontal level, and (2) when P is vertically h feet higher than Q.

17995. (A. M. NESBITT, M.A.)—Prove that at ordinary compound interest a principal P becomes nP after $(100 \log_e n)/r$ years, r being the rate per cent.

17996. (Professor R. SRINIVASAN, M.A.)—Show that

$$\int_0^{1\pi} \frac{\theta^4 \cos r\theta}{1 - 2m \cos \theta + m^2} d\theta = \frac{\pi (\log m)^4}{1 - m^2} m^r.$$

17997. (W. N. BAILEY.)—Show that the genus of the Riemann's surface associated with the equation

$$w^3 - w^2z + w(2z - 3) + 2z^2 - 7z^2 + 6z = 0$$

is unity. Sketch the curve represented by this equation for real values of w and z , and hence give a description of Riemann's surface. Find also integrals of the first, second, and third kinds.

17998. (THOMAS MUIR, LL.D.)—Prove that the sum of the squares of the r -line minors formable from any array of r rows of an orthogonant is equal to the r -th power of the sum (σ) of the squares of the elements of any single row. Illustrate by the case of the 8-line orthogonant which has $a^2 + b^2 + c^2 + \dots + h^2$ for the sum of the squares of the elements of every row.

17999. (C. M. ROSS, M.A.)—Show that all the determinants contained in the following matrix, where the number of rows is $n + 2$ and the number of columns is $2n$,

$$\begin{vmatrix} a_1 a_2 a_3 \dots a_{n-2} a_{n-1} a_n & 0 & 0 & 0 & \dots & 0 & 0 & 0 \\ a_1 a_2 a_3 \dots a_{n-2} a_{n-1} & 0 & 0 & 0 & \dots & 0 & 0 & x_n \\ a_1 a_2 a_3 \dots a_{n-2} & 0 & a_n & 0 & 0 & 0 & \dots & 0 & x_{n-1} \\ a_1 a_2 a_3 \dots & 0 & a_{n-1} & a_n & 0 & 0 & 0 & \dots & x_{n-2} & 0 & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ 0 & a_2 a_3 \dots a_{n-2} a_{n-1} a_n & x_1 & 0 & 0 & \dots & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \dots & 0 & 0 & x_1 & x_2 & x_3 \dots x_{n-2} & x_{n-1} & x_n \end{vmatrix}$$

vanish.

18000. (B. HOWARTH.)—(a) If p be any integer greater than unity, then $111 \dots$ to p terms cannot be a factor of a power of p . (b) Hence (or independently) prove that the square of $111 \dots$ to p terms cannot be a factor of $111 \dots$ to p^n terms, n being any positive integer whatever.

18001. (J. HAMMOND, M.A.)—From the sequence $1, 2, 3 \dots (m-1)$ select any different numbers at will (as many as you please), and let $N(x)$ denote the number of these which do not exceed x . Prove that if a is not greater than $\frac{1}{2}m$ and $b = m - a$, $N(m - a_1) + N(m - a_2) + \dots = N(a)N(b) + N(m - \beta_1) + N(m - \beta_2) + \dots$, where a_1, a_2, \dots are all the selected numbers which do not exceed a , and β_1, β_2, \dots , all those which are greater than b .

18002. (Professor K. J. SANJANA, M.A.)—Prove the following identities:

$$1 + \frac{1}{2} \cdot \frac{2}{3} + \frac{1}{3} \cdot \frac{2.4}{3.5} + \frac{1}{4} \cdot \frac{2.4.6}{3.5.7} \dots = \pi^2/4,$$

$$1 + \frac{1}{2} \cdot \frac{2}{3} + \frac{1}{4} \cdot \frac{2.4}{3.5} + \frac{1}{8} \cdot \frac{2.4.6}{3.5.7} \dots = \pi/2,$$

$$1 \cdot \frac{2}{3} + \frac{1}{2} \cdot \frac{2.4}{3.5} + \frac{1}{3} \cdot \frac{2.4.6}{3.5.7} + \frac{1}{4} \cdot \frac{2.4.6.8}{3.5.7.9} \dots = 2,$$

and $1 \cdot \frac{2}{3} + \frac{1}{2} \cdot \frac{2.4}{3.5} + \frac{1}{4} \cdot \frac{2.4.6}{3.5.7} + \frac{1}{8} \cdot \frac{2.4.6.8}{3.5.7.9} \dots = 2(\pi - 1).$

18003. (S. KRISHNASWAMI AYYANGAR, B.A.)—Show that

$$\frac{1}{2} + \frac{1.3}{2.4} \cdot \frac{1}{2} + \frac{1.3.5}{2.4.6} \cdot \frac{1}{3} + \dots \text{ to } \infty = 2 \log 2.$$

18004. (W. F. BEARD, M.A.)—Factorize

$$[(a^2 - c^2)^2 - (b^2 - d^2)^2]^2 - 4(a^2 + c^2)(b^2 + d^2)(a^2 + b^2 - c^2 - d^2)^2 + 16(a^2b^2 - c^2d^2)^2.$$

18005. (C. E. YOUNGMAN, M.A.)—Tangents to a cardioid at any two points in line with the centre form with the double tangent a triangle whose circum-circle goes through the cusp.

18006. (W. F. BEARD, M.A.)—Prove, geometrically, that the polar with regard to a rectangular hyperbola of any point on the auxiliary circle touches the circle.

18007. (R. F. DAVIS, M.A.)—Upon the circumference of a semi-circle, whose bounding diameter is AB, are taken two points P, Q such that BP.BQ is constant. Two parabolas are then described, each with focus B, having AP, AQ for their respective directrices. Prove that the locus of the intersections of these curves is a conic having A for focus and B for the foot of its directrix. (Suggested by Mr. W. F. Beard's Question 17961.)

18008. (Professor NEUBERG.)—La tangente en un point M d'une ellipse de centre O rencontre les axes de cette courbe aux points T et T'. On construit le rectangle OTNT'; le lieu du point N est une courbe connue, appelée Kreuzcurve. Trouver le lieu décrit par le point de rencontre P des tangentes en M et N à l'ellipse et à la Kreuzcurve.

18009. (Professor J. E. A. STEGGALL, M.A.)—Tangents to a parabola at P and Q meet in O; the ordinate through O cuts AP', AQ at R, S; prove that O bisects RS, and show that if x, y are the co-ordinates of O, $OR^2 = y^2 - 4ax$.

18010. (MAURICE A. GIBLETT, B.Sc. Suggested by Question 17985.)—A circle, passing through two fixed points A, D, cuts two fixed straight lines through A at B and C. Find the locus of the orthocentre of the triangle ABC.

18011. (H. D. DRURY, M.A.)—The following construction for the division of a circle into five equal parts is perhaps not generally known. Prove it. Through the centre O draw two diameters AB, CD at right angles; bisect the radius OB in E; from E along EA mark off a length EF equal to EC. With centre B and radius BF describe a circle, and let it cut the given circle in H, then will the arc AH = $\frac{1}{5}$ circumference.

18012. (R. VYTHYNATHASWAMY.)—Give a geometrical construction for drawing a line through a given point such that the portion intercepted between the arms of a given angle may be of given length.

18013. (E. G. HOGG, M.A.)—If t_1, t_2, t_3 be the lengths of the tangents from the vertices of the triangle ABC to any circle cutting the circle ABC orthogonally, then

$$t_1^2 \sin 2A + t_2^2 \sin 2B + t_3^2 \sin 2C = 4\Delta,$$

where Δ is the area of the triangle ABC.

If l', l'', l''' be the lengths of the tangents from the mid-points of the sides of the triangle ABC to the same circle, then

$$\Sigma (l_i')^2 - \Sigma (l_i'')^2 = \frac{1}{3} \Sigma (a^2).$$

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, April 22, 1915.—Prof. Sir Joseph Larmor, M.P., F.R.S., President, in the Chair.

Mr. C. Walmsley was elected a member of the Society.

The President announced the death of Prof. W. Grylls Adams, a member of the Society for nearly thirty years, and gave a short sketch of the mathematical and physical researches of Prof. Adams.

Mr. G. H. Hardy read a paper: "Note on Dirichlet's Divisor Problem."

Col. R. L. Hippisley exhibited a model of a new form of closed linkage, and gave a short account of its construction.

A paper by Mr. G. B. Mathews, "Division of the Lemniscate into Seven Equal Parts," was communicated by title from the Chair.

The President, having called Prof. Love, Vice-President, to the Chair, made a communication on "The Influence of the Oceanic Waters on the Law of Variation of Latitude": The prolongation of the periodic time of the small free orbital motion of the Pole over the Earth's surface from 304 to 428 days has been recognized to be due to the centrifugal strain of the Earth's rotation changing in step with the changing axis of rotation. This regular circular precession is found to be strongly disturbed by irregular surface displacements of terrestrial masses. But among these disturbances the adaptation of the ocean surface to the changing axis ought not to be included, for being synchronous with the precessional motion it must affect its period, and so fundamentally alter it instead of merely disturbing it. It is roughly estimated that if the Earth were elastically unyielding, the effect of the existing ocean would be to lengthen the period of free precession from 304 to about 332 days. The remainder of the actual increase to about 428 days would be, as now, ascribed to elastic centrifugal strain of the solid Earth, and the necessary slight revision of current estimates of its yielding is made on this basis. The question is broached, what would be the course of history of a planet so nearly spherical that the incumbent ocean would destroy secular stability for all possible axes of rotation?

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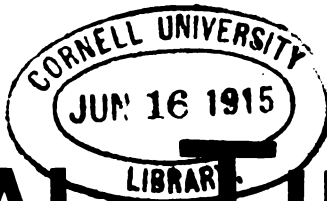
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The Educational Times.

THE KNARESBOROUGH EXPERIMENT.

THE Board of Education have issued a valuable pamphlet giving the report of an experiment in rural secondary education that has been carried on at Knaresborough. Ten years ago the old foundation of King James's Grammar School was closed for lack of scholars. The adjacent town of Harrogate appeared to have absorbed all the children in Knaresborough who desired secondary education. The West Riding Education Committee, moved thereto by several petitions from farmers in the neighbourhood, decided to rent the school buildings, enlarge and equip them, and open a school with a definite agricultural bias. The Board promised a special grant for the "educational experiment," and the school was opened in 1908. The report before us gives the story from 1908 to 1912, with an occasional hint of 1913. It is important to notice the date, as some of the problems presented for solution in the report may by now have been solved. It is equally important to notice that the report has been written by the staff of the school, and the Board do not assume responsibility for the account.

The West Riding Committee, after considering various schemes and the special needs of the district (agricultural, with a population of 12,800), decided that the school should provide a secondary education for boys and girls of the ages of twelve to sixteen (later a preparatory class was formed and younger children admitted) "on more than usually practical lines, and specially suitable for children living in rural districts, such education to be of a sound general nature, but designed to meet the probable special requirements of the after-school life of the children."

A head master was appointed who had had good educational experience in Wales, where somewhat similar experiments have been carried on, and a staff of specialists in the various necessary subjects. The school opened

with only thirty-eight pupils, many of the farmers who had signed petitions waiting cautiously to see what would happen before they sent their children. At the time of the publication of the report there were 131 boys and girls in the school and a staff of 8 full-time and 4 visiting teachers.

The question of curriculum was naturally deemed to be a matter of great importance. Educationally, it is held to be unsound to specialize at the age of entrance to this school; and, even if the principles of pedagogy permitted it, such specialization would be very difficult in view of the uncertainty about the pupil's future career. The solution to the problem lies in making a plan of studies of general educational value, which will be helpful to all pupils, and especially useful to those who leave about the age of sixteen to work on the land or to go to a place of more advanced agricultural study. The practical difficulty may be gauged from the remark of a parent: "My lad seems to be getting on well. Don't you think he's too good to be a farmer?" The subjects that are taught at Knaresborough are the following: (1) English Literature and Language, (2) History, (3) Mathematics, (4) Experimental Science (Physics and Chemistry), (5) Nature Study and Gardening, (6) Geography, (7) Surveying, (8) Woodwork, (9) Bee-keeping and Poultry-keeping, (10) Art.

The question of foreign languages created an early difficulty. The writers of the report hold that "on educational grounds there is no necessity for the inclusion of foreign languages in the curriculum of the school." The report goes on:—"It is to be regretted in a school otherwise unfettered by the demands of external examinations, and deriving great advantage from the freedom, that this question should arise. So long, however, as certain professions make a knowledge of foreign languages a *sine qua non* in their professional examinations, it would seem that the school should make the necessary provision." Two points are of equal importance: in the first place, that the education given in the school shall be specially suited to boys and girls who are likely to work upon the land, in one capacity or another, and secondly that no pupil of the

school shall be debarred, by reason of the education that has been given, from deciding, during the school course or after, to enter upon some career other than that of farming.

The curriculum is admirably suited to give a sound general education, in which all the pupil's powers have opportunity of growth and practice. The special point of foreign languages has been met in this way. The timetable is so arranged that at certain periods the same subject is taken throughout the school. From these subjects pupils needing instruction in a foreign language may be withdrawn, and may receive individual tuition. This scheme requires a fairly large staff.

The question of "rural education" is, in our opinion, of an importance far transcending the value of preparation for the work of farming. It is this feeling that induces us to call attention here to the Knaresborough Experiment. The view is expressed in the following paragraph taken from the Reports:—"Rural children who do not usually respond well to a literary type of education do respond to, and develop, individuality, expressiveness, and resource, through a practical education in close touch with their daily life and probable future occupation." It is true that some children, whether from the country or the town, do not readily respond to an education that is entirely literary. In the elementary schools especially certain steps have been taken in the direction of introducing handcraft of various sorts. In many secondary schools the old literary traditions remain little changed from fifty years ago. The value of handwork, and work that is connected with daily life, is convincingly shown in this Report of the Rural Secondary School at Knaresborough.

NOTES.

THERE are two well defined aspects of school inspection, and it makes for clear thinking when these are kept distinct. The primary official function of an inspector of the

Two Kinds of Inspection.

Board of Education is to see that the school is carried on according to schemes and regulations in such a manner as the nation, through Parliament, has declared to be desirable. Parliament authorizes the Treasury to pay certain grants: the Treasury requires that the Board of Education shall guarantee that these grants are being suitably expended; the Board send inspectors to ascertain the facts. The necessary report to satisfy these conditions deals with the buildings, equipment, staff (numbers and qualifications), pupils (ages and classification), scheme of studies, and general aim of the school. Such a report is a document of public interest, containing information necessary for the use of the Local Education Authorities and the parents of the area. The second kind of report is dealt with below.

THE first part of the Report is public and official. The second is more intimate, and concerns the staff of the school only. For teachers it is this second part of the Report that

The Value to Teachers.

is of especial value. More useful still is the individual conversation held with the inspector. It is one of the drawbacks of the teaching profession that we deal all day long with young people whose frank criticism of our mannerisms, methods, and style would be held to be a breach of discipline. It is refreshing to have a visitor from the outside whose criticism we know will be expressed frankly, sympathetically (as a rule), and helpfully. To the teacher the real value of the inspection lies in the talks he has with the inspectors. To the parents or the Local Authority it is unimportant to learn that "the mental arithmetic of the infants is not good" or that "it is desirable in Form IV that more Latin sentences should be done." We have always held that the Report should be in two parts, and the second and more intimate part should be private to the staff of the school.

If we apply to private schools the principles laid down in the two preceding notes, we shall find that all the terrors of an inspection vanish. At present private schools are not in receipt of grants from the State: but there is no logical reason for this distinction. Local Authorities are concerned with the supply of educational facilities in their respective areas. In order to know what the provision is, there must be inquiry—that is, inspection. When the information is available, grants should follow. It seems clear that the Local Authority need to know only that information about the school that is given in what we have called the first, or official, part of the Report: buildings, equipment, staff, pupils, and studies. The rest, more intimate criticism, designed to help the staff in their work, should be a private document for the school alone. We believe that if the Board of Education could see their way to divide their Reports in the manner we have indicated, and to make public the first part only, private schools would cease to show any hesitation in accepting inspection at the hands of the Board.

It is probable that only a few students of education knew the name of Dr. Séguin before the writings of Mme Montessori brought it to the notice of everyone. He was born in 1812, studied medicine under Itard, whose name has also been made familiar to us now from the writings of Mme Montessori, and in 1846 published "The Moral Treatment, Hygiene, and Education of Idiots and other Backward Children." A copy of this book is in the library of the College of Preceptors: until a few weeks ago it was uncut. Séguin believed that the mind could be set free from idiocy by a physiological education. He undertook the education of an idiot boy, with marvellous success. But, as he himself points out, in order to do this he had to study not only medicine and idiocy, but also education. In consequence he has produced a valuable treatise on pedagogy. His later work was carried on in America. He says: "The application of physiology to education was the work of my youth, and has been the main object

of my thoughts for forty-two years." We believe many of our readers will be glad to learn that we have arranged for a series of articles dealing with Séguin's educational principles.

It is announced that Mr. Owen Owen, Chief Inspector of the Central Welsh Board, will retire at the end of this school year. No advertisement of the vacancy has been issued, but it is understood that the post will be filled temporarily by Mr. W. Edwards, an Inspector of the Board of Education in Wales, who is on the point of retirement. It is not certain what this temporary appointment indicates. It may mean that a new scheme will be put forward under which the Welsh Department of the Board of Education will enlarge its scope and include the inspection of secondary schools, together with the control of the University colleges. The retirement of Mr. Owen reminds us of the very valuable work that he has done in Wales during the last twenty years. He was the first Inspector appointed under the Welsh Intermediate Education Act, and it is owing to his persistent energy that secondary schools in Wales have been organized on sound lines.

WORK without purpose is drudgery. This was the burden of the address delivered by Prof. Adams to the members of the Froebel Society who met last month at the College of Preceptors. We give the name of drudgery to occupations which do not interest us because we see no value in them. So soon as we discover a use or a purpose the work at once becomes interesting. The quality that differentiates one school from another is just this quality of purpose, the presence or lack of which is noted by the inspector before he has been many hours in the building. Where the staff and the pupils are conscious of a definite aim or purpose in their doings, there the school life is vigorous and healthy. Work carried on without a purpose is useless, and had better not be done. It may sometimes be hard for the teacher to believe that his work is full of purpose, but, unless he so believes, his work will be drudgery to him and to his pupils. It is the consciousness of purpose that gives vitality.

"EDUCATIONAL Administration and the War" was the title of the lecture given to members of the College of Preceptors last month by Mr. Frank Roscoe, Secretary to the Teachers' Registration Council. In comparing the systems of education in England and Germany, he reminded us that, while there were points in German method of great value, there were other points that must on no account be copied. These were undue State control and the degradation of the teacher. The lesson has certainly been brought home to us by the War. It is freedom, the greatest possible measure of freedom that is compatible with the rights of others, that ensures full development and sound moral progress. Teachers must be free, and

children must also have the fullest freedom that is suitable to their age. Teachers are right in deciding that no State control shall mould their thoughts: they must be equally determined that the children under their charge shall have a similar measure of freedom.

THE position of persons of German birth who have become naturalized Englishmen is at the present time one of great difficulty. Many of them are more English in feeling than the English. In some cases they have left their native land exactly because they were unable to live under an administration that seemed to give so little freedom to individuals. In such case their ardour towards their adopted country is strong. We feel sure that all persons of German birth who are engaged in school or University work among us will subscribe cordially to the views that have been sent to the newspapers by a group of University professors, and which we give below:

In view of recent events, we desire publicly to express our unswerving loyalty to the country of our adoption, to which we feel bound not only by gratitude, family ties, and our solemn oath of allegiance, but also by a deep sympathy born of common work and intimate knowledge of the nation's life and character.

K. H. BREUL, Cambridge University.
H. G. FIEDLER, Oxford University.
R. PRIEBSCH, London University.
A. W. SCHÜDDEKOFF, Leeds University.
K. WICHMANN, Birmingham University.

SUMMARY OF THE MONTH.

SECONDARY SCHOOLS—CELEBRATION OF EMPIRE DAY.

"We have had under consideration the desirability of arranging for Empire Day to be celebrated in London secondary schools. We are of opinion that it should be suggested to head masters and head mistresses of the Council's secondary schools, and to the governors of all London secondary schools aided by the Council, that Empire Day should be celebrated on June 11, as in the case of the elementary schools. We also propose to forward for their information a copy of the circular which is to be issued to elementary schools, and to suggest that a half-holiday should be given on the afternoon of the day of the celebration. We recommend: 'That it be suggested to the governors of all secondary schools in London aided by the Council and to the head masters and head mistresses of the Council's secondary schools that Empire Day should be celebrated in the schools on June 11, 1915, as in the case of elementary schools; that a copy of the circular issued to elementary schools on the subject be forwarded for their information; that it be also suggested that a half-holiday should be given in the afternoon of the day of celebration; and that as regards the Council's secondary schools authority for such half-holiday be hereby granted; and that the Council be recommended accordingly.'—From the Minutes of the L.C.C. Education Committee.

THE NEW CHEMICAL LABORATORIES AT SOUTH KENSINGTON.

An inspection of the Fuel Laboratories of the Department of Technology, held on the invitation of the Governing Body of the Imperial College of Science, enabled the visitors to appreciate the practical value of the experiment and technical work that is being carried on under Prof. W. A. Bone. The old laboratories in the basement of the Imperial College were quite inadequate, and the complete equipment of the new building, erected on adjoining ground, permits of a much-desired extension of the work of preparing students for the application of science to industry. Formerly we had to send to Germany for our furnace materials, the testing of fireclays

with a view to the special needs of different kinds of furnaces, gas retorts, and crucibles for steel making having been studied in that country but neglected in our own. But now the whole subject is under investigation at South Kensington, from the crushing and grinding of refractory clays as they come from the mines to their practical uses in gas furnaces that produce temperatures up to 1400° C. In the analytical laboratory were shown the means of studying the physical properties of solid, liquid, and gaseous fuels. A demonstration was given of the Bolometric method of determining the radiant efficiency of gas fires and the like.

TEMPORARY RESIDENTIAL COLLEGE AT BRISTOL.

We are asked to publish the following announcement:— "The University of Bristol, like most of the modern Universities, has been anxiously concerned since its foundation with the question of residential accommodation for its students. Early in its history it received an important benefaction for the accommodation of women students in the shape of Clifton Hill House, to which the adjoining Callander House has since been added. The last twelve months has seen the purchase of the Imperial Hotel and of a large property on Richmond Hill, Clifton, for conversion into Halls of Residence for men and women training students. The possibility of founding also a Residential College near the University for men students generally has engaged the attention of an influential committee, and some progress has been made. The University has taken two houses, Nos. 18 and 20 Belgrave Road, next to St. Mary's Church, Tyndall's Park, for the purpose of a temporary college. These houses are being renovated and decorated, and will be opened in good time for next term. When the arrangements are complete, the temporary college will start with accommodation for 29 students, 5 in single study bedrooms, and 24 in double study bedrooms. It will include also a refectory, a common room, and quarters for a warden. There are good sized gardens at the back of the two houses which may be converted into tennis courts. The new temporary college is situated in a good residential part of the city; it stands high, and is within a few minutes of the University buildings. It is expected that the alterations will be completed in a few weeks' time, when the building will be open for inspection by present and intending students and their parents. The terms for board and residence have not yet been determined, but they will be similar to those charged in the Residential Colleges of other provincial Universities."

THE GIRL GUIDES MOVEMENT.

Lieutenant-General Sir R. Baden-Powell, speaking yesterday at Bedford College for Women at a meeting in support of the Girl Guides Movement, as showing in what esteem the Boy Scouts were held by the Government, said that ever since the beginning of the War they had taken the place of the Coastguards all round the coast, and that just before the sinking of the "Lusitania" the Admiralty had asked for a special draft of them to go to Ireland and guard the coast towns there. It was found that, making allowance for their size and strength, they were just as valuable as men, as full of pluck, steadfastness, devotion, and firmness of purpose. The Boy Scout ideal was to give boys a greater object in life than mere enjoyment. Happiness was certainly their aim, but that happiness was to be found only in cultivating useful and manly habits. The same was true of the Girl Guides, for girls were just as capable, or more capable, of training. He had recently inspected two companies of Girl Guides in Newcastle drawn from the hooligan class in that city, yet the police had told him that were these girls in greater numbers the police could dispense with half their force. As the Girl Guides were now about to be thoroughly reorganized on a broader basis he appealed to the women of the nation to give all the aid possible to the movement.—*Manchester Guardian*.

HOLIDAY COURSES FOR INSTRUCTION IN MODERN LANGUAGES, 1915.

The Board of Education have just published a list of fourteen Holiday Courses which have been arranged for the coming summer. Of these courses nine are to be held in

France, at Grenoble, Bayeux, Caen, Honfleur, Paris, Rouen, St. Valéry-sur-Somme, Versailles; three in Switzerland, at Geneva, Lausanne, and Neuchâtel; one in Italy, at Florence; and one in Spain, at Madrid. The number of Holiday Courses is necessarily very much smaller than in previous years. Those usually held in Germany and Austria are not included in the table, and none of the courses organized by French Universities, with the single exception of Grenoble, are to be held this year.

The Table published by the Board of Education gives the date of each course, the fees, return fare from London, lowest cost of boarding, principal subjects of instruction, address of local secretary, and other details of importance to intending students. It should be clearly understood that the inclusion of a course in this list is not to be interpreted as the expression by the Board of any opinion as to its efficiency or otherwise. The Table is no longer distributed gratuitously, but copies (price 1d., by post 1½d.) can be obtained direct from Messrs. Wyman & Sons, Fetter Lane, London, E.C., or through any bookseller. The Welsh Department have also published a list of nine Holiday Courses to be held in Wales. And the Board have issued a further list of nineteen Courses in England.

BRADFORD.—OPEN AIR SCHOOLS.

The Bradford Education Committee last year made an interesting experiment with the camp school which was instituted at Daisy Hill. It proved such a success that preparations were made to start two others at Bolling Hall and at Thornbury, the undertaking only failing because both places were taken over by the military authorities. This year, however, it is proposed to continue the scheme on a greatly increased scale, and the projected plans which the Education Committee have drawn up provide for five camp school centres—at Daisy Hill, Bolling Hall, Thornbury, Beulah (Thackley), and at Odsal. These sites are already the property of the Corporation, and it has been suggested that a sixth camp should be added at Grange Road, Horton. This site was purchased for playing-fields, but that scheme has not matured, and it is thought advisable to utilize the land in the meantime for camp school purposes. Besides the desirability of getting the children out into the fresh air and providing new opportunities for instruction, there is also the possibility to be reckoned with that some of the school premises may be taken over by the military for hospital purposes. As was the case in the experimental venture last year, the selection of the schools from which the scholars will be taken out to the camp centres will give particular attention to those situated in the more congested areas in the city, but the proposed scheme for this year is on such a large scale that very few schools will be left out. Indeed, practically all scholars in the city, with the exception of secondary scholars and infants, will have at least a week in turn at one or other of the camps. The approximate number of children who will benefit will be 26,500. Ordinarily the same programme as last year will be followed, namely, all kinds of instruction in the open air, together with walking expeditions to various parts of the neighbourhood. If the scheme is proceeded with, and is attended with results proportionate to that of last year's experiment, the benefit to the children, both physically and in an increased interest in their work, cannot but be considerable.—*The Local Government Chronicle*.

THE TEACHERS' REGISTER.*

DURING the month of April there was a marked increase in the number of applications for admission to the Register. Whereas on March 11 the total stood at 6,322, the number on April 8, four weeks later, was 7,803, and on April 22 it was 9,200, a total increase of nearly 3,000 in six weeks. This addition was made up mainly of teachers in elementary and secondary schools, the first named being in the majority, a sign that the vigorous efforts of the National Union of Teachers are proving effectual.

Many teachers in secondary schools have applied as the result of circular letters sent out under the authority of various organizations.

* Received too late for publication in the May number.

Especially valuable was a letter signed by the Head Masters of Charterhouse, Clifton, Eton, Harrow, King Edward's School (Birmingham), Manchester Grammar School, Mill Hill, Rugby, St. Olave's Grammar School, Wellington College, Westminster, and Winchester, and by the President and Secretary of the Incorporated Association of Head Masters. This letter emphasizes the importance of the Council as a representative body of teachers, and suggests that Registration should be a condition of appointment to masterships.

The National Federation of Class Teachers has issued an important circular under the title "Why Class Teachers should Register." Among other reasons it is suggested that, as the Federation was in part responsible for breaking down the former Register and for setting up the present scheme, its members are bound in honour to register as speedily as possible. It is further pointed out that all sectional and class distinctions are removed from the present Register, and that Registration is a necessary preliminary to the formation of a real profession of teaching.

The following statement has been issued by the Council:—

"The Teachers' Registration Council constituted by Order in Council of February 29, 1912, issued the Conditions of Registration in December, 1913, and has now made definite progress towards the establishment of a Register of Teachers. This Register will be maintained by the Council for the purpose of recording the professional qualifications of those engaged in teaching, and the official list of registered teachers, which will be issued regularly, will provide a means of ascertaining the names of those whose credentials have been tested and approved by the Council, a body representing every branch of the teaching profession. In order to avoid hardship it is provided generally that during the first few years admission to the Register may be gained on evidence of satisfactory experience alone, but from the beginning of 1921 onwards the Register will be open only to those who are able to satisfy the Council in regard to their academic and other professional qualifications.

"The establishment and maintenance of a Register form, however, only one part of the work which the Council hopes to accomplish. The Register itself is but the beginning of a movement towards the promotion of self-government and self-organization such as will place the work of teaching on a truly professional basis. To this end the Council will take an active part in the development of a considered policy in relation to the preparation of teachers for their work, with the object of rendering it difficult for unqualified persons to engage in teaching. The method of testing the teacher's work, whether by examination of pupils or by official inspection, will also receive attention, and it is to be noted that already it is proposed to give the Registration Council representation on the official advisory body to be instituted in connexion with the suggested scheme for the co-ordination of examinations as outlined in Circular 849 of the Board of Education. Matters concerning salaries, pensions, and conditions of work such as are of general interest to all teachers will in due course be considered by the Council, and it is expected that this body will furnish an important means for bringing the views of teachers before the public. It is anticipated also that the Council will be able to organize systematic research into educational problems, and so play an important part in the development of a true science of education, taking steps to make public from time to time the practical conclusions to be deduced from the investigations undertaken.

"Already the task of compiling a Register has convinced the Council that teachers have a large number of interests in common, and that it is greatly to be desired that the work should acquire a higher status in the eyes of the public. The experience of other professions has shown that the first step to this end is the formation of a Register of qualified members with power to exclude undesirable applicants, and to remove from the Register any who are found to have acted in an unbecoming manner. To carry out this policy and to realize the wider possibilities already indicated, it is necessary that the Council should be strengthened by the support of all qualified teachers. A single payment of one guinea is the only demand made upon the individual teacher beyond the small sacrifice of time involved in completing the Form of Application.

"The Council is confident that teachers will be prepared to enrol themselves without delay when it is realized that to give support to the Register is a professional obligation imposed by the necessity for taking steps to improve the position of teaching in relation to other forms of national work in order that the interests not only of the teachers themselves, but of their pupils, may be properly safeguarded. The interests of the community demand that the instruction of the young shall be undertaken only by those who have shown themselves fit for the work, and the proper test of this fitness is one devised and applied by the recognized representatives of the profession itself."

Notices have been issued to the various appointing bodies, inviting them to elect representatives to serve on the Council for the triennial period beginning on July 1. The procedure is laid down in the Order in Council of February 29, 1912, and the principle governing the constitution may be described as representative in the widest sense, every effort being made to secure that the Council shall reflect the opinions of all types of teachers.

Among recent applicants for registration may be mentioned:—

Mr. James Fielden, Head Master, Bournville School.
The Head Master of Harrow School.
Dr. Garvie, Principal of New College, Hampstead.
Mr. T. Gautrey (Secretary) and Mr. W. J. Pinecombe, of the London Teachers' Association.
Mr. H. Pearson, Secretary of the National Federation of Class Teachers.
Mrs. Clarke, Principal of the National Training School of Cookery.
Dr. A. C. Jones, Bradford Grammar School.
Prof. Millicent Mackenzie, University College, Cardiff.
Mr. T. W. Beasley, Head Master, County School for Boys, Richmond.
Miss Ellison, Head Mistress, Priory School, Shrewsbury.
Mr. W. P. Folland, Member of the Executive, N.U.T.
Miss Burstall, of the Manchester High School.
Miss Faithfull, Principal of Cheltenham Ladies' College.
Dr. W. R. Roe, of Derby.
Mr. H. Coward, of Bristol.

PRESENTATION OF DEGREES, UNIVERSITY OF LONDON.

SPEECH OF SIR PHILIP MAGNUS, M.P.

I AM sure we shall all concur in the Chancellor's expression of regret at the loss which the University has sustained through the resignation of Sir Henry Miers, our Principal, and we shall join in the hope that he may have a long and successful career in the position which he has been invited to accept, and has accepted, in our sister University at Manchester.

The interesting and rousing speeches to which we have listened—that of our Chancellor, to which we always on these solemn occasions afford a very warm welcome, and that of our Public Orator, whose patriotic expressions we all re-echo—have left me very little to say as regards our University.

At any time my task on these occasions is not an easy one. I am here as your representative in Parliament, but I am not expected to talk politics as other members do in addressing their constituents. Indeed, I have no temptation to do so.

As you know, a political truce has been proclaimed. The excitement of party warfare has ceased. Those who a few months since disputed every act of their opponents, now speak with bated breath and almost whispering humbleness when they venture courteously to criticize by mere suggestions the far-reaching proposals of our necessarily autocratic Government.

So far, therefore, as politics are concerned, my history is a blank, my Lord.

Just now, our thoughts cannot wander very far from the fields and seas where our soldiers and sailors are bravely fighting for the realization of those ideals that may secure, not only to ourselves and our allies, but to all countries, great and small, freedom from the fear of invasion or the possibility of oppression, and the general recognition of a code of honour which we contend is equally applicable to international as to human relations.

The picture of the world to come when peace is restored is ever before us, and helps us better to bear the sacrifices we are making speedily to end this devastating war.

Constantly we hear it said, when the War is over, things will be very different from what they were. Political controversies will be less acute; class distinction will be less strongly marked; social life will be simpler; our industries and commerce will be more scientifically directed, and our educational methods will be changed to suit these new conditions.

These considerations open up wide fields for thought and suggestion, but here on this platform, and in the presence of this audience, there is only one aspect of these broad questions to which I am entitled briefly to refer. I may, however, ask: Will the War teach us any lessons which may help us to remodel our system of education, so as to make it a better instrument for the cultivation of character and for the training of citizens? Can we discover in the acts and aims of our opponents, or in the fruits of their highly organized system of

education, any such evidence of their superior intelligence, of their greater ability and resourcefulness, of their stricter devotion to duty, or their keener moral sense, as might command our admiration, and justify their claim to be the people chosen to give to the nations of the world a new and higher standard of civilization?

We have been told again and again—so often, that by repetition we have come to believe it—that much of our own scheme of education is defective; that we suffer from the lack of what the Germans undoubtedly possess, a truly national system. We are told that our secondary schools are unorganized, that our Universities and technical institutions compare unfavourably with those of Germany, that our teachers are hampered in their work by the blighting influence of examinations, and much more to the same effect.

Well, these statements cannot be lightly dismissed. They suggest matter for serious consideration. It will be remembered that only last year we anxiously awaited the introduction into Parliament of a comprehensive measure of reform which it was suggested would raise our education more nearly to the level of that of Germany. Possibly the conduct of the War may have modified somewhat our estimate of the value of the mental and moral training of the German people.

Rightly or wrongly, I have not been among those who have persistently held up for our guidance German institutions. I have seen in them, and have not shrunk from saying so, some good points, but many more that should rather serve as a warning of what we should avoid than as an example to imitate. There was a time, some twenty or more years ago, before the spirit of aggressive militarism had penetrated every phase of German life, when we were able to discover in their system of education features of considerable merit. Their thoroughness, their close attention to detail, their scientific organization, and their organization of science, the value of which we may have been too slow to recognize, have undoubtedly contributed to their industrial success and to the comparatively rapid growth of their material prosperity. But at the time of which I speak, a quarter of a century ago, Prussian domination had not completely undermined the best traditions of German idealism, nor eliminated the spiritual influences of German learning.

It is not a little surprising, and shows how imperfectly some of us in this country have understood what is meant by German *Kultur*, that we should have failed to appreciate the far-reaching effects on German thought and character of the general recognition of the State as the supreme arbiter of the national will and judgment, and of the consequent growth, among all classes, of habits of dependence for initiative and guidance on the decrees and bidding of officials. The schools and Universities have been unable to escape from this withering influence of State control. The *Lehr-Freiheit*, of which German teachers were so justly proud, has been seriously checked. In Prussia, certainly, school teachers and professors are no longer free to express opinions that might even seem to conflict with the aims and ambitions of the ruling powers. They work under incessant supervision, and only within certain well-defined limits can they be said to be free to make their teaching strictly accord with what they know. Indeed, in many branches of knowledge, especially in History, their liberty is still more distinctly circumscribed, and it is by no means an unusual occurrence for a professor, whose political views are suspect, to be reminded by a Government official that he must reckon on the possibility of his services being no longer needed. This possibility may help to explain the wholly unexpected attitude of certain well known and distinguished professors towards incidents connected with the present War.

Recent events will have shown other defects in German education. Apart from the loss to education, as a civilizing influence, of any sound training in the essential and permanent principles of morality, their school system has failed, even on its intellectual side. It has failed to give to the people that sense of proportion which might have enabled them to view things in correct perspective, to see themselves as others see them, and to realize without undue bias their own merits and imperfections. Moreover, the unceasing interference and guidance of officials and the stern discipline which the State enforces have so effectually deadened the imaginative powers of the people as to prevent even prominent

statesmen from conceiving the possibility of other men and other nations being influenced in action by higher motives than those by which their own conduct is governed.

These are fatal faults, and it is because I long since recognized the seriousness of these defects that on every available occasion, in Parliament and elsewhere, I have urged those responsible for the direction of education at home to weigh carefully the advantages and disadvantages of German discipline and German organization, lest in the effort to improve and remodel our own system we destroy some of its most valued and characteristic features.

If time served, I might apply some of the conclusions I have formed to the consideration of proposals for the reform of our own University. But I must refrain from doing so. I will only refer to the tendency, even in this country, of all Government departments entrusted with the disposal of large sums of money, by way of grants in aid, to become autocratic, and I would venture to warn you that all such tendencies crave careful watching.

We members of this University have no reason to complain of any undue interference with our work on the part of our Ministry of Education. We welcome their criticism and suggestions. We do more. We give thoughtful and respectful consideration to the recommendations of the Commissioners who from time to time have been appointed to inquire into our ways. But we never lose sight of the fact that in the interests of the higher education of London, for which we are mainly responsible, it is essential that we retain our independence of all bureaucratic control and guard the freedom of our teachers from external pressure or restraint, and that we rely on our own efforts to strike out for ourselves broad and well planned paths of further development and progress.

HEALTH IN THE SCHOOLS.*

By Prof. MICHAEL E. SADLER.

[Reprinted from *Indian Education*.]

THE staff of the school medical service steadily grows. There are 317 areas for elementary education in England and Wales, each with a principal School Medical Officer. In 162 of these areas there are, in addition, 524 Assistant Medical Officers. Thus the total number of medical men, excluding specialists, who are engaged in the school medical service is 841. Of these, 393 (or not quite half) are also employed either as Medical Officers or as Assistant Medical Officers of Health. Rather less than one-eighth of the total number of School Medical Officers engaged in school medical service are women. The total net expenditure on the school medical service during the year ending July 31, 1913, was £285,993. Of this, rather less than one half (£125,830) was repaid to the Local Education Authorities by grants from the Board of Education.

Though the infant mortality rate in England and Wales has shown a remarkable decline during the last ten years, it is still true that one out of every ten children born dies under one year of age. The infant mortality rate per thousand fell from 145 in 1904 to 108 in 1913. But during the decade the rate has varied considerably, though never so high as in 1904. It fell in 1909 to 109 and in 1910 to 105, but rose again in 1911 to 130, falling in 1912 to 95. It should be remembered that the conditions which lead to the death of so large a number of children under one year of age disable many of those who survive, and these increase the number of those who die in early childhood or survive with some degree of disability or defect. The most serious causes of infant mortality are diseases due to bad feeding, to poor maternal physique or disease, and to exposure to cold or infection. Many of the deaths are due more largely to the ignorance of mothers and to negligence and mismanagement than to any other single cause.

Each child on its first admission to a public elementary school undergoes medical examination. The chief defects found are malnutrition, rickets, unsound teeth, external eye disease, unsatisfactory clothing and uncleanness, and defects of nose, throat, and ears. Malnutrition varies much in different areas. Bedfordshire among the counties and Bradford among the towns show the highest proportion of under-nourished children. Rickets, which is a disease due almost entirely to improper feeding of infants, is especially noticeable

* Annual Report for 1913 of the Chief Medical Officer of the Board of Education. (London: Eyre & Spottiswoode. 1914. Cd. 7730.)

in the counties of Durham and Lancashire and in the cities of Bradford and Sheffield. An extremely large number of young children suffer from defective teeth. Four out of five of the children who entered the elementary schools in Staffordshire, in the North Riding of Yorkshire, and in the towns of St. Helens and Todmorden are reported as being defective under this head. Seven out of ten entered school with defective teeth in Cardiganshire, Cheshire, Derbyshire, Leicester, Sheffield, and Halifax; and three out of five in Dorset, Herefordshire, Surrey, Bradford, Leeds, and Lincoln. About 2 per cent. of the children entering elementary schools are found to have some form of external eye disease. The amount of unsatisfactory clothing and uncleanness among the young children is considerable. Those who suffer from complaints affecting the throat, nose, and ears are in some towns nearly one-third of the total number of children entering school.

An organized effort is being made to lessen the ignorance which explains part of these defects. Girls in the public elementary schools receive instruction in the rules of health, in domestic subjects, and in mothercraft. Similar, but more advanced, instruction is given in secondary schools and in evening classes for young people and adults. There is also an increasing number of schools for mothers, with opportunity for consulting medical men and others on the treatment of young children; and there are already about 140 crèches and day nurseries in London and the larger provincial cities.

Dr. Fremantle, the School Medical Officer for Hertfordshire, has made a study of the health of town children and country children. His conclusions are based upon the study of about twenty thousand children during four years, 1909-13. He chose eight areas in Hertfordshire for the purpose. Four of the areas were the urban districts of Hertford, St. Albans, Hitchin, and Watford; the other four were the rural districts in the neighbourhood of those towns. Dr. Fremantle found that the village boys were taller and heavier than the town boys, especially at six years of age. The girls weighed and measured about the same both in the town and country districts, except that the country girls in their twelfth year were heavier than the town girls. It is possible that the explanation of these differences may be the healthier conditions in which young children are brought up in the country. In clothing and footgear the defects were nearly 50 per cent. more numerous in the towns than in the villages. The number of children in the towns defective in nutrition was double that in the villages. In cleanliness of body, the village children were cleaner than the town children, in both sexes and at each age. Improvement as to cleanliness of the head came first in the towns and has since spread to the villages. Dr. Fremantle finds that in most areas, town or country, there is what he calls a "stubborn sediment of wilfully filthy families" over whom the persuasions and influence of the school nurse have no effect. In regard to teeth, the defects are more numerous in the country than in the towns. The same is true of tonsils and adenoids, cases of the latter being twice as frequent in the rural as in the urban areas. Defects of eyesight are more frequent in the town than in the country schools, in the proportion of three to two. Dr. Fremantle thinks it possible that the wider distances seen in the country give fuller play to long-distance vision, and also that the strain of constantly keeping the eye focused in the town causes some impaired development of the mechanism within the eye, leading to short sight and astigmatism. The same conclusions were reached, on a more limited inquiry, by Dr. Collins, School Medical Officer for Kingston-on-Thames, who compared the borough of Kingston-on-Thames and the county of Surrey. He found that the country child was better than the town child in respect of nutrition, clothing, teeth, and vision, and that its chief disadvantage lay in a heavier incidence of enlarged tonsils and adenoids. Social conditions are very closely connected with these differences between town and country children. In many of the English villages the well-to-do residents take a great interest in the villagers' families and help in keeping up a high standard of tidiness and cleanliness. In the towns there is, of course, very little of this oversight. Some of the worst districts are in the areas just outside the large towns. There is a nomadic element in the town populations, and families of this type need much more supervision than they at present receive. But the best hope for the future lies in the growth of public opinion, which would make uncleanness a social disgrace. Local Authorities might be much more severe than they are at present in admitting to school children who come dirty.

Open-air teaching is becoming more general. Classes are taken in playgrounds; open-air classrooms are added to existing schools; and new schools are established in the country for town children. The playground classes are reported to have had good results as regards the health of the children and teachers. More of these are held in London than elsewhere. Protection against wind, sun, and rain is given by an awning. Trestle tables or eight folding desks and chairs are used for the lessons. Each child is provided with a rug. Canvas stretchers are used for the midday rest. In the curriculum, manual work is given a larger place. Nature study becomes more prominent. There is less book-work and more oral teaching. Wherever practicable, there is a gardening class. In these open-air classes the children

are hungrier than in the ordinary schools, and of course they keep much warmer if they are suitably fed. Practically all the children attending these classes are given a substantial dinner, the parents contributing to the cost when possible. The children admitted to these open-air classes are those who are suffering slightly from malnutrition or anæmia, those who have had treatment for tuberculosis and are on their way back to the ordinary school, and those who have been in contact with tuberculosis but have not caught it. The classes are all under medical supervision, and the physical training of the children is carefully attended to. The difficulty lies in the children being of very different ages and at different stages of instruction. This means that they require almost individual tuition. But the work in the open air, and the two hours' daily rest, in the sunshine when possible, are of great benefit to the children.

In one case (Dyfatty Girls' School, Swansea) it was possible to compare, in the same school, children working in the open air with those who did their lessons in the ordinary classrooms. The pupils for the open-air teaching were chosen on account of defective physical condition or backwardness with school work due to physical causes. The co-operation of the parent was sought to begin with. They were asked to come to the classroom, and the object of establishing the open-air class was explained to them in a short address. The parents showed no reluctance to sending their children to be taught under open-air conditions; no child was withdrawn; and the attendances, as compared with the previous record of the children, were much improved. No illnesses such as colds or bronchitis attacked the children, and the confidence of the parents was not disturbed. Greater freedom of movement was given to the children than was possible in the ordinary school, and more time was given to manual occupations. The open-air classrooms are well sheltered from the prevailing winds, one long side being open for its whole length, the other long side being up against the boundary wall. Both ends can be completely opened or closed at will. There is ventilation in the roof along the whole length of the classroom. The open side is protected by a glass veranda. Although the weather was rainy in the late autumn and severely cold in the winter, the children stayed on in the open-air classroom without any bad effects. A glass of hot milk was given to them in the cold weather in the middle of the morning, and they were provided with long flannel overalls and caps. There was a decided improvement in the open-air classroom children as compared with the indoor. Their average gain in weight was five times as much, and it was found that the children made as good progress as the ordinary children in school lessons. The teachers in the open-air classroom have greatly improved in health, and now much prefer it to the ordinary indoor work.

This experience points to its being desirable to extend open-air teaching much more widely than is at present the case.

At Bradford there is a camp school. Six tents (each accommodating forty children) and a large dining tent were provided. Children and teachers from various schools in the neighbourhood came to spend a week in turn at the camp. All the children were served with a mid-day meal. There was no selection of specially ailing children. The time-table was modified, and the results of the school were so encouraging that it is proposed to establish a second camp, at which each school will, perhaps, remain for a fortnight instead of a week.

Some Local Education Authorities are building new open-air schools. It is found that, whatever type of classroom is decided upon, at least two of its sides should be capable of being thrown open. One of the rooms should be provided with an open fire, or be otherwise efficiently warmed, as whenever a child presents slight symptoms of illness, it is desirable that it should be sent to rest in a warm room. Some of the schools are built in the form of a row of classrooms, but it is found that a complete break from the ordinary design makes the teachers realize more fully that the curriculum should be thought out again, without regard to precedent or tradition. The open-air school means a fresh start in education. Besides the classrooms, there should be a dining room and kitchen and a rest-room. A bathroom, fitted with shower or spray baths, is required, and there should be facilities for drying wet garments, for storing blankets, &c. It is found in practice difficult for a head teacher to give the individual supervision necessary for delicate children to more than 120 pupils. This fixes the maximum accommodation for the good open-air school.

The feeding of school children has entered upon a new stage. The new Education (Provision of Meals) Act, 1914, legalizes the provision of meals during holidays and on other days when the school is not open. It repeals the limit imposed by the earlier Act, which restricted the expenditure of a Local Education Authority, in the provision of food, to the produce of a halfpenny rate. It makes it unnecessary for the Local Authority to obtain the sanction of the Board of Education to the expenditure of rates on the provision of food. Immediately after the outbreak of the War, there was a period when the dislocation of trade made it necessary to provide meals for a considerable number of school children. The need reached its maximum at the beginning of October last, when 122 Local Education Authorities were engaged in supplying meals to 195,000 children. Since that time, the number of meals provided and the number of children fed

has rapidly declined, as the amount of unemployment has greatly decreased.

Experience is raising a number of interesting questions in connexion with the feeding of school children. It is a moot point whether it is better to provide a dinner or a breakfast when only one meal can be given. A good many teachers are in favour of providing breakfasts, on the ground that the child needs food at the beginning of the day's work. The prevailing opinion, however, is that almost every child gets something in the way of breakfast, and that what it needs most is a substantial and nourishing meal at midday.

Another question is whether it is enough to provide one meal a day. In several areas the children of specially poor parents, or all children in exceptionally hard times, are given two meals.

A third point is that malnutrition is by no means always the result of under-feeding. The School Attendance Officers and the School Medical Service need to work together, in order that medical treatment may be given where disease and not poverty is the cause of defective growth.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on the 15th of May. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Dr. Armitage-Smith, Mr. Bain, Mr. F. Charles, Mr. R. F. Charles, Miss Crookshank, Miss Dawes, Mr. Eagles, Mrs. Felkin, Mr. Hardie, Mr. Hawe, Mr. Holland, Miss Jebb, Rev R. Lee, Rev. Dr. Nairn, Mr. Pendlebury, Miss Punnett, Mr. Ritchie, Mr. Rushbrooke, Rev. C. J. Smith, Rev. Canon Swallow, Mr. Thornton, Mr. Vincent, Mr. Whitbread, and Mr. Wilson.

The Diploma of Associate was granted to Mr. Andries Adriaan Louw Reyneke, who had satisfied the prescribed conditions.

Sir Philip Magnus, M.P., was elected President of the Council. Prof. John Adams, Mr. R. F. Charles, and Mr. J. F. P. Rawlinson, K.C., M.P., were elected Vice-Presidents of the Council.

Mr. W. G. Rushbrooke was appointed Dean of the College and Dr. G. Armitage-Smith was appointed Treasurer of the College.

The Moderators, Examiners, Inspectors, and Revisers for the year ending May 1916 were appointed.

The six Standing Committees of the Council for the year ending May 1916 were appointed.

The 23rd of October 1915, and the 25th of March 1916, were appointed the dates of the next two Half-yearly Ordinary General Meetings of the members of the College.

It was referred to the Educational Committee to consider the question of formulating a scheme whereby a secondary school (public or private) may receive state or rate aid without surrendering its independence.

A grant of £20 from the College Benevolent Fund was made to a Life Member of the College.

On the recommendation of the Examination Committee, it was resolved: (a) That holders of Diplomas of the Royal College of Art who enter for the College of Preceptors' Diploma Examinations be granted exemption from examination in arithmetic and the alternative group for the Associateship, and exemption from examination in arithmetic and the two alternative groups for the Licentiate; (b) that, in and after June 1917, the two alternative Geometry papers now set for the Senior Certificate Examination be replaced by one paper; (c) that, in and after June 1917, unprepared passages for translation be included in all foreign language papers; and (d) that, in and after June 1917, no candidate be allowed to pass in Latin or Greek in any grade who fails to reach a reasonable standard in unprepared translation.

The following persons were elected Members of the College:—

- Mr. W. Brown, L.C.P., Hockerill, Bishop's Stortford.
- Mr. W. J. Davies, B.Sc. Wales, L.C.P., Lucton School, Kingsland S.O., Herefordshire.
- Mr. N. MacMunn, B.A. Oxon., West Downs, Winchester.
- Mr. E. Quine, B.Sc. Liverpool, L.C.P., 6 Richmond Road, Bedford.
- Mr. C. F. Tidman, A.C.P., Ferndale, Claughton Street, Kidderminster.

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

By Mr. N. K. DIKSHIT.—Lectures delivered at the Maratha Education Conference at Baroda, December, 1910.

By A. & C. BLACK.—Bluck's Travel Pictures (The British Empire); Green's I Serve, and Composition for Junior Forms; Nightingale's Visual History.

By the CAMBRIDGE UNIVERSITY PRESS.—Adair's Faguet's Ce que disent les Livres; Adams' Plato's Apology of Socrates; Duff's Seneca's Dialogues, Books X, XI, and XII; Edwards's Salamis, and Homer's Odyssey, Books VI and VII; Lobban's Shakespeare's King Henry IV, Part II; Peskett's Caesar's De Bello Civili, Book II; Robertson's Dumas' L'Homme au Masque de Fer; Winstanley's Chaucer's Nonne Prestes Tale.

By J. M. DENT & SONS.—Hart's Elementary Experimental Statics.

By MACMILLAN & Co.—Buckley's History of England for Beginners; Cavenagh's Carlyle's Abbot Samson; Fowler's British Orators; Robert's The Isle of Gramarye, Parts I and II; Rowe and Webb's Tennyson's Oenone and other Poems.

By METHUEN & Co.—Firth's Practical Physical Chemistry; Green's Story of the Hebrew Patriarchs.

By the UNIVERSITY TUTORIAL PRESS.—Cavers's Junior Botany; Jenkins's Educational Handwork; Maccall's Continuous Current Electrical Engineering; Watt and Collins's Bacon's Essays; Weekes's Dickens's Tale of Two Cities.

OLD SCHOLASTIC ADVERTISEMENTS.

By C. EDGAR THOMAS.

THE story of early advertising constitutes a singularly interesting chapter in the history of commercial enterprise, the fascination of which is due in great part to the peculiar and unaccountable dearth of literature concerning the subject. Modern developments in advertising, especially those of the past twenty years, have completely revolutionized the art of publicity gaining, so that the quaintly phrased and invariably witty advertisements that adorned the news sheets of the seventeenth and eighteenth centuries, with their homely and frankly personal note, have now entirely disappeared from our ken. Indeed, on perusing a number of these early trade writings, one cannot fail but marvel that they influenced the business they did, while that the majority of them were "puffs" of no ordinary magnitude it is beyond all reason to doubt.

The following examples of early advertisements relating to the scholastic profession are well worth preserving, for, apart from, in some instances, their diverting qualities, they incidentally impart information that renders them doubly valuable and interesting.

One of the earliest scholastic advertisements took the form of a postscript at the end of a small pamphlet printed in 1673, and entitled "An Essay to Revive the Ancient Education of Gentlewomen in Religion, Manners, and Tongues." This quaintly written effusion concerned a boarding school at Tottenham High Cross, which establishment was then under the management of a Mrs. Makin, who had been tutress to the Princess Elizabeth, daughter of Charles I. Part of her prospectus was issued in the following manner:—

Here, by the blessing of God, Gentlewomen may be instructed in the principles of Religion and in all manner of sober and virtuous Education: more especially in all Things ordinarily taught in Schools for the other Sex; as in Work of all Sorts, Dancing, Music, Singing, Writing, Keeping Accounts. Half the Time is to be spent in these Things, and the other half to be employed in gaining the Latin and French Tongues, and those that may please may learn Greek and Hebrew, the Italian and Spanish; in all which this Gentlewoman hath a competent knowledge. Gentlewomen of eight or nine years old, that can read well, may be instructed in a year or two (according to their parts) in the Latin and French Tongues, by plain and short Rules accommodated to the English Tongue. Those that will bestow a longer time may learn the other Languages before mentioned, if they please. Repositories also for Visibles shall be prepared, by which from beholding the things, Gentlewomen may learn the Names, Natures, Values, and Uses of Herbs, Shrubs, Trees, Mineral Juices, Metals and Stones. Those that please may learn Limning, Preerring, Pastry, Cookery, &c. The rate shall be £20 per annum; but if a competent improvement be made in the Tongues, and the other Things before mentioned, as shall be agreed upon them, something more will be expected. But the Parents shall judge what shall be deserved by the Undertaker.

Next we come to an individual who, according to his own showing, would have been invaluable to some of the members of the school boards of the present day, and have enabled them to keep pace with the pupils under their supervision. This worthy, a Mr. Switterda, published his first advertisement in the *Postman* for July 6, 1700:—

All Gentlemen and Ladies who are desirous in a very short time to

speak Latin, French, or High Dutch fluently, and that truly and properly without pedantry, according to Grammar Rules, and can but spare two hours a week, may faithfully be taught by Mr. *Switterda* or his assistant at his lodgings in Panton Street, at the Bunch of Grapes, near Leicester Fields, where you may have Latin and French historical cards. Children may come every day, or as often as parents please, at his house in Arundel Street, next to the Temple Passage, chiefly those of discretion, who may be his or her assistant, entering at the same time. And if any Gent. will take two children or half a dozen of equal age, whose capacity are not disproportionable, and let any Gent. take his choice, and leave to the above named S. the other, and he is content to lose his reward, if he or his assistant makes not a greater and more visible improvement of the Latin tongue in the first three months time, than any Gent. whatsoever. *Et quamquam nobili Germano est dedecori linguas profiteri, tamen non abscondi talenta mea quae Deus mihi largitus est, sed ea per multos annos publicavi, et omnes tam divites quam paupores ad domum meam invitavi, sed surdis semper aures pulsavi, multos mihi invidios concilavi, quos confidentia et sedulitate jam superavi. Omnes artes mechanicæ quætidie excoluntur, artes vero liberales sunt veluti statua idolatrica qua addorantur non promoventur. He intends to dispose of two copper plates containing the ground of the Latin Tongue, and the highest bidder shall have them. Every one is to pay according to his quality from one guinea to 4 guineas per month, but he will readier agree by the great.*

From the conclusion of this long-winded composition, it is evident that Mr. *Switterda* was of an accommodating disposition, and doubtless did well, not only out of those who agreed "by the great"—a species of old-time scholastic slang, which is difficult to understand positively, however much one may surmise—but out of those who were content to, or were perforce compelled to put up, with the small. About a month later a further notice appeared in the same paper, which clearly showed that the advertiser was possessed of a power of puffing his own goods which must have aroused the envy and admiration of his confrères:—

WHEREAS in this degenerate age, Youth are kept so many years in following only the Latin Tongue, and many of them are quite discouraged. Mr. *Switterda* offers them a very easy, short, and delightful method, which is full, plain, most expeditious and effectual, without pedantry, resolving all into a laudable and most beneficial practice by which Gents. and Ladies, who can but spare to be but twice a week with him, may in two years time learn Latin, French, and High Dutch, not only to speak them truly and properly, but also to understand a classical author. Antisthenes, an eminent Teacher being ask'd why he had so few scholars, answered *Quoniam non compello, sed depello illos virga argentea.* Mr. *Switterda* who loves *qualitatem non quantitatem* may say the same of a great many, except those who are scholars themselves, and love to give their children extraordinary learning, who have paid not only what he desired, but one, two, or three guineas above their quarteridge, and some more than he asked. He is not willing to be troubled with stubborn boys, or those of 8 or 9 years of age, unless they come along with one of more maturity, that shall be able to instruct them at home, and such as may be serviceable to the public in Divinity, Law and Physick, or teaching school. There is £20 offered for the two copper plates, and he that bids most shall have them. He teacheth Mondays, Wednesdays and Fridays, at his house in Arundel Street, next door above the Temple Passage, and the other three days in Panton Street, at the Bunch of Grapes, near Leicester Fields, where you may have Latin and French Historical cards, and a pack to learn *Copia Verborum*, which is a great want in many gentlemen. Every one is to pay according to his quality, from one Guinea to 4 Guineas per month. But poor Gent. and Ladies he will consider, chiefly when they agree by the great, or come to board with him.

In contrast with the puffing and pretentious announcement just given is one of the same date which follows:—

ABOUT Forty miles from London is a schoolmaster has had such success with boys as there are almost forty ministers and schoolmasters that were his scholars. His wife also teaches girls lace-making, plain work, raising paste, sauces and cookery to a degree of exactness. His price is £10 or £11 the year, with a pair of sheets and one spoon, to be returned if desired; coaches and other conveniences pass every day within half a mile of the house, and 'tis but an easy journey to or from London.

Reading this, one can almost discern the hum of the little country schoolroom, and see the master with his wig all awry, deep in "study and snuff"; the mistress keenly alive to the disposition of her girls, and the pupils of both sexes, as pupils are often, even nowadays, intent upon anything but their lessons or work. London is forty miles away, and the coach is an object of wonder and admiration to the villagers, who

eye the pupils who have come from the great city with awe and reverence, while the master is supposed to diffuse learning from every pore in his body, and to scatter knowledge with every wave of his hand.

A scholastic advertisement of quite a commonplace nature, the following graced the news sheets of the early eighteenth century:—

THIS is to give notice that *Isabella Enlithorne*, in Ripon, is removed to a large convenient house, pleasantly situated; and continues to board and teach young ladies all sorts of needlework, arithmetic, writing, &c., at a very reasonable rate. Latin, French, and Dancing by the best masters;

while, after a perusal of the next, one instinctively wonders how many etceteras were to be included in the work of teaching at the salary of £10 per year.

A MISTRESS is wanting at the Charity School at Bedham. The salary is £10 per year, with all accommodation for teaching 70 girls to read, spin, &c. The qualifications required are that such Mistress be not less than 25, a single woman, have no dependence upon her, and be capable of instructing the children in reading, spinning, sewing, &c.

In *The Times* towards the close of the year 1826 an advertisement appeared, which ran as follows:—

TO SCHOOL ASSISTANTS.—Wanted, a respectable GENTLEMAN of Good character, capable of TEACHING THE CLASSICS as far as Homer and Virgil. Apply—

That there was nothing particularly noticeable in this, is readily admitted, but the sequel which was told some few days later in the same journal will well repay perusal. A day or two after the advertisement had appeared, the gentleman to whom applications were to be made received a letter as follows:—"Sir, with reference to an advertisement which was inserted in *The Times* newspaper a few days since, respecting a school assistant, I beg to state that I should be happy to fill that situation; but as most of my friends reside in London, and not knowing how far Homer and Virgil is from town, I beg to state that I should not like to engage to teach the Classics farther than Hammersmith or Turnham Green, or at the very utmost distance farther than Brentford. Waiting your reply, I am, &c., &c., JOHN SPARKS." The errors in orthography and syntax have been copied as in the letter, but the matter has the appearance of being suspiciously like a hoax. The editor, however, thought otherwise, and, after appending a few remarks, said, "This puts us in mind of a person who once advertised for a "strong coal heaver," and a poor man calling upon him the day after, saying "he had not got such a thing as a strong coal heaver, but he had brought a strong coal scuttle made of the best iron; and if that would answer the purpose, he should have it as a bargain."

The following modest offer for a governess is taken from *The Times* of sixty years ago:

WANTED, in a gentleman's family, a young lady, as NURSERY GOVERNESS, to instruct two young ladies in French, music, and singing, with the usual branches of education, and to take the entire charge of their wardrobe. She must be of a social disposition and fond of children, and have the manners of a gentlewoman, as she will be treated as one of the family. Salary twelve guineas per annum.

And all this was expected for the small salary of twelve guineas per annum, about half what a decent housemaid expected, and with less than half the liberty of a scullion. Yet this advertisement was issued, and was but representative of others of the same kind, not one of which was supposed to betray meanness or poverty of spirit on the part of the advertiser. Thus, for twelve guineas a year the poverty-stricken orphan or daughter of some once well-to-do gentleman was expected to teach French, music, singing, writing, arithmetic, geography, history, and other of the "usual branches of education" to two young ladies who it may not be too much to presume would be much more like the brass-founder's daughter who objected to Ruth Pinch, than similar to the charge of Becky Sharp when she occupied a governess's position. But, in addition to teaching, there was the charge of the young ladies' wardrobe, which was quite an occupation by itself; and then came, perhaps the worst of all, the social disposition, by which was evidently meant a capacity for doing whatever any other member of the family might object to do—for being the drudge of the drawing-room when the little tyrants of the nursery were abed and asleep. Then

the manners of a gentlewoman in all probability meant a capacity for receiving studied insult without resentment, while treatment as one of the family resolved itself into such care and comfort as would cause the cook to take her instant departure. And all this for twelve guineas per annum!

It is perhaps but natural that foreigners should make mistakes when they try their strength in English, for there is the testimony of the following curious and amusing effusion, which appeared in the English newspapers, *verbatim et literatim* :—

I, Jean de Merion, bein trow necessité oblige to teach la langue Française to de people, I be glad you send your child's à moi. Je demeure toder ind, Second Street. All my leisiere hour I make sausage—a vrend. Oh! I forgot to tell how much I ave for teach de school—4 crows a quarter for teach de plus polite langue of Europe.

The advertisements of the North-country schools were always amusing documents, until the public became familiar with "Do-the-boys' Hall" and Mr. Squeers; since when they became diminished in numbers and moderated in tone. The accompanying advertisement, which is printed *in extenso*, was probably concocted before the time of "Nicholas Nickleby" :—

TO YOUNG WOMEN.—Wanted, in a genteel private Seminary for young gentlemen, a young person of respectability, fully competent to the charge and entire superintendence of twenty-five little boys. She must be able to instruct them in reading, spelling, writing, and the rudiments of history and geography. She will be expected to give her constant attention to the children, and, as the manners and deportment of young boys are matters of importance, it is requisite that she shall have moved in genteel society. She will be expected to remain in the Establishment, on approval, for the first three months without salary, but her washing will be found her. If she stops after that period, her salary will be twenty-five pounds a-year, when she must find her own laundress. She will have to wash the children's faces and hands every morning, and walk out twice with them daily: to keep their wardrobes in repair, and mend their stockings in the evening, *after which her time will be her own*, and she will mix with the family. On Saturdays she will have to comb their heads with the small-tooth comb, and after the servant has washed their feet, she will cut their toenails; but on no account must she chastise the children—the ladies of the Establishment reserve to themselves that privilege, *having a peculiar method of their own*. In matters of this sort it is best to be explicit: and therefore it is right to mention, that during the Christmas and Midsummer vacations she will be allowed three weeks to visit her friends, but will not be permitted to be absent on any pretence during the half years. She will have the advantage of visiting the parish church twice on a Sunday with the children, and hearing them say their prayers every morning and evening. Unexceptionable references will be required as to temper, character, and respectability. Address, post-paid, LL, 51, Poultry.

Finally, we give the trade announcement of a firm of scholastic furnishers, which easily speaks for itself :—

WHEREVER MINERVA, the Goddess of Wisdom, presides, or Pomona, or Ceres require book work to be done, there will be found the school and office furniture made by Gilbert & Moore. It is universally acknowledged to be the best that is made in this or any other country. If once used, no other desks, stools, forms, garden seats, etc., will ever meet with any favour. Their patent school desk, with seat attached, is the most perfect thing we ever saw, and is as strong as it is neat.

CURRENT EVENTS.

THE Conference of the Head Mistresses' Association will be held at Walthamstow County High School on June 11 and 12.

THE Parents' National Educational Union at its June Conference is arranging a special Children's Day with model lessons.

THE Yearbook Press have been appointed by the Teachers' Registration Council as publishers of the first Official List of Registered Teachers, which will be issued as soon as arrangements have been completed. Teachers not yet registered should write to the Secretary, 2 Bloomsbury Square, W.C.

DR T. GREGORY FOSTER writes to say that a new edition of the University College (London) "Pro Patria" is in course of preparation and will be issued shortly. Past and present Students, or their relatives and friends on their behalf, are invited to send full particulars

of the capacity in which they are serving their country at the present time. In the case of the Army, rank and regiment should be given; in the case of the Navy, rank and ship. These particulars should be addressed to the Publications Secretary, University College, London, Gower Street, W.C.

THE *Oxford Magazine* publishes a facsimile of a field post card which was thrown by a German soldier into the British trenches near Hill 60. The translation runs: "Dear Englishmen, when will there be peace? Please answer at once. We are being relieved. Pioneer Batt. 15. Is it true that you like the Pioneers?"

SIR JOSEPH JONAS, Chairman of the Applied Science Committee of the University of Sheffield, has given the University £5,000 to found, endow, and equip a testing laboratory in connexion with the Applied Science Department. The laboratory is to be equipped with the most modern appliances for testing metals and minerals, especially those used in the production of steel, and is to be called the "Jonas Testing Laboratory."

THE Board of Management of the University of Oxford have elected James M. Baldwin, Hon. D.Sc., Honorary Professor of the University of Mexico, formerly professor in Toronto, Princeton, and Johns Hopkins Universities, to be Herbert Spencer Lecturer for the year 1915-16.

DR. H. B. GRAY, formerly Head Master of Bradfield College, has recently been appointed Official Lecturer at the Imperial Institute, in order to give short lectures on "The Resources of the Countries of the Empire," illustrated by the unrivalled collections of exhibits which are to be seen in the various courts assigned to those countries in the Public Exhibition Galleries of the Institute at South Kensington.

CORRESPONDENCE.

IS OUR ENGLISH PRONUNCIATION "CARELESS, SLOVENLY, AND SLIPSHOD"?

To the Editor of "The Educational Times."

SIR,—When an ordinary individual who has not attained the dignity of a phonetician is in doubt about the pronunciation of a word he will probably look it up in his dictionary, and there he will find the *correct* pronunciation given without any reference to the terms "stressed" and "unstressed." Perhaps, if phoneticians are out of the way, he may venture to think that any form of pronunciation other than the given correct form is incorrect, and further, he may conclude that unstressed forms are simply incorrect forms due to rapidity, carelessness, or slovenliness of speech. Careful consideration will probably lead him to decide that many unstressed (incorrect) forms are justifiable, and he will undoubtedly conclude that numerous unstressed forms of pronunciation are absolutely *un-justifiable*. Further, he will be shocked at the laxity of many educated speakers of the present day.

The terms of this argument may not be acceptable to phoneticians, but the pronunciation of the English language is not the possession of phoneticians alone.

The fact is that, although in some countries a teacher of modern languages must be possessed of a knowledge of phonetics, in this country, even among teachers of modern languages, there are many who have no substantial acquaintance with the subject. If my first letter recognized this fact, and, by addressing the many, failed sufficiently to respect the dignity of the trained phonetician, I am unfortunate in that it has led to what is a mere quibble.

A training in phonetics is now rightly considered necessary to the successful teaching of modern languages. When my interest in the subject was first aroused, in 1878, the only book that came into my hands was "French Orthœpy," by Professor Gaillard, of Liverpool. Since then many books have seen the light, and much progress has been made. Viëtor in Germany, Passy in France, and Sweet, Rippmann, and others in England have made the study of phonetics comparatively easy, and a present-day teacher of modern languages has no excuse for being ignorant of the subject. When at Bradford Mr. Fabian Ware used to devote a whole school term to phonetics in teaching a class of beginners in French. Few

teachers of English would find themselves sufficiently unhampered by the conditions under which they work to make a similar experiment. Yet every Englishman, every Englishwoman would benefit by a course of phonetics. While admitting this, however, I do not agree that non-phoneticians must necessarily be excluded from the consideration of the pronunciation of their own language.

What Mr. Dumville quotes as "typical educated southern English" might to my mind be better described as "typical slovenly English as spoken by an educated man." There is no excuse for dropping the *d* in "and." A slight pause on the preceding word will make the proper pronunciation of "and" a matter of no difficulty, and many other so-called "educated" forms of pronunciation are simply "careless, slovenly, and slipshod."

It appears to me that phoneticians are too ready to accept loose forms of pronunciation and to record them in phonetic transcription as correct English. Should they not rather write to exercise some such influence on English pronunciation as Caxton's printing, or the publication of the Bible, had on the standardizing of English spelling?

In his "Method of English," published in 1892, Dr. Gow tells us: "It is now common in the West End of London to pronounce *ng* as *n* at the end of words—e.g. to say 'somethin, askin' for 'something, asking.' This change may become general."

Fortunately in 1915 this irregularity has not become general, and there is no reason why other slovenly irregularities should be approved instead of being excluded from the speech of the educated.—I am, yours faithfully,

A. MILLAR INGLIS.

A QUESTION OF GRAMMAR.

To the Editor of the "Educational Times."

DEAR SIR,—Long before this letter "from far Japan" can reach you, replies *ad satietatem* will no doubt have been sent to the "Question of Grammar" raised in your March issue, and therefore it is, I fear, somewhat unreasonable of me to expect you to pay any attention to what I have to say upon the point. But, if no one else has done so, I should like to assure your correspondent that if it be indeed true, as Horace says, that the *jus et norma loquendi* is in the hands of *usus*, the employment of a singular verb in such a case as "one of the most touching tales that has ever been written," is, if not justified, yet more or less countenanced, by writers from the very outset of our literature. Similar constructions are found in the "Beowulf" epic (cf. lines 844, 977, 1,462, 2,384), and in the writings of Alfred the Great. Wülfing, in his great work on Alfred's syntax, gives two pages of examples of a singular verb after the expressions "each of those who," "none of those who," "any of those who," and seven examples of the singular, with such combinations as "any of the things which," "each of the men who."

Prof. Jespersen, in his "A Modern English Grammar," Part II, section 6, 77, quotes an instance of the construction, even from so careful a writer as Lord Macaulay: "he effected one of the most extensive, difficult, and salutary reforms that ever was accomplished."

The inference is, surely, that, though from a logical point of view the construction cannot be defended, yet, as a case of attraction, it is so natural it may pass without severe, or any, censure.

As regards the form of the verb to be used with such words as "Board," "Council," "Committee," I fall back upon the rule given in Lindley Murray's "Grammar"—I quote from memory, alas! having mislaid my copy of that venerable work: "Nouns of multitude, or signifying many, may have verbs, nouns, or pronouns agreeing with them either in the singular or plural number, yet not without regard to the import of the word as conveying unity or plurality of idea." But how difficult it is to steer a straight course amid such rocks was amusingly shown in the King's Speech at the opening of Parliament in 1905 (cf. *Times*, February 15), thus:—Section 3: "My Government have been careful to observe, &c." Section 7: "My Government has also come to an agreement." Section 10: "The Chinese Government have sent a commission to Calcutta." Section 4: "My Government is in communication with those of the other

Powers." Section 7: "An Internal Commission of Inquiry has been entrusted . . ."

As the Government is always supposed to act as one man, one would think that policy would dictate the use of the singular invariably.—I remain, dear Sir, yours very sincerely,

J. LAWRENCE.

(Professor of English at the Imperial University of Tokio.)
2661 Iriarai Mura, Tokio Fuka, Japan, April 12, 1915.

THE TEACHING OF RECENT HISTORY.

To the Editor of "The Educational Times."

SIR,—Much discussion has from time to time been raised by the question how far it is possible and desirable to teach the history of the last few decades to our pupils. It cannot be denied that this period is often neglected in the usual History course, and it is equally true that there are some very great difficulties in the way of teaching this part of our history in a satisfactory manner.

Why is it that the Victorian era is so much neglected in History teaching? Perhaps the first reason that will occur to the mind is that the period is not so attractive to young pupils as the earlier ones. At first sight the Victorian era appears to be an age of frock-coats, of Parliamentary debates, of social problems, and of party changes of Government, and, however interesting this sort of thing may be to the adult student, it can hardly be expected to appeal to the young pupil in the same way as the violent and bloodthirsty Middle Ages or the adventurous days of Elizabeth, or even the age of Wellington's redcoats and the three-bottle school of statesmen of Pitt's day.

But, on consideration, is it really true that the recent age is so devoid of action and colour as is usually taken for granted? The Indian Mutiny, the Crimean War—surely these are full enough of picturesque and stirring detail. And in more recent times still, cannot the details of the Boer Wars, the development of our distant colonies, the Fenian agitation be made as enticing as any episodes in our history? As a matter of fact, our history books concentrate far too much on the warlike activities of the Middle Ages and far too much on the constitutional measures of the modern period; and the Medieval constitution and the building up of our colonial Empire are both capable of far more systematic and thorough treatment than they usually receive in the books and in class.

Another reason why teachers fight shy of teaching the very recent history of England is that the question of political bias haunts them like a nightmare. How can a teacher with pronounced political views—particularly if he is a young teacher with a profound contempt for the political views of his opponents—how can he talk to a class about the political parties and their measures without letting it be seen on whose side he is, and without biasing his lesson in favour of one side of a question? Now as a matter of fact, this difficulty is not quite so great as at first appears. Of course, no flagrant propagandist teaching could be tolerated in our schools, but, if the teacher is able to exercise a very moderate amount of self-restraint in dealing with the politics of the past few decades, he may make quite an effective teacher of the essential part of his subject, namely the *facts*. It requires persistent hammering at home as well as at school to impress a young pupil with anything like a deep political sentiment. Few of us can trace our present political leanings to any course of school instruction, though some will no doubt say that this is because we were never taught any history subsequent to the Battle of Waterloo.

A knowledge of the history of the recent period is quite essential to a good education, and it would be a vast pity if it were to suffer from an unwillingness to tempt the schoolmaster into political propagandism. Head masters should make it a duty to see that no pronounced political views are taught in their schools, and should equally make it a duty to see that they do not set the example of falling into this habit.

There is, however, a great field of recent history that does not lay itself open to any great extent to party treatment. Though the "Opposition" of the day has had much to say about the abominable way the Government of the day has conducted the wars, one can deal with our foreign and colonial

contests with outside enemies during the last century with comparative detachment and impartiality, or, if there is any partiality, it will probably be of a patriotic sort, and that is not so harmful. Though Imperialism and Little Englandism have in the past had some very nasty conflicts, the wonderful development of our Empire should provide a theme on which much useful information could be given without bias. This part of English history—the development of our overseas dominions during the last century—has been one of the most neglected of the chapters of History taught in our schools, and surely it is of enormous importance! We wonder how many schoolboys have ever been told or have ever read about the foundation of Rhodesia, Louis Riel's rebellion, and the Klondyke gold rush, the convict disputes in Australia, and the Eureka stockade, or the Maori wars, or how Perim was occupied, or a hundred other important and really interesting topics of colonial history.

As a matter of fact, it is far more important that a scholar should master some knowledge about the last century than that he should know about the earlier ages. Of course, the more history a boy can learn the better, but if the history of the last two generations is to be neglected while the Hundred Years' War and the career of Cromwell are to be studied in detail, then something is decidedly wrong. Quite a big space should be allotted in the school history syllabus to the teaching of the recent era, and, in the hands of thoughtful and tactful masters, there should be no serious difficulty either in avoiding political partiality or in investing the subject with a living interest.—I am, &c., E. L. HASLUCK.

SECONDARY EDUCATION AND STATE AID.

To the Editor of "The Educational Times."

SIR,—I was glad to see Mr. Barrow Rule's letter in your issue for this month. Numerous indications are evident that the registration of teachers and the organization and co-ordination of educational effort are tending to render more instant and effective State intervention in education. The recent issue by the Board of Education of Circular 849 is a straw which shows in what direction the current is flowing. Undoubtedly it is a serious question for many governing bodies and many heads of private schools whether they should entirely stand aloof from the State and the Local Education Authority or take advantage of any facilities that might be available.

Much may be said for and against this problem in the abstract. Few people are enamoured of the idea of a central controlling absolute power in this field—of a bureaucratic regime—of an army of inspectors more or less conscious of their own talent and superiority. Such a system tends to become hide-bound, to stereotype one particular pattern, to vex and discourage individual initiative, and to limit freedom of action and experiment. Therefore, one presumes that, as in the past, many educationists and successful teachers would prefer to take their own way, giving their all to the State and asking nothing in return. But things are rapidly changing; other individuals, partly perhaps by conviction, partly through the stress of competition, are compelled to consider the desirability of seeking for grants in aid.

It becomes, then, a pressing question to determine the conditions under which such grants might be bestowed and administered, so that the greatest benefit be secured to the community and the school with the minimum risk that the self-respect of the teacher and the force of his initiative be impaired.

Public schools stand on a footing somewhat different from that of private schools, though in all cases the personality of the teacher is the main factor. It would appear that in recent years certain of the former had been treated by the Administrative Authority with but scant justice. I refer to institutions founded in the past for scholars of a particular denomination, who were to be taught the faith as believed and practised by that denomination. It is alleged that public funds are furnished to such schools only on condition that the foundation loses its denominational status and the right to furnish its pupils with the distinctive teaching set out under its trust deed. This action may not perturb the minds of indifferentists, but it illustrates the fact that a political party might carry out a revolution by administrative pressure which it would fail to accomplish if it were embodied in a Government measure and submitted to criticism on the floor of the House of Commons. It would appear to be a breach of equity that a public department contributing but a small proportion of the total funds should take upon itself the responsibility of transforming the character of any particular school, ignoring altogether the *raison d'être* of the original foundation and the sustained effort that had been carried on, perhaps even for centuries. It would appear to be but fair that the degree of the Government influence

should be limited by the proportion of the amount bestowed. The matter may not by some people be considered serious, if confined to an undenominational policy, but it would be a far more serious matter if a Cabinet were in power opposed to all religious teaching in aided schools, and if it attempted to give effect to its policy by similar administrative means.

The above statement is put forth merely by way of illustration, but it is intended to hold concerning the action of the State in respect of the enforcement of any regulations doubtful or obnoxious to the general sense of the teaching profession or to the traditions of any governing body in particular. It would be instructive if an impartial Authority would set itself to collect instances in which the action of the Board of Education seemed to be unfair or dictatorial with reference to any school, and would set itself the task of advising those who might be thus aggrieved.

But, to return to the case of private schools. It is clear it could not be expected that public money should be granted to any one in such wise as directly to enhance the value of the goodwill or the premises of an individual who might be in the position to derive personal profit therefrom. If, however, a certain school had been long established in a neighbourhood and were carried on in a state of proved usefulness, it would certainly be of public advantage that that usefulness should be maintained and, if possible, extended. I am aware that a spirit is growing up amongst a certain school of politicians that private effort should be discouraged, that popular—i.e. generally speaking, uninstructed—representation should dominate the situation, and that every opportunity should be taken to employ public funds in competition with personal effort. To my mind, such a policy, unless directed to gas and water undertakings and the like, should be resisted to the utmost in the interests of efficiency and purity of administration, and, above all, with regard to personal liberty and experimentation.

In the suggestions hereinafter made, it may be that, in some instances, they go beyond what is permitted by Acts and Regulations under which the Board of Education or Local Education Authorities at present operate; in which case, fresh statutory provisions would be necessary. To this end it is important to inform and stimulate public opinion, in which educative work the College of Preceptors has a wide field of usefulness. At first sight, the present time would appear unsuited to such action; yet, on reflection, it must be evident that the enormous burdens to be cast by the War upon the State, on all local bodies, and on every member of the community, and the economic cataclysm thereby induced will cause spending Authorities to lay aside all new and ambitious schemes, to curtail their expenditure, and to husband their resources in every possible manner. Hence arises the opportunity of the private-school teacher to consolidate and extend his position. In face of this prospect, it is unfortunate that there is not a larger measure of cohesion and boldness displayed amongst those immediately concerned.

In the event of a private school such as has been referred to requiring the addition of a classroom or science department, why should it be impossible for a Local Education Authority to be entrusted with powers to advance the sum requisite, with the requirement that a mortgage of an adequate amount be furnished? The Authority would thus be guaranteed against loss, and by such an addition as is suggested to an existing school the necessity would be obviated for expenditure of a large sum for the erection and maintenance of a new school in that locality. In the same manner, the salary of an additional master—for science, it may be—might be secured, with the proviso that a certain number of scholarships be furnished. In any case, it should be universally established beyond doubt that Local Education Authorities could and should send scholarship pupils to efficient private schools if desired by the principal.

There would then emerge the necessity for the formation of a link between the Authority and the school. In a private school aided in any way it might be made a *sine qua non* that, say, two persons be associated with the principal, one selected by himself, the other by the Authority, these three to act as a consultative body in all matters affecting the hygienic condition of the school, its educational efficiency, and examination testing. There need be no intrusion into matters personal to the principal.

When holding a special position in relation to an educational association, I remember reading a paper on this subject before a Conference many years ago. Mr. M. E. Sadler—as he then was—in a subsequent speech expressed an opinion that the suggestions made were worthy of consideration. A sudden severe illness interfered with their development at the time, but at this juncture I put them forth again, not in any dogmatic spirit, or on the assumption that they are the only means that might be taken, but as the basis for a renewed discussion on a difficult and thorny subject now that the development of State interference has reached a critical stage. It may be that the Editor might find it possible to lend the columns of *The Educational Times* for the purpose. In any case, I should be glad to receive any suggestions or criticism, in case it might be found possible to take action through the College of Preceptors or other similar body.

One can readily understand the reluctance of heads of schools to enter upon "the slippery slope" of external aid; but if in any case that course is inevitable, it is important that some sort of concerted policy be formulated and backed up by a powerful Association, so that individual teachers be not left to fight their battles single-handed.—Your obedient servant,
J. O. BEVAN.
Chillenden Rectory, Canterbury.
May 11, 1915.

THE EDUCATIONAL HANDWORK ASSOCIATION AND THE EMPLOYMENT OF SCHOOL CHILDREN.

To the Editor of "The Educational Times."

DEAR SIR,—I beg to inform you that this Association has not even discussed the question, and is therefore not responsible for the opinions expressed in the resolution heading the second column of page 185 of your journal.

Is it possible that one of the many branches of the Association has sent in the resolution? If so, it would have been better had the fact been stated. I express no opinion on the merits of the resolution.—Yours sincerely,
J. SPITTLE.

Heath House, Cambridge Road, Huddersfield.

May 4, 1915.

[The paragraph referred to was printed as sent in by a correspondent whose accuracy there seemed no reason to doubt.—Ed.]

INFORMATION WANTED.

To the Editor of "The Educational Times."

DEAR SIR,—I should be very grateful if any of your readers could kindly give me any information (a post card would do) on these points:—1. If they have tried a piano-player, or gramophone, for promoting the love and appreciation of music, what is their experience of these? 2. What books, periodicals, or other helps towards promoting musical appreciation have they used? 3. Have they given any "talks" on great composers, national songs, masterpieces, &c.? If so, what; and from what sources? 4. Do they know of an instance in which music is applied to Swedish gymnastics? Or will they name any good system of musical drill? 5. Any books containing favourite songs sung by their pupils?

I am trying to gather useful information for the benefit of teachers and children on these points.—Yours truly,
ERNEST A. CAVE.
St. Andrew's, Uxbridge.

April 27, 1915.

"A CAPITAL BOOK."

To the Editor of "The Educational Times."

SIR,—A month or two ago "War and Democracy" was favourably reviewed in your columns. I learn from *One and All* that copies may be obtained in limp cloth, post free, by sending 1s. 3d. to the National Adult School Union, 1 Central Buildings, Tothill Street, Westminster, S.W. This has enabled me to send no less than eleven copies to friends at home and abroad. It is a capital book.

J. S. T.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE MAY COMPETITION.

The best letter of practical advice on class management to be sent to a young man (or woman) who has just taken a good degree at the University, and is being sent, without any training, to begin work as an assistant master (or mistress).

This competition has made a somewhat limited appeal to our readers. Perhaps the subject suggested more work than usual, and, as a fact, the answers sent in are mostly long. We can understand a person sitting down to pen such a letter and giving up in despair of saying all that one feels

ought to be said on a subject of this kind. It looks almost as if one were invited to write a treatise on school work. It is not improbable that the following is only the final reaction to a more serious attempt:—

"MY DEAR FERNLEIGH,—You ask for the benefit of my advice to you as a novice. You had four years under old Ackerton, hadn't you. Well, sit down and recall all that you can remember of the things that he did, then go and do the very opposite. This is the straight tip; you cannot fail to win."

For a model, competitors might have done worse than turn to the sententious advice of the head master in Ian Hay's "Lighter Side of School Life," who greets his raw assistant master with the inquiry: "Have you any theories about the teaching of boys?" and gets the answer: "None whatever." Then comes the advice: "Good! There is only one way to teach boys: keep them in order. Don't let them play the fool or go to sleep, and they will be so bored that they will work like niggers merely to pass the time. That's education in a nutshell. Good night!"

Excellent advice so far as it goes; but it somewhat begs the question. Everything lies in that "keep them in order." Very often that is the one point on which the young teacher wants practical advice. Most probably the difficulty of giving advice that will be of any use has deterred many from attempting the letter at all, and those who have made the attempt evidently feel apologetic about the result. The following is, on the whole, the best letter sent in:—

"MY DEAR FELLOW,—Having purchased a good degree, you are about to become an assistant master. Most apprentices are initiated little by little into the intricacies of the elaborate and delicate machinery with which they will ultimately be entrusted. Not so yourself, who, without any special preparation, are set to practise on the most delicate instrument, and on material in some respects the most obstinate. You may make or mar the character and future life of those at whose expense you learn your craft, and you may do so unintentionally and with a good conscience.

It is to be hoped that you are entering what should be the loftiest of professions from choice and not from necessity—if so you will gladly suffer a few words of exhortation.

Your pupils will be severe and outspoken critics—therefore be invariably *just*, exhibit no favouritism, be a trifle reserved, so that they may not fathom your full strength (or weakness), penalize rarely, but promptly and effectively, do not pay for 'ragging,' never insult or discourage the stupid or backward. Remember 'example' tells infinitely more than 'precept,' and that your behaviour 'off duty' will be keenly watched. You probably *know* too much, and your 'Varsity lore may hamper you at first, but come down nearly to the level of your pupils' attainments, and that without considering it a condescension.

In a few years these boys will be grown up, and will judge you by your character rather than by your learning. Therefore, be manly, be natural, and endeavour to become the 'model boy' among boys rather than a despot among rebellious spirits, who have no choice but to be your subjects.

Aim at a high ideal, remembering that your duty is to train good all-round men, and not expert athletes or learned prigs, and may you never repent having listened to one who perchance has failed in a like attempt."

"Wild Orchis" sends in a particularly kind and gentle letter that would glad the heart of any girl on the way to her first hour of teaching, but it is somewhat lacking in vigour. "W. H. P.," from Queen's School, sends a very sensible letter, full of sound advice, rather severely expressed. None of the competitors face the crucial question of the first lesson. There is room here for very practical advice. So many irremediable errors may be committed in the first forty-five minutes.

A Half-guinea Prize is awarded to Mr. W. D. Roberts, 16 Cheriton Gardens, Folkestone.

SUBJECT FOR JUNE.

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CHILDREN AND POETRY.

By LILIAN FAIRBROTHER RAMSEY.

"I do hate poetry," said a small boy of six to me one day. "It's an inherited taste," explained his mother, confidentially. "His father and I are practical people, and we can't see why any sane person should write poetry, when you can say what you want to so much better in prose."

I could not help thinking of Molière's "Bourgeois Gentilhomme," who had been talking prose all his life without knowing it, but I turned to the small boy, and asked: "What poetry do you know, Noel?" "He was a rat and she was a rat," he replied in a tone of utter contempt. "And I hate it."

A short time later we took a walk round the garden before he went home. The sun was just setting in a beautiful rainbow-coloured sky, and at the very top of a tall elm was a blackbird, trilling away for dear life. The evening star was out, and I quoted T. E. Brown's lines:

O Blackbird, what a boy you are!

How you do go it!

Blowing your bugle to that one sweet star—

How you do blow it!

And does she hear you, blackbird boy, so far?

Or is it wasted breath?

"Good Lord! she is so bright

To-night!"

The blackbird saith.

"Oh, do say it again!" said Noel, delightedly. "What is it?" "It's poetry," I answered.

This same small boy, a year later, could repeat dozens of poems of his own choice, amongst which I remember chiefly, because of his way of reciting them, Blake's "Tiger! Tiger! burning bright!" the last word being invariably punctuated with a stamp of the foot; Gray's "Elegy," which he used to repeat with comments, as thus:

The moping owl doth to the moon complain.

(I do like that moping owl!)

Can storied urn or animated bust—

(I can see those storied urns!); and Milton's "Lycidas," which I believe appealed to him chiefly because of the "blind Fury with the abhorred shears," since he used to race along with the first part of the poem, and then linger lovingly over those lines. Before he was ten, he had read all of Scott's narrative

poems, and Pope's Homer's "Iliad" and "Odyssey," stodgy works only to be tackled by a small person with an infinity of years stretching ahead of him—at least, so it seems to me.

It is, of course, obvious that Noel did not hate poetry: what he objected to was being made to learn doggerel. He is now a youth of nineteen, and at the moment a prisoner in Germany, but I like to think that his love of real poetry is helping him through that tedious time.

At what age can a child appreciate poetry? My own experience tells me that little ones can learn to love what they can admire all their lives at a much earlier age than is generally supposed. I had a dear old grandmother who used to sit by the side of my cot before I was old enough to speak plainly, and repeat many hundreds of lines of Goldsmith, Cowper, and Shakespeare, which she had got by heart in those days when there was more time apparently for that sort of thing. I can well remember, in some childish illness, demanding fretfully: "Say 'Sweet Auburn,'" and falling asleep to the well known soothing lines. One lasting result of this custom has been the formation of a lifelong habit of saying over to myself some poem as a last waking thought, and in times of illness the automatic occurrence of such poems to my mind has been of the greatest help to me.

Perhaps this very training in literary appreciation has made me a little intolerant of the trivial. When I go into a kindergarten class and hear intelligent beings of five and six reciting—

Augustus was a chubby lad,
Fat, ruddy cheeks Augustus had,

into my mind there comes a vision of other small people of the same age repeating, with sparkling eyes, Browning's

Such a starved bank of moss
'Till that May morn,
Blue ran the flash across—
Violets were born.

Many times I have felt with them the primary thrill of emotion caused by those lines when the first violets have appeared on the schoolroom mantelpiece. The same little folk loved to repeat:

That's the wise thrush:
He sings his song thrice o'er,
Lest you should think he never could recapture
The first fine careless rapture.

I have heard many a seven-year-old recite those lines with much true poetic feeling. And I know one now who, on hearing the thrush, quotes as much as she knows of—

Summer is coming, summer is coming.
I know it, I know it, I know it.
Light again, leaf again, life again, love again;
Yes, my wild little Poet. . . .

Love again, song again, nest again, young again,
Never a prophet so crazy!
And hardly a daisy as yet, little friend—
See, there is hardly a daisy.

Are these exceptional children? I think not; they are children who have always been treated as rational beings—their own tastes in the matter of literature consulted as mine always were as a child, until I went to a high school and learnt the inevitable play of Shakespeare with dull, dry notes in a dull, red-covered book (and have never been able to like "Coriolanus" since!). Previously to that I was the only girl pupil at a boys' preparatory school, where we used to be given a book of poems and told to learn one while the master was taking a Latin class or something of the sort. I cannot say that my choice of poems was in any way remarkable except for its morbidity; but I got by heart a large number of Longfellow's poems, including the doleful

There is no flock, however watched and tended,
But hath one vacant chair.

One of my colleagues tells me that I am all wrong in my choice of poems for the very little ones. He says that all children should begin with narrative poems, and that so-called Nature poems should follow. My objection is that the narrative poems that are short enough for quite tiny children to learn are so seldom worth the effort. An exception is the charming little poem, whose author I have been unable to trace—

GREY OR WHITE?

There once was a rabbit with silver fur;
Her little grey neighbours looked at her,
Till she thought, as she dwelt in the shining wood:
"The reason I'm white is because I'm good!"
"Oh, dear! oh, dear!" sobbed a tiny mole;
"A fairy has tumbled into a hole.
It's full of water and crawling things,
And she can't get out, for she's hurt her wings.
"I did my best to catch hold of her hair,
But my arms are short, and she's still in there.
Oh, darling white rabbit! your arms are long:
You say you are good, and I know you are strong."

Of course, the white rabbit fails and a common grey one comes to the rescue, who is rewarded in the true fairy-tale way by becoming white at a kiss from the fairy. Every tiny child loves the poem, but personally I have not found it more popular with the five-year-olds than Mrs. Nesbit's "Child's Song in Spring"—

The silver birch is a dainty lady—
She wears a satin gown;
The elm tree makes the old church shady—
She will not live in town.
The English oak is a sturdy fellow—
He gets his green coat late;
The willow is smart in a suit of yellow,
While brown the beech trees wait.
Such a gay green gown God gives the larches—
As green as He is good!
The hazels hold up their arms for arches
When Spring rides through the wood.

So much for the poetry children first care to memorize; but many of them like to listen to the rhythm of poetry being read aloud, even when it seems impossible that they can understand any of it, though probably many of them are in the position of the wee child who said, "I think I could understand if only you wouldn't try to explain." I was rather surprised at a little girl, not yet eight, who borrowed my "Goblin Market" the other evening, and read it aloud to her ten-year-old sister, to the evident pleasure of both. They certainly got more enjoyment out of it than I ever did, for Christina Rossetti does not appeal to me. The same children are very fond of Longfellow's "Tales of a Wayside Inn." I believe they like "The Falcon of Ser Federigo" the best of these; and they also read with great gusto the "Ingoldsby Legends," dear friends of my own childhood. I am a great believer in turning children loose among books, and letting them browse at will; they won't take any harm. Not if yours is the right kind of library, and I am sure it is, or you would not be reading an article on children and poetry.

"Doesn't it make the children little prigs?" I was asked. Knowledge never made a prig of any one; ignorance does.

"Know you what it is to be a child? It is to be something very different from the man of to-day. It is to have a spirit yet streaming from the waters of baptism; it is to believe in love, to believe in loveliness, to believe in belief; it is to be so little that the elves can reach to whisper in your ear; it is to turn pumpkins into coaches and mice into horses, lowness into loftiness, and nothing into everything; for each child has its fairy godmother in its own soul. It is to live in a nutshell, and count yourself the king of infinite space. It is—

To see a world in a grain of sand,
And a heaven in a wild flower,
Hold infinity in the palm of your hand,
And eternity in an hour."

While this being's memory is the strongest of its mental faculties shall we not give it something better to remember throughout the years than

A mouse found a beautiful piece of plum cake,
or other similar gems?

John Ruskin tells us that he attributes his mastery of the English language to the fact that as a child he was required to get by heart whole chapters of the Bible. I have always found it best to treat the Bible as a storehouse of poetry—as, indeed, it is; to select passages from it noted for their beauty, and to exact the careful, distinct repetition of the same. Even a tiny child can learn with ease the fifteenth psalm, the "description of the perfect gentleman," as it has been justly

called. The getting by heart of the ninety-first psalm would allay the fears of many a nervous child who suffers from the "horrors at night," as one mite called it to me; and as the children get older, what a storehouse of treasures are to be found in the Bible which they will value all their lives!

One of the most precious things with which we can endow children is a fund of memories on which they will care to dwell in future years; and what character could fail to be strengthened by the recollection of a father who met sudden heavy financial losses by the words, spoken though they were with trembling lips: "I have been young, and now am old: yet have I not seen the righteous forsaken, nor his seed begging bread."

The hearer stored up the words in her mind, to find consolation in them herself in after life; and another child I knew who had learnt uncomprehendingly the beautiful words: "They shall perish; but thou remainest: and they all shall wax old as doth a garment; And as a vesture shalt thou fold them up, and they shall be changed: but thou art the same, and thy years shall not fail," found herself unconsciously repeating them at a time of great mental stress. Surely this is the highest form of poetry, and the children miss much if they grow up without laying up such treasure as neither moth nor rust can corrupt.

Where children show any taste for, and appreciation of, real poetry it may be practicable for some one to read to them for a short time after they are in bed at night. I have known several households in which this has been done, and the little ones have looked forward to it, and have gone to bed the more willingly because they want to hear more of the story of "King Arthur," or perhaps even "Kharshish." Browning is popularly supposed to be too difficult for children, but I have often been astonished and delighted with the understanding that boys and girls of ten have shown in listening to some of his poems. I have found several who have loved "The Grammarian," after they had got over the difficulty of the title, even to quoting:

Leave Now for dogs and apes,
Man has Forever.

I have sometimes thought that the attraction was partly the same as that of the "Ingoldsby Legends," that is, to be found in the curious rhymes. How many a delighted chuckle have I heard over the rhyming of "dab brick" with "fabric"! "The Idylls of the King" I have found popular chiefly with musical children, and this I believe to be on account of the wonderful way in which Tennyson makes the sound an echo to the sense.

So all day long the noise of battle rolled,

with its drawn-out o's;

I heard the ripple washing in the reeds,

with its imitative sounds; but the examples are too numerous to quote. I knew a small girl of nine who learnt "The Passing of Arthur" for her own pleasure, and would say dozens of lines of it to any one willing to listen to her.

In an article on poetry in connexion with children it would be a great omission not to mention "Dear Robert Louis Stevenson," as the curtain at the Duke of York's Theatre calls him. But, although there are certain classics in "The Child's Garden of Verse," such as "Bed in Summer," "The Lamp-lighter," and "My Shadow," which every nursery child ought to know, I think that, for the most part, the poems represent the slightly morbid thoughts of the delicate, only child; and for that reason I would not allow the little ones an unlimited diet of Stevenson.

Nevertheless, it is a quotation from his "Across the Plains" that occurs to my mind in illustration of what a child misses who grows up without learning to love real poetry:

It is said that a poet has died young in the breast of the most stolid. It may be contended rather that a (somewhat minor) bard in almost every case survives, and is the spice of life to his possessor. . . .

There is one fable that touches very near the quick of life—the fable of the monk who passed into the woods, heard a bird break into song, hearkened for a trill or two, and found himself at his return a stranger at his convent gates, for he had been absent fifty years, and of all his comrades there survived but one to recognize him. It is not only in the woods that this enchanter carols, though perhaps he is native there. He sings in the most doleful places. . . . All life

that is not merely mechanical is spun out of two strands—seeking for the bird and hearing him. And it is just this that makes life so hard to value, and the delight of each so incommunicable. And it is just a knowledge of this, and a remembrance of those fortunate hours in which the bird *has* sung to us, that fills us with such wonder when we turn to the pages of the realist. There, to be sure, we find a picture of life in so far as it consists of mud and of old iron, cheap desires and cheap fears, that which we are ashamed to remember and that which we are careless whether we forget; but of the notes of that time-devouring nightingale we hear no news. . . . For . . . the ground of a man's joy is often hard to hit. . . . It has so little bond with externals . . . that it may even touch them not, and the man's true life, for which he consents to live, lies altogether in the field of fancy. . . . In such a case the poetry runs underground. The observer (poor soul, with his documents!) is all abroad. For to look at the man is but to court deception. We shall see the trunk from which he draws his nourishment; but he himself is above and abroad in the green dome of foliage, hummed through by winds and nested in by nightingales. And the true realism were that of the poets, to climb after him like a squirrel, and catch some glimpse of the heaven in which he lives. And the true realism, always and everywhere, is that of the poets: to find out where joy resides, and give it a voice far beyond singing.

THE MATHEMATICAL ASSOCIATION.

MATHEMATICS IN SECONDARY SCHOOLS.

A Report drawn up by the "Other Secondary Schools" Special Committee and approved for publication by the General Teaching Committee of the Mathematical Association.

THE Committee are of opinion that the mathematical teaching in secondary schools is too much influenced by the necessity for preparing the boys for certain external examinations. They desire to call attention to the fact that the great majority of the boys leave school before they reach the age of seventeen, and that much mathematical matter has to be omitted or unduly postponed which would be useful to them at school in science and other subjects, as well as in after life. It is hoped that examining bodies will make arrangements, by setting alternative papers or otherwise, so that in some secondary schools at least the mathematical teaching may follow the lines indicated below.

(1) *General Purpose*.—It is desirable that the average pupil should study mainly those parts of mathematics which develop his powers of thinking, and are of practical service as he proceeds in his school course.

(2) *Rigour*.—While rapid progress towards the use of mathematical tools is desirable, at the same time it is indispensable that every mathematical statement should be justified or proved in a way suitable to the stage reached by the student, and the mathematical course should include some training in rigorous deduction from certain explicit assumptions. It is desirable that there should be considerable latitude in selecting the assumptions; these, however, should be clearly stated in the teaching.

(3) *Algebra*.—It is possible to economize much time by omitting as non-essential certain parts of this subject which have usually occupied too much time. In the hands of properly qualified mathematical teachers much of the manipulation can safely and effectively be taught incidentally.

(4) *Trigonometry*.—It is desirable that teachers should be allowed to treat geometry, trigonometry, co-ordinate geometry, and mensuration as one subject. Algebraic methods and trigonometrical functions may be introduced, and used, early in the geometrical course.

(5) *Calculus*.—It is desirable that boys of ordinary ability who attend a secondary school to the age of sixteen should not leave without some introduction to the principles on which the calculus is based.

(6) *Mechanics*.—Though this subject is based on experiment, it is particularly well adapted to a mathematical treatment, and should form part of the mathematical course.

(7) *Solid Geometry*.—There is too great a tendency to limit school mathematics to two dimensions. It is desirable that a simplified study of solid geometry should be commenced early—perhaps in connexion with geography, astronomy, and Carpentry. The Committee feel that this subject has been unjustifiably crowded out by examinations. In connexion

with this the Committee desire to call attention to Section 7 of the Report of the Public Schools Special Committee, which reads as follows :—

SOLID GEOMETRY.

The course should include some simple solid geometry, which might be introduced incidentally during the course of plane geometry. The main object of including this work is that the power of thinking in space should be cultivated throughout. The following suggestions indicate some of the ways in which this may be carried out :—

- (1) Riders on congruent triangles may sometimes deal with triangles not in the same plane.
- (2) The theorem of Pythagoras may be applied to figures in three dimensions—*e.g.* to finding the height of a cone, of which the slant height and the radius of the base have been measured.
- (3) In dealing with some of the properties of the circle, the corresponding properties of the sphere may be discussed.
- (4) Some work may be done on the plan and elevation of simple objects. The purpose of this work is not so much to teach a boy how to draw a plan and elevation of a given solid as to enable him to visualize the solid whose plan and elevation are given.
- (5) Problems in elementary trigonometry should involve observations in more than one plane.
- (6) Examples may be given on the angle between two planes or between a line and a plane. The elementary solids provide material for such exercises.

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REVIEWS.

Educational Values and Methods. By W. G. Sleight.
(4s. 6d. net. Clarendon Press.)

Prof. Spearman writes a Preface to this volume, but Dr. Sleight is in no need of an introduction to readers who have any knowledge of modern experimental methods in education. It is highly satisfactory to find men engaged in the actual work of teaching able to investigate the scientific aspects of their work and give us the results in such volumes as this. We are supplied here with all the material necessary to form a judgment on the issues raised. Chapters II and III give an account of the experiments performed in connexion with the discussion on Formal Training, written from the standpoint of one who has himself taken a prominent part in the investigation. We do not know of any book in which the matter is better handled, and Dr. Sleight has the advantage of being able to bring the record up to date. If it is objected that much of this matter has already appeared in print, the answer is sufficient that teachers as a body are still profoundly ignorant of the whole discussion, as is abundantly proved by reference to the written, and particularly the spoken, comments of teachers. In dealing with the Theory of the Common Element, Dr. Sleight naturally lays emphasis on the point to which he first called attention in his own investigations—the *usable* common elements. For the limitation suggested by this adjective, Dr. Sleight deserves much credit, as it greatly increases the value of the Common Element doctrine as a practical guide to the teacher.

The treatment of Concepts of Method and Ideals is quite admirable, both as exposition and as a means of making practical applications to the work of the school. In dealing with the selection of material for education, the author has two chapters, one critical and the other constructive; and it is significant that he puts the constructive chapter first—a most unusual and highly-to-be-commended arrangement. The curriculum is treated under the two heads—work and leisure. Then modifications of the curriculum are considered. The guiding principle adopted by our author is a recognition of the *specific* values of the various subjects. The great danger of such a view lies in the tendency towards too early specialization, and Dr. Sleight is careful to demonstrate that early specialization is not really involved in the newer view of

specific values. By supplementing his theory of specific values by that of concepts of method and ideals, he reaches "an educational principle which will lead us to attach far more value to those elements which are necessary to the higher life of all than to those which are special to one trade or profession." The final two chapters are devoted to The Fundamentals of Matter, illustrated by reference to English, and The Fundamentals of Method, illustrated by the school subject of Nature Study.

The style of the book is admirably suited to the subject-matter. The reader has the pleasant feeling that he is in the hands of a man who knows from actual experience what he is writing about, and has the power to express himself exactly and impressively. Many of the dicta in the text are striking, sometimes because of their intrinsic force, as in the statement: "A computation showed that 'direct' was worth about a hundred and forty-four times 'indirect' practice," sometimes from the happy form in which the sentence is turned, as: "We must never expect to be able to follow a logical line in our teaching: a considerable time will be occupied by the children in floundering—that is, in merely getting accustomed to new surroundings." Teachers may well take note of the appeal: "'Floundering time,' as we might call it, must be allowed for, and woe to the child who does not get it. His school life is indeed a burden."

We very strongly recommend this book. So great is our admiration of it that we nearly gave up our intention to make our invariable protest when occasion calls for it. The very excellence of the text must give added ferocity to our concluding complaint: *the book has no index.*

The Lesson in Appreciation. By F. H. Hayward.
(3s. 6d. net. Macmillan.)

In this volume of Prof. Bagley's "Modern Teachers' Series" Dr. Hayward breaks new ground. A good deal has been said and written in a fragmentary way about the need to help our pupils to appreciate poetry, music, and painting, but there has been no systematic work on the subject from the point of view of the practical teacher. Dr. Hayward lays special stress upon the earlier chapters of his book, since in them he has been able to illustrate his general principles by special reference to the appreciation of poetry. He modestly disclaims expert knowledge of music, and tells us that in a few years' time he will probably be able to write with more confidence than at present on the pedagogies of pictorial and plastic art. The intelligent reader, however, will be quite content with what Dr. Hayward is at present able to give us, since it is certainly as advanced as the ordinary teacher is able to profit by. The stress upon poetry is not in itself a disadvantage, for, after all, this is the subject that at present bulks most largely in the aesthetic training of our pupils. The other subjects are, no doubt, gradually coming into their own in this respect, but it will be found that the treatment here supplied is far in advance of anything that has hitherto appeared.

Dr. Hayward is feeling after general principles in the presentation of aesthetic material. He has not been able to formulate anything very elaborate, and indeed it is doubtful whether much will be gained by the systematizing and stereotyping of hard-and-fast "rules." In all probability the present vital analysis will serve the teacher's purpose. Dr. Hayward is feeling his way. He is thinking out matters as he writes. Accordingly, what he presents here is pre-eminently living matter. His principles of The First Impression, Red-letter Lessons, The Elimination of Distraction, The Total Effect, The Subordination of Technique are full of practical suggestion for the teacher. In his feeling after system Dr. Hayward outlines various stages in the teaching of appreciation, but as he writes he is acutely conscious of the deadening effect of this classification, and pauses between stages four and five to point out the dangers of "stages." Half the book is given up to an intelligent and constructive criticism of the sort of thing that is being done every day in thousands of classrooms. No teacher who deals with the humanities can read these pages without feeling that he is under the influence of a fresh and acute mind that is familiar with the difficulties of the class teacher and is full of ingenuity in meeting them.

In dealing with music and painting, Dr. Hayward wisely

(Continued on page 228.)

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assumes no expert knowledge on the part of his readers, and greatly increases the value of what he has to say by beginning at the beginning. The modern drama and the novel get that fair treatment that we expect at the hands of Dr. Hayward, and when he comes to "The Polemics of Appreciation" he is thoroughly at home. Everything that can be said against the systematic training in appreciation is set forth and honestly treated. The whole discussion is somewhat reminiscent of the heated quarrel between the direct and the indirect schools of moral instruction.

There are two appendixes, the first made up of Questions, Exercises, and Quotations; the second of Bibliographies on the various matters treated in the text. Both are useful, but to the English reader the Bibliography will probably make the stronger appeal, unless in the cases in which the book is used as a textbook for students.

The book is not so well read as it might be. We have noted more misprints and slips than will appear in the second edition, which we are sure will soon be called for. First-hand books like this are invaluable.

Interest and Effort. By E. C. Childs.
(2s. 6d. net. Baker & Son.)

This little book bears, perhaps too plainly, traces of its confessedly academic origin. It deals with a subject of the most profound importance in the practical affairs of school, but the method adopted hardly commends it to the practical person. Mr. Childs presents us with an intelligent, critical account of the matter from the historical standpoint. But the reader gets too much of Rousseau and Comenius and the rest. What is wanted is a treatment of the subject itself. It is only on page 105 (the book contains 108 pages in all) that the author tells us "one of the most common interpretations of the term 'interest' is that it is taken as the equivalent of pleasure." As this is the most fruitful source of misunderstanding of the whole subject, it ought to come at the very beginning of the discussion.

As an historical study the work is well done, and shows a great deal of insight. An excellent use is made of the education of Frederick the Great, and full justice is done to Basedow and the Philanthropinum as illustrations of "Education as a Pleasant Process." Spencer gets fairer and more intelligent criticism than is his usual lot in modern commentaries. Arnold and Thring, too, receive more serious attention than is usually accorded to them in educational treatises. But it is when he gets to Herbart and Dewey that our author reaches his real subject. His treatment of these writers is capital. In the few pages he devotes to them he gets very close to the root of the matter. Brushing aside the misrepresentations that make up the popular Herbartian legend, he deals with the views of the master himself, not invariably with approval, but always sympathetically and fairly. Dewey supplies a particularly suitable starting-point for an examination of the modern problem of the interplay of interest and effort in education, and we cannot but hope that Mr. Childs will in a future work satisfy the expectations that the end of his present sketch has aroused.

Child Training. By Mrs. Arthur H. D. Acland.
(2s. 6d. net. Sidgwick & Jackson.)

Though this book bears the sub-title "Suggestions for Parents and Teachers," it will not be found of much use to the ordinary professional teacher. No doubt kindergarten teachers and Montessorians will find a good deal of help in these pages, for the appeal is mainly to those who are concerned with the earliest stages of education. The book, in fact, should be welcomed by the professional teacher as one to be placed in the hands of all parents. It gives just that sort of guidance that is needed by the conscientious, but inexperienced, parent. Experienced teachers are frequently consulted about what should be done with pupils who have "got over" their parents, and such teachers know that the appeal for advice has come many years too late. Too much of the teacher's time is spent in repairing errors made by parents at the earliest stages. We ought, therefore, to rejoice in the appearance of a book like this that begins at the very beginning and shows parents how to instil into their children habits of obedience, self-control, and independence. The

teacher who runs through Mrs. Acland's pages cannot help feeling that in her he has a valuable ally. Her methods tend to produce just the sort of pupil that the teacher is always longing for. There is no parade of psychological principles, but all the practical suggestions made are in harmony with the latest developments of psychological theory. Perhaps we are unduly prejudiced in favour of the book because it fearlessly takes up education just at the point at which it ought to be taken up—a point, however, at which most men feel themselves out of place. We are convinced that character formation should begin a few hours after birth, but few men would dare to rush into education at this stage. We rejoice, however, when an intrepid mother like Mrs. Acland steps into the breach and says the sort of things we sheepishly think. There is something comforting in reading about the cold-water treatment of crying babies. The "slow, steady, persistent flipping of cold water into the face of the sufferer" sounds a little vindictive, and if penned by a philosophic bachelor would rouse the violent indignation of universal motherhood. But in pages that teem with "poor dears" and other affectionate expletives, the method has a chance of fair consideration, and we wish it all success. No one can doubt the essential kindness of Mrs. Acland, but it is a rational kindness and takes some account of the needs of grown-ups. "A little wise, well considered selfishness is not at all a bad thing in a mother." We would not have dared to write this ourselves, but we enjoy seeing it in print over another signature.

The final three chapters—Punishments and Rewards, Children's Books, and Children's Questions—are of more direct interest to teachers. With regard to Children's Books our author is probably unduly conservative; the chapter bears too much trace of the schoolmarm attitude. But with regard to Children's Questions we have nothing but praise. Mrs. Acland not only understands perfectly the prevailing attitude of mind of the questioner, but has excellent practical suggestions for manipulating his activities.

Teachers will be well advised in their own interests and in the interests of the children to do all they can to promote the reading of this book by parents.

The War: its Origins and Warnings. By F. J. Adkins.
(2s. 6d. net. Allen & Unwin.)

The practical value of this collection of discourses on the War is out of all proportion to its literary merits. The problem of the hour is admittedly to make clear to the man in the street and the intelligent artisan what it all means and how it all came about. The solution of this problem has been attempted chiefly by newspapers and historians. The attention of the former, however, is too much absorbed by the immediate aspect of things, while the latter are apt to be too academic—in the vulgar tongue, "dry"—for the uncultivated reader. This is just where Mr. Adkins fills a gap. Himself a history man and a teacher of experience among precisely the class whom we want to reach, he has built up this volume out of popular lectures delivered on behalf of "Relief Committees, Adult Schools, Ethical Societies, and similar organizations in the Sheffield area," the very audience, in fact, at which we are aiming. The style is racy and colloquial, pointed with telling metaphors, vivid illustrations, and pithy sayings. The Argonne is "the chopping-block whereon the French dismember the barbarians." Napoleon "drove French armies over the Continent like ploughs to break up the crusted monarchies of his day, and give an opening for the seeds of freedom." These are two examples taken from a page at random.

Mr. Adkins's method is to give a "lightning" sketch of the histories of Germany, France, and Russia, illustrating the elements out of which they are compounded and the factors which moulded them into their present shape. He rightly begins from the break-up of the Roman (Western) Empire, and takes a wide sweep. The earlier history of Germany naturally includes that of France. To any one who knows anything at all of European history and geography, it seems an admirable piece of work, though it is perhaps a question how far it conveys a clear picture to those (and they are far too many) who never so much as heard of the Franks, and could not even point out Lorraine on the map.

The historical sketch is followed by an analysis of the

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national character and point of view, and, in the case of Germany, this is also well done, and by no means shallow. He brings out, as few critics have done, the strange religious frenzy with which the Germans seem to be inspired by the contemplation of their Teutonic superiority, though, like others, he strangely overlooks the writer who, more definitely than Treitschke, Bernhardt, and the rest, was the avowed apostle of the "blonde beast," viz., Houston Chamberlain. The cult of the Teuton is a strange phenomenon. It is a gigantic ethnological fad.

We do not think he has realized so successfully the spirit of France. It is a curious feature of current war literature that every one is expressing amazement at the German attitude, which, after all, is only the logical application of theories long and freely ventilated. The real surprise is the way in which France is meeting the storm. The Gallic genius is subtle and elusive. To dwell upon the French sense of classical form and lucidity, to expatiate on the causes and results of the French Revolution (as Mr. Adkins does at great length), does not seem to us to throw much light on the source of the phlegmatic stolidity which France is displaying in this crisis.

The author, like other mortals, has his foibles. He is a Ruskinite, and the thought of the ugliness and social disorganization which followed the industrial revolution in England, under the aegis of the *laissez-faire* school, is to him as a red rag to a bull, provoking irrelevant digressions and abusive language. But as a teacher he has some pregnant advice to give to history teachers. The first piece of advice is to travel, as he has himself widely travelled in Germany and even Russia. The second is to get rid of the insularity of English history, as hitherto taught. Who does not remember how in his schooldays he caught kaleidoscopic glimpses of Continental history through rifts in the veil that shut off England from her neighbours? The story of France was fairly continuous, owing to the lively interest that English monarchs took in their volatile and attractive neighbour. But beyond France there loomed an Emperor, now in Spain, now in Austria, and mysteriously associated with Flanders,

Italy, and other disconnected scenes. His name was frequently Charles, but he seemed to have no fixed abode, and of the Holy Roman Empire we had no inkling. Other unaccountable persons who sometimes married into our Royal Family were called electors, but whom they elected and why, we never troubled to inquire.

It appears that the Board of Education has now issued a Circular on the Teaching of Modern European History, which is a step in the right direction. But why "Modern" only? What is wanted is a textbook of English History in relation to European History, and such a textbook Mr. Adkins is well qualified to supply. There is no doubt that, after the present war, the history of our island will be still more closely involved with that of our European neighbours. Consequently an intelligent foreign policy will postulate, in our democratic State, an intelligent appreciation of their problems and points of view.

We strongly recommend Mr. Adkins's book not only to teachers, who may profitably introduce it to their senior pupils, but also to all who feel called upon to enlighten local audiences upon the origins of the war. They will save themselves much "original research," and in many cases obtain better results, by reading a chapter or two of this incisive analysis.

CIRCULAR 869: MODERN EUROPEAN HISTORY.

Circular 869 has been issued by the Board of Education in supplement to Circular 599 on the Teaching of History in Secondary Schools. The earlier Circular 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, and the present Circular is intended to add some further notes as to the form that such a course may profitably take in view of the deplorable War now raging in Europe.

The Board consider that a course of modern European history in schools should begin with the Congress of Vienna (1815) and end with the Franco-German War (1871), but

with necessary introduction and epilogue. There must be a brief explanation and summary of the results of the preceding revolutionary and Napoleonic era in order to an understanding of the Congress of Vienna and subsequent developments. So much is obvious enough. But, as to the epilogue, "it is doubtful how far it would be desirable to carry on the narrative in a systematic way beyond that year" (1871). Why? "In particular, there is not available so good a supply of suitable books—either books suitable as textbooks for the pupils or books of reference for use of the masters to be included in the school library—for the later as there is for the earlier period." If this reason be a good one, we must have a very mistaken recollection of the scope of the history textbooks of the past decade; and, in any case, the demand would evoke a prompt supply. The reason advanced is peculiarly unfortunate in respect of the books available for masters and for the school library. Be this as it may, the connexion must be established somehow between 1871 and 1915; otherwise the pupils will not get informed about the origin of the present situation. Accordingly it will be necessary, "either as an integral part of the course or in the form of supplementary work," to carry on the narrative; and the Board, forgetting all about the alleged lack of suitable books, either for pupils or for teachers, proceed to single out main points for exposition. The Board conclude that the subject "is not equally suited for the lower and middle forms." Why not? Are these forms incapable of understanding the subject? Are they not interested in it? That is to say, in their degree. We happen to know a boy well under eight who has a big map fixed on a wall, and stuck over with military and naval flags, and who could pass a pretty stiff examination on the progress of the War with flying colours. It is not so much the intelligence and the interest of the junior forms that raises difficulty; it is rather the not uncommon incapacity of teachers to envisage the course of events from the standpoint of the young mind—the eternal difficulty of the whole profession. However, the Board think something may be done for the younger pupils by means of special lectures or courses of reading suitable even for them—notwithstanding the alleged lack of suitable textbooks. These expedients, think the Board, "will afford a most valuable supplement to the ordinary history teaching"; but, strangely enough, they "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." The reasons for this sharp divorce require exposition in still another Circular—they are beyond our intelligence. And then the Circular goes on to expatiate for a page on the importance of placing events in their proper perspective and on the special importance of certain aspects of English history—as if such things had never been heard of before. Really our teachers are not such blocks or stones or worse than senseless things.

"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." Such is the aphoristic conclusion of the well meant, but unclear, Circular. The latter aphorism requires more attention than the former, which is not very necessary, and, in any case, is an ancient truism. Over and over again we have been under the very distasteful necessity of sharply criticizing history books for schools on this tender point of "past mistakes." It is very rare for a writer of British history for schools to admit anything that looks like a mistake on the part of British officers, whether civil or military or naval. Especially in more recent history is this wretched cowardice—and, what is worse, untruth—prominent. Such misrepresentation, indeed, is a disease of history ever since history began to be written. Witness the despair of modern investigators of Roman history over the patriotic perversions of the Roman historians. We trust, therefore, that writers of history books for schools—and teachers of history, too—will lay to heart this declaration of the Board that "there is no better school of wisdom than the recognition of past mistakes." If history is not true, what is it but fiction—lies, cowardly lies—motivated by patriotic vanity, the last depth of silliness and perversity? No; let us have the plain truth, as nearly as the truth can be attained. Our nerves can bear it, whatever it be, and we can learn wisdom from it. The untruth is but perilous delusion.

The Roman Elegiac Poets. By Karl Pomeroy Harrington. (1 dol. 50 c. American Book Company.)

Mr. Harrington is a Professor of Latin in Wesleyan University, U.S.A. We have not hitherto met with any classical work issuing from this source, but it is evident from the book before us that a high standard of scholarship is attained there. Prof. Harrington's study of MSS. and of previous editions has evidently been as exhaustive as his use of them is discriminating. The book is an illustrative selection of poems in the elegiac couplet. They are judiciously chosen from Catullus, Tibullus, Propertius, and Ovid. The introduction gives a very full sketch of the history of this poetic form as developed in Greece, Alexandria, and Rome, followed by a sketch of the life and estimate of the quality of the several poets, and a synopsis of the MSS. available in each case.

All this is excellently done, and if we felt called upon to criticize we should quarrel rather with the basis of selection. Catullus, of course, was bound to be unkindly treated by the exclusion of his lyrics, but we should have admitted the non-epic hexameter, and so have made room for Virgil's Eclogues to be represented. They are, after all, far more elegiac in tone than much that was written in the familiar couplet, which, as Prof. Harrington himself points out, was the vehicle for martial, erotic, and didactic themes, as well as for those which we now define as elegiac. One wonders, by the way, why Tibullus is so much less read than Ovid. His Latinity is unimpeachable, and his work has far more human interest than the monotonous brilliancy and Alexandrine prolixity of his successor.

A minor point on which we differ from Prof. Harrington is the presence of rhyme in Latin poets. He insists that in such lines as

Si quicquam mutis gratum acceptumve sepulcris

we have examples of leonine rhymes. But surely in an inflected language, where so many of the inflexional suffixes are identical, these casual rhymes must be incessantly cropping up. In the above example, for instance, the separation of *mutis* from its rhyming noun, *sepulcris*, is not a poetical device, but the application of a principle adopted even in good prose to avoid monotony or to emphasize the epithet. If the syllable, or even the consonant preceding the inflexional *-is* were added to the rhyme, there might be something in it.

To turn now to the notes: these, with alternative textual readings, are given underneath the text, the book being designed for students in the undergraduate stage. Some of the notes, as the preface warns us, are rather elementary, because "the linguistic basis for higher scholarship is too often in America sadly wanting," a truth which we can confirm from experience. At the same time there is much that is suggestive and stimulating in these notes and many very felicitous suggestions towards an English rendering. Perhaps a random illustration will make their quality more clear. On the lines:

*Desine de quoquam quicquam bene velle mereri
Aut aliquem fieri posse putare pium,*

we are told that *quicquam* is adverbial accusative, and *velle* to be taken after *desine*—quite superfluous information to an English sixth-form scholar. "*Aliquem* for *quemquam*." An English commentator would either ignore the obviousness of this or give us an excursus upon the rigidity with which these pronouns are differentiated by different authors. "The alliteration expresses the passionate disappointment of Catullus": a very nice point. "*Pium*—appreciative": a very happy rendering of that most exasperating Latin adjective. By the way, may not *aliquem* be used intentionally in the second line? The point would be, "abandon all hope that some day somebody will be found to appreciate your efforts." The last line of this fragment is surely the worst pentameter in Latin:

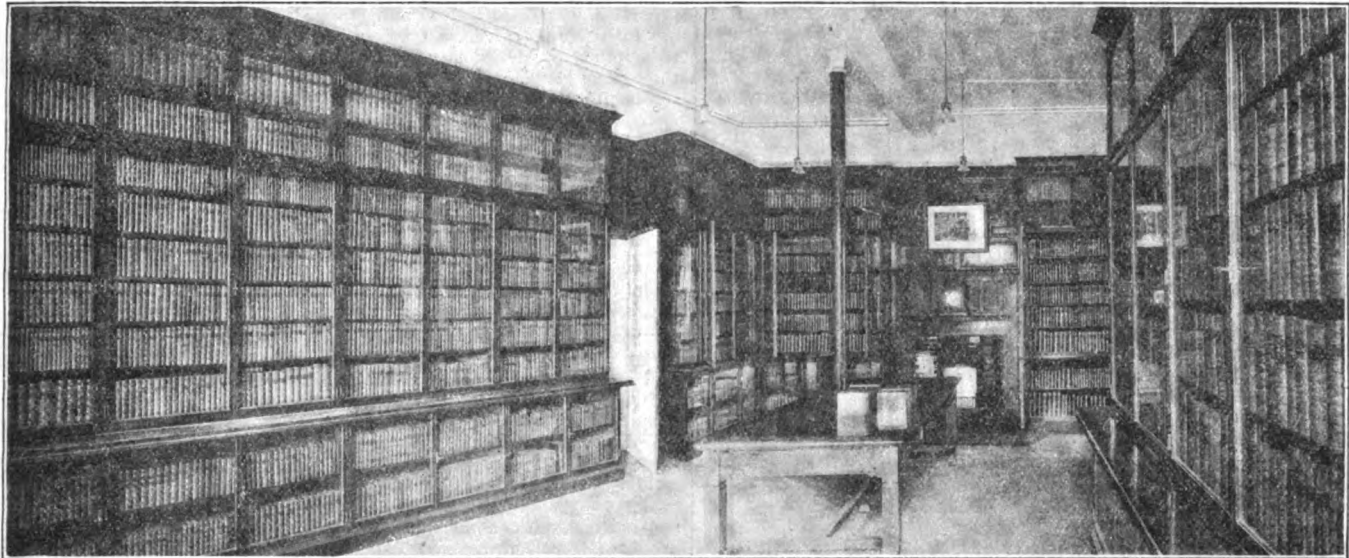
Quam modo qui me unum atque unicum amicum habuit.

What should we say to a pupil who offered us such a sample of his craft? Prof. Harrington makes an ingenious excuse for it.

One is tempted to discuss many points in reviewing a book like this. For instance, we doubt if Tibullus can intend Delia's mother by "*sedula anus*"; it is too rude an expression; *duenna* is what he seems to mean.

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But we must conclude by saying the book is excellent in type, paper, &c., and the proofs so carefully read that we are proud to have detected one slip, which we present to the editor as a contribution to the next edition. Note 2 on page 23, "Catullus" should be "Catulle."

OVERSEAS.

The American *Educational Review* tells us that "there has been a rumpus of considerable dimensions at the University of Utah." It appears that no fewer than fourteen members of the staff have resigned as a protest against certain dismissals. There appears to be some uneasiness in the States with regard to the freedom of University teachers. For a while it was thought that the trouble at Leland Stanford had been so great that no future interference with freedom of University teaching would be tolerated. But if one of the resigning Utah professors, Frank E. Holman, Dean of the School of Law, is to be believed, external pressure is being used to modify the expression of opinion by University teachers in that city. In *School and Society* for April 10 he tells us that one professor was informed that "unless he changed his views on the currency question his presence in the University would be undesirable." Among other expressions of opinion that have led to dismissal, or to what the Americans call "demotion"—which we understand to mean the antithesis of "promotion"—is the suggestion "that the cuspidor in the portrait of Brigham Young hanging in the city and county building was in rather bad taste." It is maintained that professors have been in various ways intimidated, and made to feel that "they are slaves and must wear collars because of being unable to weather the financial loss of resigning." Accordingly, those who are able to weather this loss are anxious that the public should know the true state of affairs. At a five-thousand-mile range we are not in a position to pass judgment, but there appears at least good ground for an investigation in the interests of freedom of thought and teaching. On this side we suffer perhaps from an excess of security of tenure in the professoriate, but surely it is not reasonable that a pro-

fessor should hold his chair on a one-year lease, and that, failing his reappointment, he automatically ceases to be professor. We agree with the *Educational Review* that at least "a university professor should be appointed to hold office during the pleasure of the appointing power."

A very pretty position has arisen with regard to the exchange professorships between Harvard University and the University of Berlin. In the *Vossische Zeitung* for March 7, Prof. Eduard Meyer makes a savage attack on the spirit of Harvard, and maintains that this exchange of professors must cease "now and for all time to come." He has some strong things to say about any German mean enough to accept an invitation to lecture under the scheme at Harvard. Now, Prof. Eduard Meyer has a brother, Prof. Kuno Meyer, not unknown on the banks of the Mersey. Unfortunately, this Keltic scholar has, since the article appeared, applied "for appointment by the Prussian Ministry of Education as exchange professor at Harvard for the next academic year. It would thus appear that ground has been laid for a somewhat vigorous family feud in the Meyer household."

A curious complaint is made by a private music teacher of twenty-five years' experience. In the *Educational Review* he tells us that: "To his astonishment he learned that many of his pupils, ranging in age from twelve to twenty years, did not know the order of the letters of the alphabet, nor even of the small portion of the same commonly used in the notation of music." This raises questions about the newer methods of teaching reading in the elementary schools. But it is difficult to believe that in America, the land that is pre-eminently the home of the dictionary-user, pupils are left in ignorance of the conventional arrangement of the letters. We want to hear what the teachers have to say on the subject.

In the *English Journal* (Chicago) for April, we have a useful article, with an ominous title. "Making Palgrave Palatable," suggests the existence of difficulties that teachers would be glad to be able to believe do not occur. "The Golden Treasury" ought to make its own appeal, but the experienced teacher has regretfully to admit that with many pupils it

does not. Accordingly, they will find the article of service, though they will find still more help in Dr. Hayward's just published "The Lesson in Appreciation." We wonder what the author of "The Unguarded Gate" article that the *Journal* published some time ago will think of one of the plans of "Vitalizing the English Course" suggested in the *School Review* (Chicago) for April. This plan consists in the use of the newspapers. "Here the aim is to study the materials and methods of present day newspapers—the Chicago newspapers being used as texts. The student is also taught to read the paper in the busy man's way, and to form his own judgment." Forming his own judgment is capital. But what about "the busy man's way"?

We have been told already that the Americans are "an eye-minded people," so we need not be greatly surprised to learn that there is a "Visual Education Association of California." Its president has recently been putting forth the case for the "movies," as the Americans like to call cinematograph displays. He maintains that "we are on the eve of a tremendous development in the application of visual aids in educational work." He does not claim that the motion picture will quite displace the teacher or the textbook, but he suggests that it will change the functions of both.

Education (Boston) for April has a note on the "Big Brother" movement. It will not carry much conviction to English readers. Though among us it has not got the length of a "movement," the thing has been with us long enough. Some years ago, in the *Nineteenth Century* there appeared an article on the Elder Brother attitude recommended by some as that suitable for the assistant school master. The author does not approve of regarding masters as elder brothers in a more or less official way. The attitude may be an excellent one to be taken up as occasion arises, but becomes dangerous when stereotyped. In fact, the safety of the "Big Brother" attitude would lie in dropping its connexion with a movement. A note of considerable interest is that on Dr. Frank A. Manny's statement: "No greater misfortune can come to any school system than to have a steady inbreeding of home talent. The Board of Education should insist upon the selection of at least one-third of the new teachers each year from outside the city limits." With the spread of municipal training colleges at home we are establishing conditions that will favour the evil combated by Dr. Manny. Our municipal authorities will do well to begin by establishing the tradition of a wholesome circulation of the teaching body throughout the whole country.

GENERAL NOTICES.

FRENCH.

A Manual of French Composition. By R. L. Graeme Ritchie and James M. Moore. (7s. 6d. net. Cambridge University Press.)

This volume contains an introduction (17 pages) which discusses the difficulty of French, the educational value of French composition, the standard of attainment, practical hints for the classroom and the examination room, for private practice and reading, and information about books: lists of synonyms and homonyms (12 pages), notes on grammar and style (5 pages), four model lessons (46 pages), passages for translation (150 pages), model translations (36 pages). This book is intended for Universities and the higher classes of schools. All teachers of French composition should obtain a copy at once, even if they do not take advanced work. The reviewer wishes to call attention especially to the model lessons, where are a full discussion of mistakes, various renderings and style, and to the model translations, both prose and verse, by distinguished professors of English in French Universities, such as M. Cazamian and M. Legouis. The passages for translation illustrate all styles—descriptive portraits, narrative, historical, characters, conversational, language and literature, philosophical and reflective. They are all taken from modern authors—from Dickens, Thackeray, Macaulay, Meredith, Masfield, Belloc, Bernard Shaw. In a new edition we shall, no doubt, have model lessons and suitable passages for the translation of verse. This is a very good book.

Nouveau Cours Français. Par La Fontaine. (4s. Ginn.)

In spite of the title, the book is old fashioned. The forty-five lessons are mainly the translation of isolated sentences. There is some useful information about France and some pleasant pictures. More use could be made of both for the purpose of teaching grammar, as well as written and oral French.

Exercises in French Grammar. By E. Renault. (1s. 6d. E. Arnold.) Sixty-three pages of detached sentences are here arranged to exercise the grammar rules in the author's "French Grammar." Many are familiar quotations, drawn from Bartlett's famous book, such as Latimer's "candle," Dryden's "Cousin Swift," Pope's "little learning," Longfellow's "smith." Thus there are both verse and prose. Useful information is also supplied: "Cats with blue eyes are invariably deaf." No better exercises have been made on the principle of the detached sentence. The continuous passages (twenty-three pages) are taken from authors as ancient as Dr. Johnson and Goldsmith, and as modern as Anthony Hope and H. G. Wells.

HISTORY.

A Picture Book of British History. Compiled by S. C. Roberts, M.A., sometime Scholar of Pembroke College, Cambridge. Vol. I: From the Earliest Times to 1485 A.D. (3s. 6d. net. Cambridge University Press.)

A handsome volume, the pictures on the right-hand page and succinct explanations on the page opposite. The illustrations are mainly contemporary, though photographs of historic sites, buildings, &c., as they now appear, have been admitted: but purely fanciful pictures, with one or two exceptions, have been wisely excluded. The collection will form a very attractive and instructive companion to the history-book. The illustrations, we need hardly remark, are very beautifully reproduced.

Germany and Europe. By J. W. Allen, Barclay Lecturer in Modern History at Bedford College, University of London. (2s. 6d. net. Bell.)

Mr. Allen has made "a serious effort to understand the causes and the issues" of the present War, and he sets forth his argument and conclusions in the plainest and clearest language. He begins with the statement of a case for Germany, which he rightly deems an essential element in "any effort to understand what is happening." He then examines the cause of the War, England's position, and the final settlement. His review of the situation is thoroughly well informed, thoughtful, and perspicuous.

National Home-Reading Union Pamphlets: Historical Series, No. 1.

—*English History in the Fifteenth Century and the Historical Plays of Shakespeare.* By Charles Lethbridge Kingsford. (1s.)

National Home-Reading Union, 12 York Buildings, Adelphi, W.C.)

Mr. Kingsford supplies references to the more important original authorities on the period, with notes upon them, and he picks out some of the more striking problems, and suggests how far Shakespeare helps to a solution. The brochure will be helpful and suggestive to students.

Select English Historical Documents of the Ninth and Tenth Centuries.

Edited by F. E. Harmer, B.A. Lond., sometime Scholar of Girton College, Cambridge. (6s. net. Cambridge University Press.)

Till some scholar produces a satisfactory edition of Anglo-Saxon charters, students will have to be content with editions of selected texts, such as the present volume contains. Miss Harmer offers twenty-three documents, covering a period of rather more than a century and a half from the early ninth century. There are grants of estates or privileges, wills, a lease, a deed of exchange, a deed of manumission, records of negotiations, dedicatory inscriptions—a varied sample, alike of historical and of linguistic importance. The text is followed by a very careful translation, and that by a considerable body of notes, partly historical, partly linguistic, and there is a short appendix on features of the Kentish, Mercian, and Northumbrian dialects illustrated in the documents. The work is careful and scholarly, and it indicates how much yet remains to be done to utilize this inadequately explored field.

The Partition of Europe: a Textbook of European History, 1715–1815. By Philip Guedalla, sometime Exhibitioner of Balliol College, Oxford. (4s. 6d. Clarendon Press.)

During the century that separates the Peace of Utrecht from the Peace of Vienna there was "an incessant and varying distribution of European territory," and it is from this point of view that Mr. Guedalla surveys the period. He brings into prominence the especial dependence of European history upon the conformation of Europe, indicating the influence of geography on the direction of policy, the trace of frontiers, and the march of armies. The treatment is remarkably fresh, systematic, and pointed. Appended is a full chronological summary, and a series of seven genealogies; also seven very useful maps.

The Making of Western Europe: Being an Attempt to Trace the Fortunes of the Children of the Roman Empire. By C. R. L. Fletcher, formerly Fellow of All Souls and Magdalen Colleges, Oxford. Vol. II: *The First Renaissance, 1000–1190 A.D.* (7s. 6d. net. John Murray.)

In his first volume Mr. Fletcher covered seven centuries; in the present volume he covers only two centuries, bringing the story down to the eve of the third Crusade. The period is far from easy to handle:

nearly everywhere the details are elusive, and it is difficult to persuade them to form a coherent picture that can be relied on as correct. The first sixty years, moreover, are both dull and obscure, though the irrepressible vitality of Mr. Fletcher's treatment beguiles the reader and lightens the way. The remaining portion is of extreme importance in the formation of the rising nations of Western Europe. We do not, however, sympathize with Mr. Fletcher's complaint that the Oxford School of History neglects his early period in favour of more modern periods. It is for him and other researchers to recover the history of the earlier time with reasonable certainty and fullness, and then his claim will be irresistible. Even if the alleged perversity of the powers that be is "part and parcel of the utilitarian spirit which is now invading education in all its branches," the utilitarian aspect has its legitimate claims; and our students cannot all be researchers, though we admit they should be so to a greater extent than the present system allows or requires them to be. On another point we differ from Mr. Fletcher. The present War has led him to regret "the hard things I have written about the Slavonic nations and the high praise that I have given to the efforts of the medieval emperors to destroy or Germanize the Slavs," and he leaves these misguided views to stand, mainly as a personal penance. The penance will be very light. The transactions in question have nothing whatever to do with the Prussian bureaucratic aberrations of the past generation. With less unreason, he might go into sackcloth for following the guidance of von Giesebrecht and K. W. Nitzsch. But this patriotic revulsion against everything German is a transient impulse, too indiscriminate to last. Half of the volume is overshadowed by the great quarrel of Pope and Emperor, which involves the larger treatment of the histories of Germany and Italy. The Contest of Investitures is admirably depicted, and such great figures as Hildebrand and Bernard, Roger II of Sicily and Frederick Barbarossa, sustain a keen interest. The growth of France, "the eldest child of the Roman Empire," is traced from small beginnings through the eleventh century, with its relations to the nine or ten great feudatories about it, in firm and clear outlines. The history of Spain during the period is substantially the story of the reconquest of the peninsula from the Moslem; and in a short chapter Mr. Fletcher manages to strike out some fresh views at variance with traditionary opinion. The last chapter—on the Crusades, and more particularly on the first two—forms a sort of appendix, for "the Eastern Empire was not so much a 'Child of the Roman Empire' as the shadow of that Empire itself," and "the rulers of Constantinople did not succeed in making a nation," though "at one time or another they approached success." Each chapter is preceded by a summary and by elaborate genealogical tables, which are quite indispensable; and there are five excellent maps. This we take to be far the best book that Mr. Fletcher has written. It is learned and thoughtful, acute and stimulating; and the style, while more pruned and polished, is still charmingly alert and vigorous.

GEOGRAPHY.

"Simple Geographical Readers."—(1) *Little Travellers Abroad*;
(2) *Lands Far and Near*. (10d. each. Oliver & Boyd.)

Thoroughly sound geographical readers for the lower standards. Life in many lands is pleasingly and accurately described, with numerous illustrations, many in colour. Those of No. 1 are clever sketches, while No. 2, slightly more advanced in character, has reproductions of well chosen photographs.

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McDougall's Earth Knowledge: (1) *Europe*, (2) *The Empire Overseas*. (6d. each.)

Intended for upper standards. A form of regional treatment has been adopted which is fairly satisfactory. The illustrations and white and black maps are good, but the text is not particularly interesting. Cause and effect are not well worked out, and several of the conclusions stated need revision in the light of recent events.

A First Book of Commercial Geography. By T. Alford Smith, B.A. (1s. 6d. Macmillan.)

About half the book is devoted to "articles of commerce and trade routes." Some 40 pages are then given up to an analysis of the commerce of the British Isles. Recent statistics are included together with examination questions, exercises, and an index. Well arranged and illustrated, it will prove a favourite textbook for middle forms.

Bacon's Contour Atlas. (6d.)

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(Continued on page 234.)

MR. JOHN MURRAY

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"Cambridge County Geographies."—(1) *Argyllshire and Buteshire.* By Peter Macnair, F.R.S.E. (2) *Peebles and Selkirk.* By George C. Pringle, M.A. (1s. 6d. each. Cambridge University Press.)

The particular points calling for comment are the excellent treatment of Natural History, Geology, and Scenery in No. 1, where the counties are considered separately. No. 2 is slightly smaller, and for the most part deals with both counties as a single area. Race, Agriculture, Wool, and Antiquities have highly interesting original treatment. Both books should prove of much more than local interest.

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PUBLICATIONS RECEIVED.

EDUCATION.

Educational Values and Methods: based on the Principles of the Training Process. By W. G. Sleight. Clarendon Press, 4s. 6d. net.

The Education of Karl Witte; or, The Training of the Child. Edited, with an Introduction, by H. Addington Bruce. Translated from the German by Leo Wiener. Harrap, 4s. 6d. net.

Blackie's Pedagogic Library.—(1) *The Teacher's Montaigne*, by Geraldine E. Hodgson; (2) *Education of Young Children in the East*, by Alice E. Stephens. Each volume 2s. 6d. net.

The Lesson in Appreciation. By Dr. F. H. Hayward. Macmillan, 3s. 6d. net.

Mothers and Children. By Dorothy Canfield Fisher. Constable, 4s. 6d. net.

CLASSICS.

Intermediate Oral Latin Reader. By Frank Jones. Blackie, 2s.

FRENCH.

Oxford Junior French Series.—(1) *Quatre Contes.* Par Charles Perrault. Adapted and edited by A. Wilson-Green. (2) *Le Berger et le Proscrit.* By J. J. Porchat. Adapted and edited by A. Truan. Clarendon Press, each volume, with vocabulary, 1s.

Dent's Modern Language Series.—*The Best French Poetry.* Selected and edited by Walter Rippmann. In 6 vols. Each 3d. net.

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Heath's Modern Language Series.—*Molière's Les Fourberies de Scapin.* Edited by Kenneth McKenzie. 1s. 3d.

Massard's Series of French Readers.—*Deux Nouvelles.* Par Alfred de Musset. (Junior Series.) Rivingtons, 1s. 6d.

Single Term French Readers. Edited by B. Minssen. Term VI. Rivingtons, 1s.

Progressive French Composition. By Marie F. Krasser and Lina Morrison. Blackie, 1s.

ENGLISH.

A Guide to the English Language: its History, Development, and Use. Edited by H. C. O'Neill. Jack, 5s.

A Poet's Cabinet: being Passages, mainly Poetical, from the works of George Lansing Raymond. Selected and arranged by Marion Mills Miller. Putnam's Sons, 6s. net.

The Elder Brother: a Comedy by John Fletcher. Edited by W. H. Draper. Introduction by Rev. C. A. Alington. Cambridge University Press, 2s. 6d. net.

The Poetry and Life Series.—(1) *Walt Whitman*, by H. B. Binns; (2) *Chaucer*, by E. W. Edmunds. Harrap, each 1s. net.

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Macaulay's Horatius, Regillus, The Armada. Edited by A. J. F. Collins. Clive, 1s.

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Blackie's New Systematic Readers. Fourth Reader, 1s. 5d.; Fifth Reader, 1s. 7d.

Exercises in English Word Formation and Derivation. By Frank Ritchie. Allen & Unwin, 9d. net.

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Exercises in Prose Literature and Composition. By G. Clifford Dent. Clarendon Press, 3s. 6d.

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Cambridge Bible for Schools and Colleges.—*St. Mark.* Edited by the Rev. A. Plummer. Cambridge University Press, 2s. net.

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Oxford County Histories.—*Leicestershire.* By Charles E. Kelsey. Clarendon Press, 1s. 6d. net; superior binding, 2s. 6d. net.

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A Short History of the Sikhs. By C. H. Payne. Nelson, 1 rupee 8 annas.

European Entanglements since 1748. By Howard Chambers. Longmans, 1s. net.

Visual History. By Agnes Nightingale. Black, 8d.

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McDougall's Practical Book-keeping. 1s. 4d.

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The Evolution of Sex in Plants. By J. M. Coulter. Cambridge University Press, 4s. net.

Chemistry. By W. H. Ratcliffe. Part I, 3s.; Part II, 1s. 6d. Hodder & Stoughton.

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Household Management: a Handbook of Domestic Economy and Hygiene. By E. Stoddart Eckford and M. S. Fitzgerald. Hogg, 2s. 6d. net.

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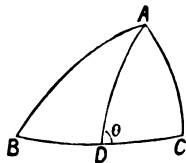
- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17669. (Professor J. C. SWAMINARAYAN, M.A.)—The medians of a spherical triangle ABC are inclined at angles θ, ϕ, ψ to the sides which they bisect. Prove that

$$\cot \theta \operatorname{cosec} \frac{1}{2}(b+c) + \cot \phi \operatorname{cosec} \frac{1}{2}(c+a) + \cot \psi \operatorname{cosec} \frac{1}{2}(a+b) = 0.$$

Solution by Professor R. SRINIVASAN, M.A.

AD is the median drawn to BC.
In the triangle ADC,
 $\cot AD \sin \frac{1}{2}a = \cot c \sin \theta + \cos \frac{1}{2}a \cos \theta.$
In the triangle ABD,
 $\cot AD \sin \frac{1}{2}a$
 $= \cot B \sin (\pi - \theta) + \cos \frac{1}{2}a \cos (\pi - \theta)$
 $= \cot B \sin \theta - \cos \frac{1}{2}a \cos \theta.$



From these two we get $\cot \theta = (\cot B - \cot C)/2 \cos \frac{1}{2}a.$
Therefore the given equation is true if

$$\sum \frac{\sin(B-C)}{\sin B \sin C} \cdot \frac{1}{\cos \frac{1}{2}a \sin \frac{1}{2}(b+c)} = 0,$$

i.e., if
$$\sum \frac{\sin \frac{1}{2}(B-C) \cos \frac{1}{2}(B-C) \sin \frac{1}{2}a}{\sin \frac{1}{2}(b+c)} = 0,$$

i.e., if
$$\sum \frac{\sin \frac{1}{2}(b-c) \sin \frac{1}{2}(b+c) \sin A \sin \frac{1}{2}a}{\sin^2 \frac{1}{2}a \sin \frac{1}{2}(b+c)} = 0$$

(by Delambre's analogies),

i.e., if
$$\sum \sin \frac{1}{2}(b-c) \cos \frac{1}{2}a = 0,$$

i.e., if
$$\sum \{\sin(b-c+a) + \sin(b-c-a)\} = 0,$$

which is true.

17478. (J. J. BARNVILLE, B.A.)—If a and b are roots of $x^2 + z = 3$, prove that

$$(x^{13}-1)/(x-1) = (x^6 - ax^5 + 2x^4 + bx^3 + 2x^2 - ax + 1) \times (x^6 - bx^5 + 2x^4 + ax^3 + 2x^2 - bx + 1).$$

Similarly resolve $x^{17}-1$ in terms of the roots of $x^2 + z = 4$.

Solution by W. N. BAILEY.

Since 2 is a primitive root of $x^{12}-1 \equiv 0 \pmod{13}$, the roots of $(x^{13}-1)/(x-1) = 0$ being $r, r^2, r^3, \dots, r^{12}$, can be represented by $r, r^2, r^3, r^4, \dots, r^{12}$.

For Gauss's Periods (see Mathews' *Theory of Numbers*), take

$$a = r + r^2 + r^4 + \dots + r^{10} = r + r^4 + r^3 + r^{12} + r^9 + r^{10} \dots (1).$$

and
$$b = r^2 + r^3 + r^5 + \dots + r^{11} = r^2 + r^6 + r^7 + r^{11} + r^8 + r^7 \dots (2).$$

Then
$$a + b = r + r^2 + r^3 + \dots + r^{12} = -1,$$

$$ab = -3 \text{ (see above, p. 201),}$$

so that a and b are the roots of $x^2 + z = 3$.

Now we know that the sum of the products of the terms of (1) two at a time is of the form $ka + lb + m$.

By picking out the coefficients of r and r^2 and terms independent of r in this expression (after replacing r^{13p+q} by r^q) if $q < 13$, we find that $k = l = 1$ and $m = 3$.

Therefore sum of the products of terms in (1) two at a time = $(a+b)+3 = 2$.

Similarly, sum of products three at a time = $2a + b + 2 = -b$.

Now a is unaltered by inverting each of its terms, and therefore the coefficients equidistant from the beginning and the end in the equation satisfied by the terms in (1) are equal.

Hence the terms in (1) satisfy the equation

$$x^6 - ax^5 + 2x^4 + bx^3 + 2x^2 - ax + 1 = 0.$$

Similarly the terms in (2) satisfy the equation obtained from the above by interchanging a and b .

Hence
$$(x^{13}-1)/(x-1) = (x^6 - ax^5 + 2x^4 + bx^3 + 2x^2 - ax + 1) \times (x^6 - bx^5 + 2x^4 + ax^3 + 2x^2 - bx + 1).$$

For the equation $(x^{17}-1)/(x-1) = 0$,

we take
$$a = r + r^3 + r^5 + \dots + r^{14}$$

$$= r + r^9 + r^{13} + r^{15} + r^{16} + r^8 + r^4 + r^2 \dots (1),$$

and
$$b = r^2 + r^3 + r^5 + \dots + r^{15}$$

$$= r^2 + r^{10} + r^5 + r^{11} + r^{14} + r^7 + r^{12} + r^6 \dots (2),$$

since 3 is a primitive root of $x^{16}-1 \equiv 0 \pmod{17}$.

Then
$$a + b = r + r^2 + \dots + r^{16} = -1,$$

$$ab = -4 \text{ (Mathews, p. 201),}$$

so that a and b are the roots of $x^2 + z = 4$.

As above, we find that: sum of products of terms in (2) taken two at a time is $a + 2b + 4 = (2-a).$

The sum of products taken three at a time is

$$5a + 2b = (3a-2),$$

and sum of products taken four at a time is

$$3a + 5b + 6 = (1-2a).$$

As before, a is unchanged by inverting all of its members. It follows that

$$(x^{17}-1)/(x-1) = \{x^8 - ax^7 + (2-a)x^6 - (3a-2)x^5 + (1-2a)x^4 - (3a-2)x^3 + (2-a)x^2 - ax + 1\} \times \{x^8 - bx^7 + (2-b)x^6 - (3b-2)x^5 + (1-2b)x^4 - (3b-2)x^3 + (2-b)x^2 - bx + 1\},$$

where a and b are the roots of $x^2 + z = 4$.

Note by the PROPOSER:—

The given factors can be written

$$(x^3 - \frac{1}{2}ax^2 + \frac{1}{2}ax - 1)^2 - \frac{1}{4}(3a-5)(x^2 + x)^2$$

and
$$(x^3 - \frac{1}{2}bx^2 + \frac{1}{2}bx - 1)^2 - \frac{1}{4}(3b-5)(x^2 + x)^2.$$

Hence every root of $x^{13} = 1$ is expressible by radicals.

Again,
$$4(x^{17}-1)/(x-1) = A^2 - 17B^2,$$

where
$$A = 2(x-1)^8 + 17x(x^2-x+1)\{x^2-x+1\}^2 + x^2\}$$

and
$$B = x(x+1)(x^2+1)(x^3+1).$$

Hence $(x^{17}-1)/(x-1)$ can be factorized in terms of the roots of $x^2 + z = 4$.

17469. (H. D. DRURY, M.A.)—The perpendiculars of a triangle ABC are produced to meet the circum-circle in points D, E, F respectively. Starting from A, and going round the circle in a counter-clockwise direction, trisect the arc ABD, and let P be the point of trisection next to A; then trisect the arc BCE, and let Q be the point of trisection next to B; lastly trisect the arc CAF, and let R be the point of trisection next to C. Show that, if we start from A and go round the circle in a clockwise direction, R will trisect the arc ACD, Q the arc CBF, and P the arc BAE, and the triangle PQR is equilateral.

Solutions (I) by C. E. YOUNGMAN, M.A.; (II) by F. W. REEVES, M.A., and others.

(I) Denote the point A by the angle a , through which the radius OA has revolved from some fixed initial position; and similarly B by the angle β , and so on. Then, obviously, $a \pm 2\pi$ still denotes A, and $a \pm \pi$ denotes the point diametrically opposite to A. Also $\theta + \phi = a + \beta$ states that the chords $\theta\phi$ and $a\beta$ are parallel; and $\theta + \phi = a + \beta \pm \pi$ means that they are perpendicular.

Now take any five points $a, \beta, \gamma, \delta, \epsilon$; draw a chord $\epsilon\epsilon'$ perpendicular to $\beta\gamma$, and another, $\alpha\alpha'$, parallel to $\delta\epsilon'$, and therefore parallel to the pedal line of ϵ in $\beta\gamma\delta$. We have

$$\epsilon + \epsilon' = \beta + \gamma + \pi \text{ and } \alpha + \alpha' = \delta + \epsilon';$$

therefore
$$2\alpha + \alpha' = \pi + \alpha + \beta + \gamma + \delta - \epsilon.$$

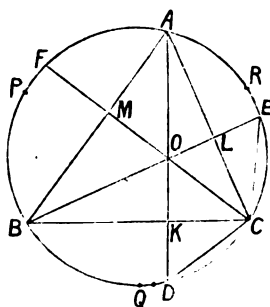
But $\frac{1}{3}(2\alpha + \alpha')$ denotes the point which trisects, near a , the arc $\alpha\alpha'$; so the symmetry of the expression gives us the following proposition:—In a circle ABCDE, if the arcs AA', BB', CC', DD' stand on chords parallel in order to the pedal lines of E in BCD, CDA, DAB, ABC, these arcs can all be trisected by the same point P; nay, by the same three points P, Q, R, if we interpret carefully, PQR being equilateral; for $\frac{1}{3}(2\alpha + \alpha' + 2\pi)$ will denote Q, and R is

$$\frac{1}{3}(2\alpha + \alpha' + 4\pi).$$

This, when D and E coincide, proves Question 17469; and adds to it that P trisects the arc DD' whose chord is the parallel through any point D to its pedal line; consequently P, Q, R are the points whose pedal lines are parallel to the tangents at P, Q, R, see Question 17395.

The angle between the chord $\theta\phi$ and the initial radius is $\frac{1}{2}(\pi + \theta + \phi)$; therefore $\theta + \phi = \beta + \gamma + 2\lambda$ expresses that $\theta\phi$ makes an angle λ with $\beta\gamma$; hence in the above proposition we may generalize "parallel" into "isoclinal."

(II) Now it is well established that OD, OE, OF are bisected respectively by BC, CA, AB at right angles, and therefore A, B, C are mid-points of arcs EF, FD, DE respectively.



$$\begin{aligned} \angle ACP + \angle BCP &= \angle ACB \\ &= \frac{1}{3}(\angle ACB + \angle ACF + \angle BCF) \\ &= \frac{1}{3}(\angle ACB + \angle BCD + \angle ACB + \angle ACE) \\ &= \frac{1}{3}(\angle ACD + \angle BCE). \end{aligned}$$

But P is point of trisection of arc ABD;

therefore $\angle ACP = \frac{1}{3} \angle ACD$;
therefore $\angle BCP = \frac{1}{3} \angle BCE$,

i.e., P is point of trisection clockwise for arc BCE.

Similarly for Q, R.

Again, AP = $\frac{1}{3}$ arc ABD and AQ = $\frac{1}{3}$ arc ACD ; therefore PQ = $\frac{1}{3}$ circumference and similarly for QR, RP ; therefore PQR is an equilateral triangle.

Integrations Performed through the use of a new Transcendental Function.

By F. TAVANI.

(1) Let us consider the integral

$$\int e^{\rho x} \sin ax dx = \frac{e^{\rho x} (\rho \sin ax - a \cos ax)}{a^2 + \rho^2},$$

in which we put, for brevity, I(ρ, x) for the second member, and suppose x to be a real quantity, and ρ a complex constant = a + iβ, then

$$I(\rho, x) = \int e^{\rho x} \cos(\beta x) \sin(ax) dx + i \int e^{\rho x} \sin(\beta x) \sin(ax) dx;$$

therefore $\int e^{\rho x} \cos(\beta x) \sin(ax) dx = I(\rho, x) \left(\frac{1}{1 + i \tan \{1/i \log [I(\rho, x)] / I(\rho, x)\}} \right),$

and $\int e^{\rho x} \sin(\beta x) \sin(ax) dx = I(\rho, x) \left(\frac{1}{i + \cotan \{1/i \log [I(\rho, x)] / I(\rho, x)\}} \right).$

(2) $\int x^\rho dx = \frac{x^{\rho+1}}{\rho+1};$

therefore $\frac{x^{\rho+1}}{\rho+1} = \int x^\rho \cos(\beta \log x) dx + i \int x^\rho \sin(\beta \log x) dx;$

therefore $\int x^\rho \cos(\beta \log x) dx = \frac{x^{\rho+1}}{\rho+1} \left(\frac{1}{1 + i \tan \{1/i \log (x^{\rho+1}/\rho + 1 \cdot |\rho + 1| / |x^{\rho+1}|)\}} \right),$
 $\int x^\rho \sin(\beta \log x) dx = \frac{x^{\rho+1}}{\rho+1} \left(\frac{1}{i + \cotan \{1/i \log (x^{\rho+1}/\rho + 1 \cdot |\rho + 1| / |x^{\rho+1}|)\}} \right);$

from the last two integrals others can be obtained with the substitution log x = y.

(3) $\int \sqrt{\rho^2 - x^2} dx = x \frac{\sqrt{\rho^2 - x^2}}{2} + \frac{\rho^2}{2} \sin^{-1} \frac{x}{\rho}.$

Indicating with I(ρ, x) the second member for brevity, we have

$$I(\rho, x) = \int \sqrt{[(a^2 - \beta^2 - x^2)^2 - 4a^2\beta^2]} \cos \left\{ \tan \left(\frac{2a\beta}{a^2 - \beta^2 - x^2} \right) \right\} dx + i \int \sqrt{[(a^2 - \beta^2 - x^2)^2 - 4a^2\beta^2]} \sin \left\{ \tan \left(\frac{2a\beta}{a^2 - \beta^2 - x^2} \right) \right\} dx;$$

therefore $\int \sqrt{[(a^2 - \beta^2 - x^2)^2 - 4a^2\beta^2]} \cos \left(\tan \frac{2a\beta}{a^2 - \beta^2 - x^2} \right) dx = I(\rho, x) \frac{1}{1 + i \tan \{1/i \log [I(\rho, x)] / I(\rho, x)\}},$
 $\int \sqrt{[(a^2 - \beta^2 - x^2)^2 - 4a^2\beta^2]} \sin \left\{ \tan \left(\frac{2a\beta}{a^2 - \beta^2 - x^2} \right) \right\} dx = I(\rho, x) \frac{1}{i + \cotan \{1/i \log [I(\rho, x)] / I(\rho, x)\}}.$

These examples are sufficient to show the services which the transcendental function

$$\tan \left\{ \frac{1}{i} \log \left(\frac{\phi(\rho, x)}{1/\phi(\rho, x)} \right) \right\}$$

can render to Integral Calculus. The instances like those here given can be easily multiplied and applied to more important and complicated integrations.

17984. (B. HOWARTH.)—Given that D is prime, that 1/D has a period of p figures, and that n is a multiple of p, prove that Dⁿ is not a factor of

$$10^{(D-1)n} + 10^{(D-2)n} + 10^{(D-3)n} + \dots + 10^{2n} + 10^n + 1.$$

Is it true that D² is not a factor of

$$10^{(D-1)n} + 10^{(D-2)n} + 10^{(D-3)n} + \dots + 10^{2n} + 10^n + 1,$$

when D is not prime, providing 1/D gives rise to a pure circulating decimal with a period of p figures?

Solution by Lieut.-Col. ALLAN CUNNINGHAM, R.E.

The condition that 1/D has a period of p figures is equivalent to the congruence 10^p ≡ +1, or 10^p - 1 ≡ 0 (mod D), with p a minimum. The large number (N) above is N = (10^{Dn} - 1) ÷ (10ⁿ - 1), where n = mp.

(1) Now, when m does not contain D, then—except in certain rare cases—(10^{mp} - 1) is known to contain D² (but not D³), and (10^{mp} - 1) is known then to contain D (but not D²): so that then the given N contains D (not D²).

(2) When m contains D, D², D³, ..., then—except in the same rare cases—(10^{mp} - 1) is known to contain D², D⁴, D⁶, ... (but not D³, D⁵, D⁷, ...), and (10^{mp} - 1) is known then to contain D², D³, D⁴, ... (but not D⁵, D⁶, ...), respectively; thus, in each case, (10^{mp} - 1) contains one (and only one) more factor D than are contained in (10^{mp} - 1): so that, finally, the given N contains only D (not D²).

(3) The rare cases alluded to are when (10^{mp} - 1) does contain D², even when m does not contain D. The only known cases are when D = 3 and 487, in which cases p = 2 and 486, and 10² - 1 ≡ 0 (mod 3²) and 10⁴⁸⁶ - 1 ≡ 0 (mod 487²). In these cases, (10^{mp} - 1) and (10^{mp} - 1) each contain one factor D more than in the cases of paragraphs (1), (2) above; so that here also the given N contains only D (not D²).

(4) Similar reasoning applies when D is composite.

[Rest in Reprint.]

17868. (Professor E. J. NANSON, M.A.)—Two rods PQ, P'Q' move with their extremities P, P' on a fixed straight line OA, and their extremities Q, Q' on a fixed straight line OB, so that P, Q, P', Q' are concyclic. Find the locus of the centre of the circle PQP'Q'.

Additional Solution by C. E. YOUNGMAN, M.A.

Find C, D, the circumcentres of OPQ and OP'Q', and draw the parallelogram CODE; since PQ and P'Q' are constant lengths, so are OC and OD.

Also $\angle ODP' = 2\angle OP'Q'$
 $= 2\angle OPQ$
 $= \angle OCQ;$

therefore $\angle AOD = \angle BOC,$ and OC, OD are equally inclined to the bisector of AOB.

And E is the centre of PQP'Q'; for, considering projections on OA or OB,

$OE = OC + OD = \frac{1}{2}(OP + OP')$
or $\frac{1}{2}(OQ + OQ').$

Draw EL perpendicular to the bisector of AOB, to cut OC, OD at M, N. Then DEN, CME, OMN are similar isosceles triangles; therefore

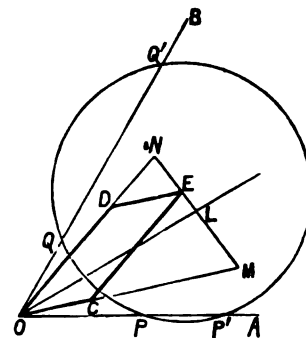
$NE : EM : MN = ED : MC : MO = OC : OD : (OC + OD);$
hence $NL : EL = (OC + OD) : (OC \sim OD).$

But the locus of N is a circle; therefore that of E is an ellipse with centre O and semi-axes OC, OD.

From the similar triangles OCQ, ODP' we have

$OQ : OP' = OC : OD = \text{const.};$

therefore $\angle OP'Q = \text{const.};$



consequently the radius of P'Q'P'Q' is constant, and the envelope of the circle is a parallel to the ellipse.

Or, simply, since both P'Q and the circle are of constant size, the centre may be regarded as carried about by P'Q, whose ends slide along straight lines; therefore the locus is an ellipse.

17929. (T. MUIR, LL.D.)—If each of two general determinants be multiplied row-wise by one and the same orthogonant, and the first product thus obtained be multiplied row-wise by the second, the resulting determinant is equal to the product of the two original determinants.

Solution by the PROPOSER.

Let the two general determinants and the orthogonant be denoted by D_1, D_2, O ; and, as the standard form of multiplication is row-by-column, let us indicate the interchange of rows and columns by a comma placed at the right-hand top corner of the letter denoting the determinant. Then the first number of the predicated identity is

$$(D_1O') \cdot (D_2O')'$$

and by the laws of determinant multiplication this

$$= (D_1O') \cdot (OD_2') = D_1 \cdot O'O \cdot D_2' = D_1 \cdot 1 \cdot D_2' = D_1 D_2'$$

17972. (Prof. R. SRINIVASAN, M.A.)—Show that

$$\int_0^\pi \frac{\theta^m \sin \theta \sin r\theta}{1 - 2m \cos \theta + m^2} d\theta = \frac{1}{2}\pi (\log m)^m m^{r-1}.$$

Solution by C. M. ROSS, M.A.

It is easy by expansion into a series, and afterwards by term-by-term integration, to show that

$$\int_0^\pi \frac{\sin r\theta \sin \theta}{1 - 2m \cos \theta + m^2} d\theta = \frac{1}{2}\pi \cdot m^{r-1} \dots \dots \dots (i),$$

where $m > 0$ and < 1 .

Differentiating (i), with respect to r , $4t$ times, we have

$$\int_0^\pi \frac{\theta^{4t} \sin r\theta \sin \theta}{1 - 2m \cos \theta + m^2} d\theta = \frac{1}{2}\pi \cdot m^{r-1} (\log m)^{4t};$$

and this is the required result.

QUESTIONS FOR SOLUTION.

18014. (C. M. ROSS, M.A.)—Find the value of the double integral $\int_0^{\pi/2} \int_0^{\pi/2} (1 - \sin^2 \theta \sin^2 \phi)^{1/2} \sin^{n+1} \phi d\theta d\phi$.

18015. (T. MUIR, LL.D.)—The difference-product of the a 's and the difference-product of the b 's are manifestly factors of

$$\begin{vmatrix} (a_1 + b_1)^2 (a_1 + b_2)^2 & (a_1 + b_2)^2 (a_1 + b_1)^2 & (a_1 + b_1)^2 (a_1 + b_2)^2 \\ (a_2 + b_2)^2 (a_2 + b_3)^2 & (a_2 + b_3)^2 (a_2 + b_1)^2 & (a_2 + b_1)^2 (a_2 + b_2)^2 \\ (a_3 + b_2)^2 (a_3 + b_3)^2 & (a_3 + b_3)^2 (a_3 + b_1)^2 & (a_3 + b_1)^2 (a_3 + b_2)^2 \end{vmatrix}.$$

Find the remaining factor.

18016. (Professor J. C. SWAMINARAYAN, M.A.)—Without departing from the determinantal form, show that the determinant

$$\begin{vmatrix} b^2w + c^2v - 2bcu', & bcw' - cav + abu' - b^2v' \\ bcv' + cau' - abw - c^2w', & -bcu + cau' + abv' - a^2u' \end{vmatrix}$$

is equal to the determinant

$$\begin{vmatrix} u, & w', & v', & a \\ w', & v, & u', & b \\ v', & u', & w, & c \\ a, & b, & c, & 0 \end{vmatrix}.$$

multiplied by bc .

18017. (S. KRISHNASWAMI AYYANGAR, B.A.)—If $\sigma_n = 1 + \frac{1}{3} + \frac{1}{5} + \dots$ to n terms and $\sigma_n = 1 - \frac{1}{3} + \frac{1}{5} - \dots$ to n terms,

prove that

$$\frac{s_1\sigma_1}{2} + \frac{s_2\sigma_2}{4} + \frac{s_3\sigma_3}{6} + \dots + \frac{s_n\sigma_n}{2n} + \dots$$

$$= \frac{1}{2}\pi \left\{ \frac{s_1}{2} + \frac{s_2}{4} + \frac{s_3}{6} + \dots + \frac{s_n}{2n} + \dots \right\}$$

$$= \frac{1}{2} \left\{ 1 - \frac{1}{3^3} + \frac{1}{5^3} - \frac{1}{7^3} + \dots \right\}.$$

18018. (JAMES A. COLE, M.A.)—Show that any possible pair of factors of $2^{11} - 1$ is one of the forms (p, q) , where

$$(p, q) \equiv (59640n + p) \times (59640m + q),$$

and where the possible values of p, q are

- (1) 1, 55807; 8521, 13207; 17041, 38767; 25561, 21727; 34031, 47287; 42601, 4687;
- (2) 54671, 12497; 3551, 29537; 12071, 55097; 20591, 55097; 29111, 3977; 37631, 21017;

- (3) 39761, 52967; 48281, 10367; 56801, 35927; 5681, 18887; 14201, 44447; 22721, 1847;
- (4) 14911, 40897; 23431, 57937; 31951, 23857; 40471, 6817; 48991, 32377; 57511, 49417;
- (5) 42743, 9089; 51263, 26129; 143, 51689; 8663, 34649; 17183, 17609; 25703, 34649;
- (6) 27833, 49559; 36353, 6959; 44873, 32519; 53393, 15479; 2273, 41039; 10793, 58079;
- (7) 2983, 28969; 11503, 46009; 20023, 11929; 28543, 54529; 37063, 20449; 45583, 37489;
- (8) 47713, 43879; 56233, 1279; 5113, 26839; 13633, 9799; 22153, 35359; 30673, 52399.

E.g., a possible pair of factors is

$$(59640n + 2273)(59640m + 41039).$$

18019. (Professor K. J. SANJANA, M.A.)—Resolve each of the following expressions into three factors:—

- (1) $4abc + a(b+c-a)^2 + b(c+a-b)^2 + c(a+b-c)^2 - (a+b+c)(2bc+2ca+2ab-a^2-b^2-c^2)$,
- (2) $8a^2b^2c^2 - \{a^2(b+c-a)^2 + b^2(c+a-b)^2 + c^2(a+b-c)^2\} \times (2bc+2ca+2ab-a^2-b^2-c^2)$.

18020. (F. G. W. BROWN, B.Sc., F.C.P.)—Show that the equations

$$\begin{aligned} xy(x^2 + y^2) + x^2(x + y) &= a - z(x^2 + y^2), \\ x^2(1 + y^2) + y^2(1 + x^2) + z^2(1 + x^2) &= b, \\ x(x + y) + y(y + z) + x(x + z) &= c, \end{aligned}$$

may be solved by reducing them to the cubic

$$u^3 + au^2 + bu + \gamma = 0,$$

where $a^2 = c + \beta$, $6\beta = 1 + 2c + k$, $\alpha\gamma = a + \beta^2 - \beta c$,

and $k^2 = 1 - 24a + 12b - 8c + 4c^2$;

hence, find x, y, z when $a = 878$, $b = 399$ and $c = 69$.

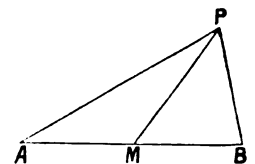
18021. (W. N. BAILEY.)—A tangent to a fixed circle makes a constant angle with a tangent to another fixed circle. Show that the locus of the point of intersection consists of four limaçons which have double contact with the given circles, and two of which degenerate into cardioids when the circles intersect at the given angle or its supplement. When the given angle is a right angle, the locus consists of two limaçons which degenerate into cardioids when the circles cut orthogonally. Deduce that if two circles have double contact with a limaçon, their centres being the extremities of a diameter of the directrix, then one of the tangents drawn to one circle from any point on the limaçon will be perpendicular to one of the tangents drawn to the other circle from the same point.

18022. (E. G. HOGG, M.A.)—The envelope of the polar of the centroid of the triangle ABC with respect to conics which circumscribe the triangle ABC and pass through the extremities of a diameter of the maximum inscribed ellipse of that triangle is the curve $(\beta\beta + \gamma\gamma)^{-1/2} + (\gamma\gamma + \alpha\alpha)^{-1/2} + (\alpha\alpha + \beta\beta)^{-1/2} = 0$.

18023. (The late Professor COCHEZ.)

—On donne une droite AB et son milieu M. Lieu des points P tels que

$$1/PA^{-2} + 1/PB^{-2} = 2/PM^{-2}.$$



18024. (Professor NEUBERG.)—En un point M(x, y) de l'hyperbole équilatère $xy = 1$ on mène la normale qui recoupe la courbe en M_2 ; la normale en M_1 recoupe la courbe en M_2 ; la normale en M_2 la recoupe en M_3 , et ainsi de suite. Trouver les coordonnées des points M_1, M_2, \dots, M_n , et les relations entre les coefficients angulaires des normales successives $MM_1, M_1M_2, M_2M_3, \dots$.

18025. (A. M. NESBITT, M.A.)—The equation to the pair of normals which can be drawn to the ellipse $x^2/a^2 + y^2/b^2 = 1$ at its points of intersection with the polar of (hk) is

$$(a^2k^2 + b^2h) [x^2(a^2 - h^2) + y^2(b^2 - k^2) - 2xyhk] + c^2 [c^2(a^2 - h^2)(b^2 - k^2) + 2a^2ky(b^2 - k^2) - 2b^2hx(a^2 - h^2)] = 0.$$

18026. (W. F. BEARD, M.A.)—The vertices of all equilateral triangles circumscribed to a parabola lie on a fixed hyperbola.

18027. (C. E. YOUNGMAN, M.A.)—If the sides of a triangle reflect the opposite corners on to a straight line, that line goes through the Symmedian point.

18028. (NORMAN ALLISTON.)—A polygon with re-entrant angles has the mid-points of its sides joined, every point to its two adjacent ones, so as to form a second figure. The process is repeated with the second figure, to make a third, and so on. Ascertain whether in every conceivable case the re-entrant angles must all disappear

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after a limited number of operations; and find some rule as to this limit in simpler instances.

18029. (W. F. BEARD, M.A.)—BB' is a common tangent to two circles cutting at C: BN, B'N' are drawn perpendicular to the line of centres. Prove BN.B'N' = CN².

18030. (L. M. STEWART, M.A., B.Sc.)—Show that the volume of a sphere is to the volume of any circumscribed solid as the surface of the sphere is to the surface of the solid: that a similar generalization holds for plane surfaces and perimeters.

18031. (R. F. DAVIS, M.A.)—If $\sin \theta - \sin(\alpha - \theta) = \kappa$, prove that $\sin \theta \sin(\alpha - \theta) = (\sin^2 \alpha - \kappa^2) / 2(1 + \cos \alpha)$.

Similarly, if $\tan \theta + \tan(\alpha - \theta) = \kappa$, express $\tan \theta \tan(\alpha - \theta)$ in terms of κ, α .

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18242. (D. BIDDLE.)—A floor is uniformly ruled with parallel straight lines, and a thin straight rod of length equal to four intervals is thrown at random on it. Prove that in ten thousand trials the rod as it lies will cross 0, 1, 2, 3, 4 lines about as follows, namely, 800, 1655, 1865, 2640, 3040 times respectively.

18397. (Rev. W. A. WHITWORTH, M.A.)—Show that the number of orders in which we can write down $3n$ letters, n alike, and n alike and n alike, without two letters alike coming together, is $2 \{ C_{n+1}^{2n+1} + \kappa_0 \kappa_1 C_{n+1}^{2n} + \kappa_1 \kappa_1 C_{n+1}^{2n-1} + \kappa_1 \kappa_2 C_{n+1}^{2n-2} + \kappa_2 \kappa_2 C_{n+1}^{2n-3} + \dots \}$ to $(n+1)$ terms, where κ, κ' denotes C_r^{n-1} . Can this series be summed?

18482. (Rev. T. ROACH, M.A.)—If $\sum_{7n}^1 \cos^4 \frac{1}{7n} \pi$ denote $\cos^4 \frac{1}{7n} \pi + \cos^4 \frac{2}{7n} \pi + \cos^4 \frac{3}{7n} \pi + \dots + \cos^4 \frac{1}{7n} 7n \pi$, find the value of

$$\sum_{7n}^1 \cos^4 \frac{1}{7n} \pi, \quad \sum_{7n}^1 \sin^8 \frac{1}{7n} \pi, \quad \sum_{7n}^1 \tan^6 \frac{1}{7n} \pi, \quad \sum_{7n}^1 \sec^8 \frac{1}{7n} \pi.$$

18515. (CHARLES MITCHELL.)—Divide an ellipse whose axes are $4''$ and $2\frac{3}{4}''$ into three parts equal in area and perimeter. A geometrical solution is desired.

18691. (Professor CROFTON, F.R.S.)—Find the mean area of a

spherical triangle determined by three points taken at random on the sphere.

14112. (Professor UMES CHANDRA GHOSH.)—Find the altitude of the Star η Tauri when it crossed the prime vertical of a place whose latitude is 30° in 3000 B.C., given that the longitude of the star was $39^\circ 8'$ in 560 A.D. and its latitude $4^\circ 44'$.

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, May 13, 1915.—Prof. Sir Joseph Larmor, M.P., F.R.S., President, in the Chair.

Messrs. H. Jeffreys and G. R. Goldsbrough were proposed for election.

Dr. Bromwich read a paper: "The Diffraction of Waves by a Wedge."

The following papers were communicated by title from the Chair:—

"An Invariant Modular Equation of the Fifth Order": Mr. W. E. H. Berwick.

"A Direct Method in the Multiplication Theory of the Lemniscate Function": Mr. G. B. Mathews.

Informal communications were made:—

(i) "The Bright Spot in the Shadow of a Circular Disc": Dr. Bromwich.

(ii) "A New Method for Calculating Bernoulli's Numbers to any Order": Mr. S. T. Shovelton.

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The Educational Times.

THE FIRST CALENDAR.

DURING the last half-century the members of the College of Preceptors have witnessed the gradual working-out and realization of the ideas which influenced the founders in 1846. At this date the Napoleonic Wars were still fresh in men's minds, and the country had only lately recovered from the sacrifices involved in those wars. The recovery had brought about an increased desire for improvement in education. "It is not too much to assert," said Dr. Wilson, in an oration delivered in January 1847, after the first examination held by the College, "It is not too much to assert that the last gun which was fired at the tremendous conflict on the plains of Waterloo was the signal for the commencement of a new species of warfare, in which the blood of human beings was no longer to be poured like water on the ground, but the evils of mental ignorance to be fiercely encountered." Referring to the enthusiasm for education shown at the meeting he was addressing, Dr. Wilson continued: "Henceforth the diseases of the mind, mentally and morally, will be as steadily and as skilfully combated as the disorders of the body are remedied by those to whom the healing art is entrusted by the laws of the land."

It is asserted (our source of information is still the First Calendar of the College) that the education in boys' schools had mainly resolved itself into the cramming of information, ill chosen and ill digested; it is hinted that even the Universities are not altogether exempt from this charge; and it is further asserted that the education in girls' schools consisted mainly of external accomplishments. In regard to teachers, there is outspoken criticism of "incompetent and unworthy pretenders."

The College was constituted to combat these shortcomings. At a time when the education of the middle classes in England had sunk into lifeless formality, it is remarkable to hear this meeting of schoolmasters (held on

June 20, 1846) demand that, "for the protection of the interests both of the scholastic profession and the public, some proof of qualification, both as to the amount of knowledge and the art of conveying it to others, should be required from all persons desirous of entering the profession." Be it noted that from its very inception the College insisted upon pedagogic training.

The second resolution is equally interesting as indicating the feeling that the teaching profession is the right authority to brand its own herrings. The resolution runs: "That the test of qualification should be imposed by a legally authorized or corporate body or college consisting of persons engaged in tuition."

In order to gain the necessary status for the purpose of granting certificates of qualifications, the College decided to apply for a Royal Charter. The Preface to the First Calendar tells us that: "The principal arrangements of the College of Preceptors will be seen now to have assumed such a consistence and formation as will warrant their applying to be incorporated by Royal Charter. This step will be taken as soon as the collateral Institution for Ladies and the Assurance Department are fully organized. Such an incorporation, with its attendant privileges, is absolutely necessary that the scholastic body of the kingdom may in truth be a profession, and be equally in a recognized position as the clerical, legal, and medical professions." But though recognizing the value of a Royal Charter, the College was equally insistent upon freedom for individual work. At a meeting in January 1847 it was resolved that, "while the co-operation and sympathy of Government and of Parliament are desirable, the principle of perfect freedom in education is so firmly seated in the constitutional character and private feelings of the British people that any attempt to uproot it would be adverse to the steady advancement and lasting interests of education." State support without State interference was the demand in 1847, and is a still more insistent demand to-day.

Reference has been made above to the "Ladies' Department." It is to the lasting credit of the College that from the first it recognized the necessity of helping the

education of women and girls no less than that of boys and men. In the first half of the last century men and women were not accustomed to work together on public bodies, and it is not surprising that no lady's name is to be found either among those who promoted the formation of the College or on the first Council or in the list of the first six hundred members. But, simultaneously with its institution, the College provided for a collateral Ladies' Department (subsequently incorporated in the College) which should "promote the greater efficiency of schoolmistresses and governesses and protect their interests." The aims of this department are worth quoting: "To raise the standard of female education and imbue it with a more intellectual and higher character, thus capacitating ladies more adequately for their proper social position and giving a better tone to the education of the whole community"; and "to effect this by raising the test of the requirements and attainments expected in the instructors, to discourage the false impression that a few external accomplishments, however pleasing as an addition, are of themselves all-sufficient."

In these respects the founders of the College showed remarkable insight and foresight. At the same time the College established Registration and Agency Offices, an Assurance and Mutual Benefit Society, and a Benevolent Fund. We may point out one other matter in which the College was greatly in advance of the times. In the examinations in foreign languages the College insisted from the beginning upon reading aloud and conversation in the foreign language. Until comparatively recent days the College was alone in this necessary provision.

There has been some discussion lately in reference to the Mathematical Supplement of *The Educational Times*. It is thought by some members that the matter there produced has no very direct reference to the teaching given in secondary schools. When the College was founded no subject was so neglected as mathematics. Classics and accomplishments held sway. It is interesting to notice that Dr. Wilson, from whose inaugural address passages have already been quoted, says: "What glorious days will there be when the middle classes devote the energies of their minds not only to sound moral science, but also to the understanding of arithmetic, algebra, and geometry. . . . Let it be, then, one chief aim and boast of the College of Preceptors to restore and to recommend the truthful study of mathematics to the people of our great country."

History is best learnt by the study of original sources. The first Calendar of the College of Preceptors breathes in every line a lofty spirit of noble endeavour and a single-hearted desire to improve the educational opportunities for the children of this country in order that by learning they may attain to intellectual liberty and personal strength.

MR. HENDERSON, President of the Board of Education, informed Mr. King that since last August 1,004 elementary schools in England and Wales had been commandeered for military purposes.

NOTES.

IN the reorganization of the Government Mr. Pease has vacated the office of President of the Board of Education. He has been a hard-working and conscientious Minister, and has seen to it that the routine work of the Department has been carried on effectively with the minimum of friction and the maximum of courtesy. In addition to this, he has set the seal of official approval on more than one new development. During his reign Schools for Mothers have received official sanction and grants. His efforts to bring scientific knowledge to bear in order to meet the changed conditions of the country arising from the War are already making their influence felt. The Budget speech in which he spoke of the work done to bring science more into touch with manufacture stands conspicuously to his credit, no less than the dignified speech in which he stated that he had retired from the Board of Education. He is succeeded by Mr. Arthur Henderson, M.P. for the Barnard Castle Division of Durham and chairman of the Parliamentary Labour Party. Mr. Henderson joins the Government as adviser on labour matters. His appointment in no way indicates any change of policy in the Board of Education.

THE Teachers' Registration Council have made certain announcements that will do away with the last shred of grievance still cherished by a few of those who were registered in Column B of the late Register. The lost guinea has been a sore point to those who neglected to ask in time for its return. It is now announced that teachers who were registered in Column B may apply for registration in the new Register without submitting any certificates. The fact of registration in Column B will be taken as a sufficient qualification for re-registration, though the Council reserve the right to make inquiries if deemed necessary. Further than this, no additional guinea is required, and if a second guinea has been paid it will be returned. Teachers wishing to register under these conditions, or teachers wishing to claim the return of the second guinea, must make formal application to the Secretary of the Teachers' Registration Council, 2 Bloomsbury Square, W.C., before October 31, 1915. Ten thousand applications in all have now been received, and, in order to enable as many teachers as possible to be included in the first Official List of Registered Teachers, the date of publication has been postponed, so as to allow applications up to January 1, 1916, to be entered.

MR. ARTHUR ACLAND has been Chairman of the Teachers' Registration Council during the first three years of its existence, and he has now intimated that he does not wish for re-election. The post is not an easy one to fill. The choice of Mr. Acland was an especially happy one. He had been a member of Parliament and Minister of Educa-

tion. His experience in the West Riding of Yorkshire had brought him into close contact with schools of all grades and with the details of local educational administration. The Council is composed of teachers; the Chairman has to hold the balance between opposing sections and divergent views; he should be a man of wide knowledge and deep sympathy; he should not represent one section of the teaching profession, but should, if possible, be a politician and administrator. He is the connecting link between the Council and the Board of Education. We will not venture to prophesy before the event. We believe that two names are before the Council. The appointment of either will be welcomed; for each has special, though different, qualifications that render him eminently suitable for the post.

SIR PHILIP MAGNUS can look back upon some thirty or forty years spent in investigating the application of science to industry, and in making provision for scientific education in all its stages. His retirement from the active direction of the Department of Technology of the City and Guilds of London Institute, and the presentation of an address from the Association of Technical Institutes, gave Sir Philip an opportunity of a review of progress during the years of his work. "If you had seen these roads before they were made, you would hold up your hands and bless General Wade." When Sir Philip took up the question of technical education it was non-existent. Practical education did not exist in the elementary schools or in the secondary. The Universities gave little encouragement to scientific research. The State discouraged the teaching of science in application to trade or industry. Now all this is altered, and Sir Philip thinks that we have nothing to learn from foreign countries in reference to technical education. The Government has at last realized the close relationship of industry and science.

THERE is one point in reference to Circular 849 to which we must recur, because it appears to be misunderstood frequently in discussions that are held on the subject. The point is concerned with the leaving age of pupils in secondary schools. According to the definition of secondary education that is held by the Board to qualify for grants, a pupil should remain at school to the age of sixteen at least. With this definition we have no quarrel. We agree that to give the name of secondary education to a course of study that ends at fifteen is misleading. But we must face facts as they are. It is a fact that the majority of pupils in secondary schools leave before the age of sixteen. If, therefore, no examination is permitted for children under sixteen, then the majority will leave school without any certificate to satisfy themselves, their parents, and their future employers that they have attended with success a course of education in a secondary school. We may well look forward, and in fact we do look forward, to a time when no pupil under sixteen years

will leave a secondary school, and we may look forward to sixteen as the earliest examination age, but for the present we cannot do without examinations at the "Junior" stage.

THE Association of Education Committees at their annual meeting brought forward an interim report on the subject of Circular 849, in which it is stated that the matter is still under consideration. Mr. Spurley Hey criticized this indefiniteness with some severity, and said that, so far as Manchester was concerned, they objected to the Circular as it stood from beginning to end: they did not want one uniform examination for secondary schools. But the interesting part of the report is the indication given of the action of the Board of Education in dealing with Universities and professional bodies. We quote the paragraphs in full:

A reply has been received from the Board of Education recently to the effect that the University Examining Bodies have not yet completed the redrafting of their regulations showing the modifications they consider necessary and desirable to make their existing school examinations conform to the principles laid down in the Board's proposals. Consequently the time has not arrived for a formal request for recognition of the new certificates as carrying certain exemptions. The character of the negotiations, however, has been such that the Board do not anticipate any great difficulty in the matter.

The Board stated further that, having decided not to approach the professions until they were assured of a substantial degree of support for the proposals from educational bodies, they have only recently addressed themselves to this part of their task, but the progress already made is not, in the circumstances, unsatisfactory. As the negotiations are at present of a confidential nature, however, they do not see their way to give particulars.

IMPORTANT resolutions were passed at the forty-first Annual Conference of the Head Mistresses' Association, indicating a growing feeling that State organization must not be allowed to crush out private schools in the secondary sphere, as has already happened in the primary. The first of these resolutions urged the necessity of a survey of private schools, with a view of drawing up an "efficient list." In spite of all arguments to the contrary, the Board of Education alone can initiate this project and, with the help of the Local Authorities, carry it through. Until public opinion can persuade the Board, no action will be taken. Two further resolutions on the same subject were passed by the Conference: the one that no new private school should be allowed to open unless the Principal and a proportion of the staff were registered teachers; the other, that rate-aided schools should not be opened in localities suitably and efficiently served by private schools. Both of these resolutions depend upon a preliminary survey. Until there is official knowledge of private schools, and an assurance of their efficiency, there will be wasteful competition.

ON the subject of the scheme of reform for examination of secondary schools put forward by the Board of Education the Head Mistresses in their Conference have approved a series of resolutions that, while purporting to support the Board's

proposals, in reality would, if carried into effect, take all the backbone out of them. The first resolution offers a general welcome to Circular 849, "provided that the regulations are not made rigidly compulsory, and that reasonable freedom of action be reserved to the school authorities." But to remove the compulsion would be to kill the scheme. The Association approves of the principle that whole forms should be presented for examination, "but that liberty should be reserved to the head of the school to exempt pupils from examination." Again the natural dislike to compulsion crops up, but without compulsion the Board's scheme is null. The final resolution states that the Association attaches the greatest importance to the adequate representation of teachers on the advisory body and on examining bodies. Thus, while giving the appearance of approval, the Head Mistresses make it quite clear that they will not tolerate undue control.

MISS ROBERTSON'S presidential address, which we reproduce in another column, will be read with great profit. It ably expresses what we are all beginning to feel, and what some have felt and cried out about for many years: that is, the remoteness of school life and school training from the life of the nation. The real object of the period of training and preparation is to fit boys and girls to play their part in life. Certain restrictions under which children are brought up in surroundings that are limited and partly artificial prove useful, but the artificiality in the past has been made too great. There is a danger, a danger that has been felt and realized many times, that children after leaving school preserve the aloofness that characterized their early years, and look upon the life of the nation as something outside themselves with which they have nothing to do. Training must have a purpose: the real purpose is to develop our own powers to the highest degree for the use of the society—i.e. the nation—in which we live. This real purpose needs to be restated and to take the place of the artificial inducements to study that have been invented by the schools.

A CORRESPONDENT, who possesses exceptional opportunities for forming a sound judgment on the subject of school examinations, writes in reference to the proposals of the Board of Education for the examination of secondary schools: "The existing examination schemes were originally designed to meet the needs of schools, and they have been constantly modified so as to become adapted to changing conditions. It has been the practice of Examination Boards, by means of circular letters of inquiry and in other ways, to ascertain the wishes of the schools which make use of the examination as a test of school work. There would therefore seem to be nothing to prevent the schools from demanding, or the Examining Boards from supplying, any imaginable scheme. The Board of Edu-

cation may have rendered a useful service to the Examining Bodies and the schools by suggesting a new scheme which, in the opinion of the Consultative Committee, is an improvement on the existing schemes. But, that having been done, it would seem that the Board's task is ended, and that the schools and the Examining Boards may be left to decide whether the new scheme is acceptable. We may dismiss as unworthy of consideration the suggestion that the Board is prepared to force acceptance of the scheme against the wishes, and in face of the experience, of the examining bodies and the schools. Such a suggestion could be entertained only by those who have not yet understood the results of State control of education in Germany. Moreover, it might imply a misuse of departmental power which might provoke a public inquiry into the Board's discharge of the functions entrusted to it, and might create a distrust of the Board which would impair its usefulness for many years to come."

THE London Education Committee have approved of the following resolution concerning Circular 849:—"The principle of admitting individual students to the examinations without any regard to their place of education or to the circumstances of secondary school provision in a district would counteract any improvements effected by the remaining portions of the scheme." It is a melancholy sign when a publicly elected democratic body becomes so obsessed by official pride that it can see no good in any education outside its own schools. The effect of this resolution, if carried into practice, would be to debar from entrance to University, technical college, or any place of higher education, and to debar from entrance into any profession or occupation that is guarded by examination every boy and girl who has not been through a municipal or county secondary school. Pupils in private schools and pupils from elementary schools who have continued their education by private study would be alike cut off from any attempt to qualify for professional careers. The London Education Committee have been caught napping, and will have to rescind this resolution.

THE question whether employers of labour may exploit the services of young children on the ground that adult labour is difficult to get admits of only one solution. Of course, in the last resort, if we were confronted with starvation, education would have to yield to the necessity of supplying food. But we are as yet very far from this condition. A large amount of adult labour is available which has as yet been only partially organized for use. Women have begun field work, and more will do so. Schoolmasters, railway clerks, members of Volunteer Forces, and many others are offering their services for harvest work either during holidays or on Saturdays and Sundays. The children must be left till the last. The Bishop of Oxford writes: "The fact is that, in view of

the widespread indifference of parents, both wealthy and poor, to the importance of education, and the widespread prejudice against the education of the labourers among the farmers, we have no security against going backwards, unless the great host of labour in town and country can become convinced that *its security against servitude lies in education.*"

THE conditions of life to-day call for economy, but it is often difficult to decide where duty lies.

School Prizes. Economy in any direction probably means hardship to some individuals.

Workers cannot always adapt themselves at once to a new trade. We can only hope that the shortage of labour for some classes of work will be made good from among those who are thrown out of work by a lack of trade. We give below a pathetic appeal that has reached us. At the present moment books are less necessary than food and ammunition; but so far as possible we do not want any trade to be dislocated. We offer no opinion: every one must act according to his judgment.

There are two sides to every question. It is very praiseworthy on the part of the school boys and girls at the present time to give up the value of their prizes for charitable institutions such as the Red Cross Fund. But the workmen and workwomen who are employed in the production of these and other books should also be considered. Since the War broke out, the restrictions on school books have been very great, with the consequence that very large numbers of the workmen, workwomen, and workgirls employed by the various publishers and bookbinders throughout the kingdom have been thrown out of employment. Some binding firms have had to close down. The matter to these people is a serious one, as the nature of their work is such that they cannot readily adapt themselves to another kind of labour. Schoolmasters, therefore, will do well to consider the two sides of the question before finally deciding not to give school prizes as usual.

SUMMARY OF THE MONTH.

THE TEACHERS' REGISTRATION COUNCIL.

The Council has had under consideration the position of teachers who were registered in Column B of the former Register (1902-1908). Such teachers are asked to note that the Council has authorized the following announcement:—

1. Teachers registered in Column B who for any reason have not recovered from the Board of Education the fee paid on such registration will be accepted for enrolment on the present Register without further payment, provided that application is made in the usual way before October 31, 1915.

2. Teachers registered in Column B who for any reason have not recovered from the Board of Education the fee paid on such registration, but have paid an additional fee to secure enrolment on the present Register, will be entitled to the return of the second fee, provided that formal application is made before October 31, 1915.

3. Teachers registered in Column B who recovered from the Board of Education the fee paid on such registration will be accepted for enrolment on the present Register on payment of a fee of one guinea, provided that application is made in the usual way.

4. Teachers applying under 1 or 3 above are not required to submit certificates or testimonials, but the Council reserves the right to make such inquiries as it deems desirable concerning the *bona-fides* of any applicant for registration.

THE FIRST OFFICIAL LIST.

Owing to the recent great increase in the number of applications for registration, the Council has decided to defer the publication of the first Official List of Registered Teachers so as to include the names of all who apply before January 1,

1916. The List will be issued as soon as possible after that date, and in the meantime applications are invited from all qualified teachers who wish to become registered.

TEACHERS' INSURANCE.

The second Annual Meeting of the Secondary, Technical, and University Teachers' Insurance Society was held at the Botanical Theatre, University College, Gower Street, W.C., on Saturday, May 29, 1915. Sir John McClure, Chairman of the Society, presided over the meeting. The financial statement and accounts for the year were submitted by the Chairman of the Finance Committee. He said that he considered the financial position of the Society was most satisfactory, both with regard to expenditure on sickness benefits for men and women, and also on account of administration expenses. The Society hoped to be in a position later on to devote its surplus funds to additional benefits. He also stated that the Dividend Section of the Society had much improved, but that the Committee would like to see its membership considerably enlarged.

"CHILD LABOUR AND EDUCATION DURING THE WAR AND AFTER."

The Workers' Educational Association has just published a pamphlet on "Child Labour and Education during the War and after." Within the compass of thirty pages it examines the position of the child (any person under fourteen years of age) under the existing law, and presents in a comprehensive form the regulations which enable children to be exempted from school for the purpose of industrial, agricultural, and general employment. It directs special attention to the large number of children who, as early as eight years of age, are set to work for wages *outside* school hours. But the immediate value of the pamphlet lies in the information it contains in regard to the relaxation of by-laws for the employment of children in agriculture, which has taken place since the War broke out. This tendency is examined as it is working itself out among Local Education Authorities. The fullest statistics are given, and the danger of the further employment of children in industry generally is indicated. To meet the immediate difficulties checks and safeguards are advocated, and certain practical reforms are advanced in regard to the education of children generally.

AMERICAN UNIVERSITIES ADOPT RATIONAL SPELLING.

The American Simplified Spelling Board reports that over a hundred of the colleges have officially recognized spelling reform. They have adopted certain simplified forms in official correspondence and publications, and have sanctioned their use by students in their written work. Among the colleges are the University of Missouri and the University of Minnesota, two of the leading American State Universities.

THE MISTRESS OF GIRTON.

I hear (says the London Correspondent of the *Manchester Guardian*) that Miss E. E. Constance Jones, the Mistress of Girton College, is resigning her position at the end of the next academic year. Miss Jones has been associated with the fortunes of Girton during the greater part of her life. She entered as a student in its first decade. The struggling college was opened in the first place at Hitchin in 1869, owing partly to the prejudice of academic Cambridge in those days against a women's college in its midst. During her twelve years as a mistress, Girton has grown in reputation and prosperity. The number of students has now reached the maximum of a hundred and fifty. Many improvements have been made, and opportunities for research and post-graduate work very greatly extended. Miss Jones has found time for outside interests and activities. She is on the governing bodies of the University College of Wales, the Cambridge Training College, and the County School for Girls. She is a very well known personality in Cambridge, where her active interest in University affairs, the part she takes in its social life, and her unflinching kindness and hospitality have won her universal regard.

DINNER TO SIR HENRY MIERS.

Lord Rosebery, as Chancellor of the University of London, presided at a complimentary dinner to Sir Henry Miers, Principal of the University, to express their sorrow at his approaching departure, and to wish him God-speed in his new duties at Manchester. After the toast of the King, Sir Alfred Pearce Gould proposed the Allies, and then the President in witty, humorous, and yet regretful language, dwelt on the extreme urbanity, industry, and anxiety to keep things going which had characterized Sir Henry's seven years' tenure of office. Sir Henry, in his reply, after touching on the varied and difficult activities of the principalship and the delight he had taken in his work, asked why, then, had he determined to leave London for Manchester. He would not have them think he had been coquetting with other Universities. But when the offer came to him, unsought and unexpected, it happened to come at a time when it seemed to him that much which he felt able to do for the University was already done, and a new hand at the helm might be a distinct advantage.—(The *Manchester Guardian*.)

PRESENTATION TO SIR P. MAGNUS.

Sir P. Magnus, M.P., was the guest of the Association of Technical Institutions at dinner in the Carpenters' Hall, London Wall, and was presented with an address in which, on the occasion of his retirement from the active direction of the Department of Technology of the City and Guilds of London Institute, the Association expressed high appreciation of the eminent services which he had rendered to the advancement of technical education since his appointment thirty-five years ago. The address was accompanied by gifts of a scarf-pin to Sir Philip and a silver urn to Lady Magnus.

THE PRIVATE SCHOOLS SECTION OF THE COLLEGE OF PRECEPTORS.

The Private Schools Section held a General Meeting on Tuesday, May 11. The Officers and Committee were re-elected *en bloc*, and it was resolved that the General Meeting should take place annually in May, and that the Committee should meet in February and October and at other times as necessary. A letter from one of the members, whose long service to education merits better reward than it has found, was passed on to the Finance Committee of the College with cordial recommendation, and a generous grant from the Benevolent Fund has resulted. The meeting considered Circular 849, the clauses of which met with disapproval and a general, though not formal, assent was given to the resolutions of protest and criticism drawn up by the Private Schools Association.

CONFERENCE OF NEW IDEALS IN EDUCATION.

A Conference of New Ideals in Education will be held this summer from August 14 to 21. It is practically a sequel to that held under the Montessori Society at East Runton last summer. Papers will be read by Mr. E. S. G. Holmes, on "Ideals of Life and Education"; by Mr. Christopher Turner, on "Agricultural Education as applied to Village Schools"; by Prof. Nunn, on "Freedom and Discipline"; by Mr. H. Tunaley, on "Drawing"; and many others. Among those who have consented to take the chair are the Earl of Lytton, Earl Grey, F. R. Benson, and Dr. Kimmins. One whole day will be devoted to the work of the Montessori Society and another to the discussion of infant education, specially with regard to large classes. For particulars apply to the Conference Secretary, 24 Royal Avenue, Chelsea, S.W.

EMPIRE DAY CELEBRATIONS IN THE LONDON SCHOOLS.

Empire Day was celebrated on June 11 by nearly three-quarters of a million children in the public elementary schools of the London County Council. Its customary date coincided this year with Whitsun Monday, and the celebration had, therefore, to be postponed. The children were assembled in the playgrounds in the morning. Songs were sung and addresses were delivered by teachers in which emphasis was laid

on the special significance of the celebration this year. About a thousand children from the seven elementary schools in the City joined in a special celebration at the Guildhall. The Lord Mayor presided and unfurled the Union Jack, and Sir George Reid, High Commissioner for Australia, gave an address. Mr. J. W. Gilbert, Chairman of the London Education Committee, said that 1,500 teachers from the London schools had volunteered for service. It was difficult to estimate the total number of old boys serving, but ten schools had contributed an average of nearly three hundred each. Telegrams were sent on behalf of the children to Sir John French and Sir John Jellicoe thanking our soldiers and sailors for their protection.

WOMEN ASSISTANTS IN GROCERS' SHOPS.

The London Education Committee is recommended to sanction a six weeks' experimental course of instruction at the L.C.C. Trade School for Girls, Hammersmith, for the purpose of training women for employment as grocery assistants. The Board of Trade have asked for the training of a hundred women, who are needed at once, but it is considered by the County Council Authority that in the first instance, a class should be conducted for thirty, with a repetition on two occasions of the experiment if that should prove successful. The cost of the three courses will be £819. It is generally admitted (reports a Sub-Committee) that the War has only hastened a condition of shortage of men assistants, which was already causing difficulty, and it is generally stated that it is anticipated that the employment of a great proportion of the women introduced will be permanent. It appears to be generally thought that after the War most of the men will not return to the counter, as they will find shop life too restricting and irksome.

TEACHERS' GUILD AND CLUB.

The new premises of the Teachers' Guild and Club at 9 and 10 Brunswick Square, W.C., were formally opened by Sir Henry Miers, Principal of the University of London, on May 8, 1915. The chair was taken by Canon J. Howard B. Masterman, President of the Guild. He remarked upon the generosity of the members of the Guild, which had enabled the Council to take the new premises. Still £200 more were wanted in order to complete furnishing, and he hoped this would be forthcoming.

Sir Henry Miers emphasized the good work which had been done by the Guild in the past. He said that the ideals for which the Guild stood rendered it a continual protest against undue specialization, and he said that in the case of the present Teachers' Registration, the initiating force had been the Teachers' Guild, and also that the extraordinary meeting and association of educational societies every January was the outcome of an effort made by the Guild to bring together, to unify, to co-ordinate, and to introduce a feeling of solidarity into what were tending to become groups of isolated societies. Further, he mentioned that the new Society of Education had been founded by the efforts of the Guild to promote the scientific study of educational problems. He wished the Guild and the Club continued success. A vote of thanks was then proposed by the Vice-Chairman of the Council, Miss H. Busk, and seconded by Mr. Storr.

Afterwards the visitors—about a hundred and fifty in number—made a tour of the buildings. Music was provided by Miss Jackson, A.R.C.M., of Norbury and West Norwood School of Music and some of her pupils. Miss Holten, Graduate of Smith College, Massachusetts, U.S.A., gave some recitations.

PROFESSIONAL CLASSES WAR RELIEF COUNCIL.

The Report of the Education Section, of which Sir John McClure is Chairman, is as follows:—

Families helped, 84; boys, 77; girls, 57. Among the parents are artists, architects, surveyors, stockbrokers, engineers, musicians, solicitors, clergy, coaches, teachers, schoolmasters, authors, journalists, analytical chemists, secretaries, actors, craftsmen, and

dentists. In a number of cases the father has enlisted. The total expenditure on education has been £1,120.

Three lines of education are adopted—boarding schools, day schools, and hospitality with home education. Education at school is rendered possible in a greater number of cases by reason of the generous co-operation of the head masters and head mistresses, who have in some cases remitted altogether, and in others greatly reduced the fees. Governing bodies have often increased scholarships given before the War. In some cases, especially where the school itself has suffered from the War, full fees are paid by the Council.

Another section of the work of the Education Committee is in connexion with private schools. Where children have been removed from schools or have not previously been sent to school, the Committee places them at schools which have lost pupils through the War, and which, but for this form of assistance, could not be carried on.

AN APPEAL TO SCHOOLS.*

SINCE I last had the privilege of speaking to fellow-workers, the world has changed beyond recognition. A great gulf divides us for ever from that safe and tranquil past in which the civilized world, or the world which we fondly believed to be civilized, lay all before us where to choose, whence to draw knowledge, delight, inspiration, and that sense of fellowship among men of good will in which lay, and lies, our best hope for the future. We stand by the ruins of the world in which we lived, as men may stand by the scene of a vast conflagration or shattering earthquake. Not yet is rebuilding possible; hardly in our own day shall we see the new Europe arise as a Phoenix from the flames.

The field of thought opened up by the amazing events of the last year is wide as humanity itself. We are all exploring it in many directions and learning much as we go. I will confine myself to one small corner of the field—that corner which we may call our own. What of the schools? What part have they played in the national upheaval? What strength—and, above all, what weakness—has been revealed? The first blow, as we all remember, found schools and scholars dispersed for the holidays. We had to thank the President of the Board of Education (Mr. Pease) for the noble letter addressed to his "Colleagues in the National Service of Education," which gave both help and guidance in taking up work once more under bewildering conditions.

From the first outbreak of hostilities, head mistresses, with fellow-teachers, have taken a share more or less according to opportunity in national work. One of our Vice-Presidents was among the first to organize a scheme of Red Cross work for present and past pupils, and to put it into operation. Many of our members had been enrolled long before the War under the Red Cross Society, and were ready to take part in its manifold activities. By the zeal and energy of Miss Gray the Girls' Patriotic Union was formed in the early days of August, and, under the gracious patronage of Princess Mary, has been the means of guiding and promoting much useful work for the public good in schools, both large and small, public and private. And if, taking a wider survey, we look beyond our schools, never before has the work of women found such scope or such public recognition. Much fine work has been conceived, undertaken, carried through. To those who can remember the pioneer days of medical women, the urgent appeals from public men and public bodies for their services, for an increase in their number, brings a peculiar and triumphant satisfaction.

First and foremost, then, we must name the doctors, nurses, and organizers of hospitals, especially those gallant Scots-women who have gone to the aid of Serbia in the face of dangers and difficulties which might well daunt the most intrepid. At home the Women's Patrols have undertaken a task hardly less difficult, if less hazardous, to bodily life. The Women's Emergency League has justified its name by its

* Address of the President (Miss Robertson, Christ's Hospital) at the forty-first Annual Conference of the Association of Head Mistresses, June 12, 1915.

readiness to tackle every problem as it presented itself. Up and down the country women have mustered under the Red Cross, in Voluntary Aid organizations, and have done their work ungrudgingly. And, I suppose, almost every woman, girl, or child in the Empire has made or given some offering for the comfort and succour of our gallant defenders on land and sea.

Then, in March of this year, came the direct appeal to women to take part in the work of the nation and so to set men free to fight for our country. To many of us this seemed to be the call for which we had been waiting. For the War, with its searchlights turned mercilessly on hidden weakness, has revealed what some of us may have suspected uneasily before—namely, the remoteness of our schools and the training therein given from the national life; the fact, to view it from another aspect, that in the national framework, organization or non-organization, schools have no definite or recognized place or function. Their preparation for life is directed to no definite end—the service of the community, the country, the Empire is not explicitly aimed at. And so, in days of peace, the splendid capacity for service, for devotion, which our young men and maidens alike possess, dwindles and dies down for want of a clear call to tasks worthy of such devotion and needing such service. This is, to some extent, true of all schools, but boys' schools have of late years had at least the Officers' Training Corps (the O.T.C.), and have thereby been brought into touch with one branch of national service, with the branch, moreover, which at the present moment is of primary importance. How many of us have envied our brothers in this respect! How gladly would we have guided our girls at the onset of War into some such activity by which hard work, ardent effort could be definitely and unmistakably spent in the service of our country. Yet, much as I have desired some such organization during the past months, much as I hope that something of the kind may yet be evolved—some scheme, for instance, such as Miss Lowe will bring before us this afternoon for introducing the elements of "Red Cross" work into our schools—still it would not have covered the whole ground. We are not always—I pray that we may not be much longer—engaged in War. But the State is always with us, and surely its claims are as vital, if not as clamorous, in peace as in war.

Milton's stately and philosophic definition of the aim of education strikes a pang in the conscience of most of us. Can we flatter ourselves that we are fitting men *and women* to "perform justly, skilfully, and magnanimously all the offices, both private and public, of peace and war"? The words gain in force and sincerity when we recall that their writer "thought it base to be travelling for his pleasure abroad while his countrymen were contending for their liberty at home," and that he was content to use his great gifts in a lowly office for the service of the commonwealth. Do such words fit our own efforts? Is it not true that school life and training are remote from national life—that they suffer from a lack of definite and patriotic aim?

A writer in the *Literary Supplement of the Times*, April 8, 1915—surely the same writer who has earned the unspoken thanks of many for his uplifting words during these dark months—draws a picture of youth at the University, before the War, in language which may be used even more truly of school:

Artificial tasks were set us or we played our games. We looked out upon life as children in the nursery look down at the street. . . . As for the struggle for life, and all these anxieties and heroisms and basenesses that come of it, we left that out of account altogether. Life was all a spectacle or a play to us.

Is not this a true picture of the children and youth of our nation on the eve of the greatest catastrophe that nation has yet known?

That acute observer, Mr. H. G. Wells, attributes this attitude of the mere spectator to our whole nation, and finds in this the explanation of our slowness to recognize the inward significance of the titanic struggle on which we have entered. But I am concerned—we here are concerned—with schools and their work, and I will confine myself to that sphere. Our

training has been artificial and unreal, we are told. We have turned out, in increasing numbers, spectators, and not actors in the drama of life. Artificial, in some measure, all training of the young must be which exceeds the simplest parental rearing. Artificial, in some measure, it should be, since young and tender plants cannot survive if exposed from the first to the free play of all hostile elements. But we have, it may be, made the common human error of mistaking means for ends, and, assuredly, absorption in what is after all an artificial world is a dangerous preparation for life as it is.

Where have we failed? How is it that the sense of citizenship, of civic responsibility, weak in the nation as a whole, is weak in schools. Is it only to be roused and kept alive by a tremendous crisis such as that of to-day? And are we, as lovers of peace, willing to own that peace is not only less urgent, but less inspiring, in its appeal to the human spirit than war with all its heartbreak and horror? Some find a remedy for the defect of which I speak in direct teaching as to the duties of citizenship in instruction in civics. Of this, too, I hope we may hear more this afternoon. Such teaching is urgently needed, is invaluable where it may be had, but I am not inclined to advocate it as a general panacea—for three reasons at least—over and above a constitutional distrust of panaceas. One is that I am reluctant to advise any addition to an already overloaded curriculum; another that competent and enthusiastic teachers are at present rare, and another still more cogent reason is that such teaching by itself is inadequate; at best it can reach but a few. What is needed is a complete change of attitude on the part of teachers and taught alike, a shifting of the centre of gravity, so to speak, from the individual, or the little community of school, to the larger community, to the State itself. In our earthly relations the chief sphere of woman has been held—rightly, as I think—to be the home; but the over-stressing of that truth often led in the past to unwholesome narrowness and pettiness in the art of life, with an impatient reaction as its consequence.

To many girls at least school and college have represented a wider and freer world, in which powers, faculties, and affections find fuller scope. But has this widening brought in its turn the same danger—the danger of ignoring the greater world beyond, of being content with the achievement of small successes, with the passing of pleasant hours, the overcoming of small difficulties? And, further, have we not all, in home and school alike, made present happiness and ease our chief aim? The facile aspiration of the “man in the street” who would like to “give the kiddies a good time” has been adopted, in more correct language no doubt, by too many in mistaken good will to the young.

We have been warned by an acute and philosophic observer that one result of the War will be an extension of the direct control and authority of the State. The nationalization of railways and of many industries, so long desired by some and opposed by others, in an accomplished fact for a time at least, and the prophecy is in some measure already realized. If this is the development in store for us, then, unless the autocracy of the State is to result in a soulless and irksome tyranny, the intelligent and voluntary co-operation of all citizens is essential and training in citizenship is more than ever of importance to us all. But, for the immediate present, political and economic developments are hard to discern through the smoke of battle. What is the present task? How can we condense the ardent desire of service in our girls into that patriotism of which the Empire has most need—into that sense of common duty, of civic responsibility, which will give them a worthy aim for the common life? I do not forget—rather, I would thankfully acknowledge—that the State is well served whenever a God-fearing, dutiful, capable boy or girl, clean of heart, clear of head, skilled of hand, goes forth from our schools into the world. But I maintain—and for myself I confess with sorrow—that among the aims set before our youth, the service of the commonwealth has been too little stressed, even when not overlooked altogether. *Conscious* preparation for such service has been—Heaven forgive us!—limited to the preparation of a few for a written examination. Beyond success in such a test imagination hardly ventures, or at best sees secure employ-

ment, followed in the remote future by a pension as the ultimate event. Yet, just as in the highest sphere we may humbly call all honest work and effort the service of God, so on a lower, yet still a high and noble, level, we ought surely to regard all such work as due service to the State.

What, then, are the chief aims to set before us in impressing duty towards the State upon our children? What meaning are we to put into that august word “patriotism,” which has even, incredible as it may seem to our Allies, acquired a tinge of discredit in certain quarters. I think we shall learn much from considering what defects have been revealed during these months of fiery trial. On the one hand we have the constant invective of our enemies, the picture held up to reprobation of England and the English. “Caricature!” no doubt we cry indignantly. Yes, but behind the caricature there must be some recognizable outline.

Our bad neighbours . . . are our outward consciences,
And preachers to us all.

On the other hand we have, amid the monotonous self-complacency of our popular press, occasional querulous complaints, unwilling statement of unwelcome facts. And each of us has, no doubt, amid much that rouses thankful and wondering pride, known instances of failure, of poor response to the call for work and effort.

Three causes which have hindered our national welfare are surely the contempt for work and for that knowledge which can be gained only by steadfast work, an inordinate appreciation of wealth, and the lack of discipline, especially of self-discipline, making us slow to subordinate personal aims, advantage, and opinion to the common good. Can we honestly say that these evils are absent from our schools? To take the first. We are constantly told in the enemy press that Englishmen will not work—that they are wholly given up to sport and ease, to love of money for the sake of sport and ease which money brings. Again and again we are told, not only by our enemies, that, while Englishmen are often inventors, the patient, laborious application of invention is due to other hands and other lands. It needs no telling to assure us that an immense amount of everyday work in England is badly done—badly because half-heartedly, with no real intelligent interest. Partly this is due, I am sure, to the attitude, half snobbish, half noble, adopted by many teachers towards what are called utilitarian studies. If any attainment can be a means of wage-earning, it is thereby suspect in the eyes of some most superior persons. If it is unlikely to be of any use, so far as any true knowledge can be deemed of no use, it thereby acquires mysterious intrinsic virtue. I am sure that this is, in part, the cause of the inordinate interest in games and sports in our schools.

The writer in *The Times* whom I have already quoted had, I think, this attitude in view when he wrote of the “old futile disinterestedness about nothing.” To pursue any calling with purely selfish ends is to make it ignoble, but, on the other hand, to brand all work for profit as mere money-grubbing is Pharisaic and belittles human nature. Distasteful drudgery has been more and more eliminated from the life of children in our schools, though it is more and more the lifelong fate of many toilers. We see the result in the shirking and scamping of much necessary work in the world. The example of thousands of recruits in the new Armies shows us that the power of enduring hardness is not lost to our race. Let us seek to restore in our schools the honour due to work, hard, uncoaxed, uncomplimented work. And, as an antidote of the love of money and of costly comfort, we may, we must, revive in our schools the unfashionable and unpopular practice of thrift. The waste, public and private, in recent years has been sinful and calls for judgment. At the present moment national funds are being poured out like water, and I feel sure, without imputing blame, that there is colossal waste because habits of years are not easily corrected in a moment, nor likely to be corrected at all in periods of emergency.

It is amazing that the country as a whole has felt so little the pinch of need, yet the huge bill will have to be met, and we should prepare betimes to meet it. Thrift, self-denial, self-

restraint, practised now by many for those on service, must be learnt and practised in our schools with increasing zeal and strictness. I would heartily support the maxim of a recent educational writer that "nothing which boys (and girls) can do for themselves should be done for them by paid labour." Work and thrift are splendid instruments of discipline, and especially of self-discipline. We heard last year a vehement condemnation of discipline as hostile to all the finer elements of life. With that condemnation I sympathize so far that I believe in discipline only as a means, not an end in itself, and I hold that all discipline which does not produce self-discipline is vain. But that girls and women of the present day are suffering, with all the nation, from grievous want of discipline, external and internal, no one surely can dispute. Unprecedented liberty, combined with a simultaneous relaxing of parental control, of religious authority, and of social convention—these causes have united to make the path of the young in our days a broad and slippery one. And, further, both at home and at school, the period of childhood, of irresponsibility, is surely unduly prolonged. No one wants to see old heads on young shoulders, but to shield boys and girls from all the hard facts of life, to give them no real responsibility, to ward off all disappointment, and avert the natural penalty of folly or heedlessness—this is to treat them not as children, but as puppets. The experiments in self-government among children of unpromising antecedents in the "George Junior Settlements" may well put to shame the helplessness and inanity of more favoured youth.

I shall probably be told that the girls whose frivolity and folly have distressed many are not those who have passed through our schools. Let those whom this flattering unctious consoles make the most of it. If we can influence only those actually in our own schools our work is narrow indeed. My own belief is that folly, frivolity, inordinate interest in dress, and absence of high aspiration are weaknesses affecting every class and assuredly permeating every school. Work, thrift, self-discipline, no new counsels or aims—by what new sanction can we commend them more impressively, more fruitfully than before, to our scholars? Surely by that sense of duty to the State, of responsibility to the whole community, which has been burnt in upon our minds in these last months and which must not be allowed to wane with the passing of the War.

I spoke last year of co-operation and unity among teachers. Since then we have had cause to give thanks for the closing of our ranks at home, for the co-operation of classes and of masses of our distant kinsfolk and fellow-subjects, in the defence of the Empire. Again, is it to be thought of that this splendid spirit of brotherly devotion evoked by the War should die away or decay in time of peace? We have laboured, we still labour, to succour the sailor, and soldier, the wounded, the refugee. Shall we, when peace comes, care nothing for the many sufferers in our midst whose wounds are inflicted for us, as truly as any now struck in battle? We need not move far from our own calling to find a piece of national service languishing for lack of workers.

The shortage of elementary teachers was serious last year. This year men teachers have enlisted in large numbers, and the position is more serious still. Can we do nothing to fill the gaps and to send whole-hearted students into the schools and colleges not merely to carry on the work at its present level, but to lift upward with fresh zeal and enthusiasm the training of the nation. Many tasks await us: the training of the girls committed to our care so that they may help to build a new and better world is our first charge. But, if our sense of duty to the State is alive and active, the education, the vital training of all our people is the setting in which alone our task finds true proportion and significance. We can no more be content with the prosperity of our own schools while the elementary schools are understaffed and thereby hindered in all their activities than we can be content to enjoy ease and safety at home without a thought of the lives laid down at the Front for our sake.

David poured out upon the ground the water that had cost the lives of men—too precious to drink, to put to any common use. We valued too lightly the days of peace while they yet

lasted. When, by the mercy of Heaven, the days of peace return, purchased by innumerable lives—lives beyond all price—let us put them to no common use, but make peace, so hardly won, as glorious as war, with as full a sense of brotherhood and of high purpose. Let us learn ourselves and teach our children, in Florence Nightingale's noble words, to "study how to do good work as a matter of life and death," and to "'agonize' so as to obtain practical wisdom to do it." Such work, such wisdom the nation sorely needs. Such work, such wisdom alone can lead individuals and nations to the Eternal Goal.

THE ASSOCIATION OF HEAD MISTRESSES.*

THE forty-first Annual Conference of the Association of Head Mistresses (Incorporated 1896) was held on June 11 and 12 at the Walthamstow County High School for Girls, by kind invitation of Miss Hewett, the Head Mistress, late Treasurer to the Association, and permission of the Walthamstow Higher Education Committee. This is the first time that the Association has held its Annual Conference in a school under the jurisdiction of a Local Education Authority. The President, Miss ROBERTSON (Christ's Hospital) presided, and over two hundred members were present.

A message of thanks to the Right Hon. A. H. D. Acland for all his memorable and valuable services in the cause of education and of gratitude to him for his work as the first Chairman of the Teachers' Registration Council was carried with acclamation.

The following resolutions were carried:—On the proposal of Miss MAJOR, M.A. (King Edward's High School, Birmingham), seconded by Miss TANNER, B.A. (High School for Girls, Nuneaton):

- (1) That this Conference considers a survey of private schools to be indispensable to the progress of educational efficiency, and urges that such a survey should be undertaken as soon as may be practicable, with a view to drawing up a list of efficient private schools.
- (2) That this Conference is strongly of opinion: (a) That no new private school should be opened of which the principal and a proportion of the staff are not registered teachers; (b) That rate-aided schools should not be established in a neighbourhood suitably and efficiently served by existing schools.

Proposed by Miss F. GADESSEN, M.A. (Blackheath High School), and seconded by Miss LEWIS (High School, Southend-on-Sea):

THE BOARD OF EDUCATION'S CIRCULAR 849.

- (1) That the Association of Head Mistresses welcomes the scheme of reform in examinations outlined in Circular 849, provided that the regulations are not made rigidly compulsory and that reasonable freedom of action be reserved to the school authorities.
- (2) That it is desirable that (a) the unit for the First Examination should be a whole form and not selected pupils, but that (b) liberty should be reserved to the Head of the school to exempt pupils from the examination.
- (3) That in regard to the Second Examination, this Conference earnestly desires that it should be permissible, but not compulsory, to take the examination in two parts and in successive years.
- (4) That success under approved conditions in the Second Examination should exempt from University Intermediate Examinations, including the First Medical Examination, but without curtailing the length of the University Degree course.
- (5) That Universities, Local Education Authorities, and other bodies be requested to take into consideration how far they could utilize the Second Examination, in whole or in part, in the award of their scholarships.
- (6) That the Association of Head Mistresses attaches the greatest importance to the adequate representation of teachers on the Advisory Committee and on Examining Bodies.

Proposed by Miss OLDHAM, M.A. (Streatham Hill High School), and seconded by Mrs. BRYANT, D.Sc., Litt.D. (North London Collegiate School):

That this Conference regards the admission of specially qualified women to higher administrative posts in the Civil Service as urgently necessary to the welfare of the nation in view of the situation created by the War, and respectfully submits that the recommendations on this point of the Royal Commission on the Civil Service should now be put into effect.

Proposed by Miss LEAHY, M.A. (Croydon High School), and seconded by Miss PAUL, M.A. (Clapham High School) :

That this Conference, being convinced that the sound education of children under ten years of age is of vital importance to their further progress, regrets that many children attending neither public elementary nor secondary schools receive no efficient education in early years, and recommends that preparatory departments be attached to secondary schools wherever this is possible, and that pupils in such preparatory departments be eligible for grants from the Board of Education.

Proposed by Miss LOWE, M.A. (Leeds Girls' High School), and seconded by Miss OLDHAM, M.A. :

That in the interests of national education it is expedient that in the award of "free places," while the majority of such places shall be reserved for children from public elementary schools, some places shall be thrown open to all children of parents whose income falls below a certain limit irrespective of the place of previous education, such free places to be included in the percentage qualifying for the grant.

On Friday evening a private meeting was held of members serving on Local Education Authorities and Heads of schools under Municipal and County Authorities, under the chairmanship of Miss BURSTALL, M.A. (Manchester High School for Girls).

On Saturday, Miss BURSTALL presented the report of the meeting and proposed the following resolutions, which had been formulated by desire of the meeting :—

(1) That, while recognizing the urgent necessity for increasing the supply of elementary teachers, especially during the period of War, this Conference would regret the re-establishment of the old pupil-teacher system as a permanent part of the educational system of the country.

(2) That an alternative qualification is desirable for Junior assistant teachers in elementary schools.

(3) That pupils be not drafted from elementary to secondary schools above the age of thirteen without some security that they are intellectually and physically capable of reaching at least an average standard of attainment; the head mistress of the secondary school should in all cases have the right of veto.

These were seconded by Miss OLDHAM, M.A., and carried.

On Saturday morning the PRESIDENT delivered her address, which dealt with the weaknesses of our educational system revealed by the War.

Miss Escott, Head Mistress of the Sheffield High School, was elected President for the years 1915-1917. Miss A. J. Cooper was re-elected an Associate Member of the Society, and Miss Bell, B.A. (Sutton High School), was elected Treasurer. The following are the newly elected members of the Executive Committee—Miss Faithfull (Ladies' College, Cheltenham); Miss F. R. Gray (St. Paul's Girls' School); Miss Hewett (Walthamstow County School for Girls); Miss Stoneman (The Park School, Preston); and Miss McCrea (Stafford Girls' High School).

Saturday afternoon was spent in consideration of the Report of the War Committee, which included discussion of the following subjects : (a) "Work of the Professional Classes War Relief Council" (introduced by Miss Morrison (Francis Holland Church of England School for Girls, Graham Street); (b) "War Service for Women" (Miss Oldham, M.A.); (c) "Future Openings for Women in Professions" (Miss Faithfull, M.A., Ladies' College, Cheltenham); and (d) "Junior Red Cross Work in Schools" (Miss Lowe, M.A.).

The vote of thanks to the hostess, which included the thanks of the Conference to the Chairman of the Walthamstow Higher Education Committee (Mr. E. J. Naldrett) for his welcome and an expression of gratitude to the staff of the school, was proposed by Miss E. A. PHILLIPS (Clifton High School) and seconded by Miss SAVILL (Lincoln High School), and was acknowledged by Miss HEWETT. The Conference concluded with the singing of the late J. Elroy Flecker's version of "God Save the King."

MERTON COLLEGE, Oxford, has undertaken to provide the whole payment of £900 a year to the Professor of English Literature, thereby voluntarily adding £500 per annum to its statutory charges for University purposes.

THE boys of Oundle School, Northamptonshire, are taking on the manufacture of munitions of war. By the courtesy of a neighbouring firm of engineers the school is supplied with work of a varied character connected with mines, torpedoes, and torpedo-boats. Boys give one full day per week to the work, and work in batches of twenty-five to thirty, so that about a hundred and eighty boys (the great majority between the ages of fourteen and seventeen) are thus employed.

SÉGUIN.

By R. P. H. BLORE.

I.—INTRODUCTORY.

DURING the last few years another great educator has added her name to the long list of those who, from the time of Plato and Aristotle, have laboured in this field. There is something unique in the fact that the greatness of Mme Montessori is recognized in her own time, and, although it is perhaps too early to estimate her work at its true value, it seems that her principles will have an abiding influence in the school of the future—not only in the early stages to which at present she has confined her labours, but even in the primary and secondary branches of education. Her rise to fame, however, must bring another too long forgotten and unappreciated educator into notice—to add his name to the roll of fame, to let him take that place among Comenius, Locke, Rousseau, and Pestalozzi, and other great educators, which is his due. At present he is chiefly known, if known at all, as one of the inspirers of Montessori. Fortunately there are signs that his true merit is beginning to be recognized.

To give the reader some idea of the neglect which has overshadowed the work of this great man, I may mention that I have vainly searched for his name in the various histories of education, even in that most French of histories, Compayré's "History of Pedagogy"; Larousse's Dictionary and Encyclopædia knows him not. In Culverwell's book on the Montessori Principles and Practice, the author states that he had to send to Columbia University in America for a copy of Séguin's great work.

In the library of one of the chief educational institutions in this country—perhaps the one which, above all others, has directed attention to the need for the teacher to study his art, which was the first to inaugurate a course of lectures dealing with the science, art, and history of education—the writer found a copy of Séguin's "Traitement Moral Hygiène et Education des Idiots," published in Paris in 1846. The librarian informed me, while apologizing for the condition and appearance of the book, that it had never before been asked for. The pages were uncut, and on the book being opened, as is the habit of French paper-backed books, it almost fell to pieces. But what has the teacher of normal children to learn from the education of idiots? The answer will be left to the reader to gather for himself from this effort to extract the main principles from this long work which extends to over seven hundred pages. Séguin himself says that in writing about the development of idiots he has been forced to write also a treatise on Education :

While setting before myself as the end the treatment of young idiots, I was continually brought back by the bearing of my subject to inquire concerning methods, to weigh theories, and to discuss the practice of teaching.

If all the methods which I examined seemed good for normal children, with idiots they lost their efficacy in proportion as I tried to apply them. Not one of them laid sufficient emphasis on the physiological and psychological anomalies to which the individual is susceptible. Proceeding thus always by the method of elimination, as I advanced in my critical examination of methods, I found myself not only isolated in my attempt to treat idiots, but also in the work of general pedagogy, which I saw that I must formulate more precisely each day. So it happened that instead of writing as I wished, one book on a unique subject, I am afraid I have written two—one on idiocy, and the other on education. For such is the force of thought that one of these questions cannot be resolved without the other, and I have been obliged to solve the second in order to obtain the solution of the first. Again, the problems dealing with mankind are interwoven to such an extent that, instead of a simple question of idiocy, I found myself involved in questions of hygiene, physiology, education, and ethics, which are unavoidably bound up with it.

Before claiming any merit himself, Séguin gives due honour to those who have preceded him in this special work. The first is his illustrious master Itard, for whom he claims the credit of being the first who had endeavoured to educate an idiot for a scientific object by the use of scientific principles.

He, by the education of the "Wild Boy of Arveyron," was the pioneer of this branch of work. This specimen of bestial humanity was brought to Paris and all the intellectuals of the day went mad with enthusiasm and thronged to see the spectacle: "They thought they had found Condillac's statue, a sort of living mechanism of which it was only necessary to touch the springs in order to produce operations of the intelligence."

But this enthusiasm soon evaporated, and was replaced by disgust at the revolting actuality. The unfortunate Wild Boy was abandoned, and was found in a school of deaf mutes in Paris by Itard. For five years Itard placed all his originality, his knowledge, and his patience at the disposal of science in order to educate this savage—and failed. But this failure has been characterized as sublime. He failed, says Séguin, because his methods were paralysed and enchained by the philosophy of sensationalism which he had accepted: "For example, if he wished to give an idea to his pupil, he used to give him a sense perception, and then was surprised that his pupil had never written the word 'milk' except when his cup was given to him."

Itard himself did all that was possible with the means at his disposal, but Séguin blames the philosophy of that epoch for the "fumbling" in which that professor indulged all his life, although he was in just the right environment to make an important discovery. This philosophy, says Séguin, was certainly the most vicious of all past, present, and future philosophies. Although it had all the imposing trappings of a science, it was really a jargon. "It would certainly have carried off the prize proposed by Nectanebo to Aesop, for it built all its edifices without foundation."

This philosophy, starting with Descartes, who doubted of everything, and who, while remaining a Christian himself, "killed the Christian philosophy," asks for a fundamental certainty from which to commence. The result is, according to Séguin, that there is now no philosophy based on certainty. "Certainties," says Séguin, "are abstractions which revolutions may overturn, yet reactions may restore. . . . But we who live in a period of criticism, a period of scientific doubt, and of impartial investigation, have the advantage of being able to see where our predecessors have been led astray."

The philosophy of Descartes, as has been mentioned before, doubted everything it was possible to doubt. He supposed his senses deceived him, then he doubted the reality of what was presented to his consciousness. Sensations were not real. But even if he was deceived yet there must be something that was deceived, and so he comes to his first principle: "Cogito, ergo sum," meaning by that that whatever was doubted, there must be something that doubted it. The reality of the self, then, is taken as the first principle. Proceeding in much the same way, he affirms the existence of God and Matter; but by Matter he does not mean what is perceived, for we perceive only our own sensations, but something inert, unperceivable in its nature, and unknowable. As it was inert, although it was in some way connected with our sensations, yet it did not give rise to them, for God was the only efficient cause. This position led to scepticism, for thinkers saw that if God was the cause of our sensations—as Malebranche, one of the successors of Descartes, declared—Matter was of no use. God could quite as easily excite our sensations directly without using this inert, unperceivable substance as an intermediary. This was the position of Berkeley. But the other possible view is that Matter is the cause which excites our sensations. In that case there is another cause besides God, and so there comes about the denial of the existence of God. Descartes used his method of criticism impartially in his philosophy, but clung to the doctrines of the Church at the same time. We have a parallel in the nineteenth century where science and religion seemed to be in conflict, and great scientists like Huxley, whilst unprejudiced in the scientific life, would permit no intrusion of the scientific method in their religious life. Descartes, a good Christian himself, had put a dangerous weapon into the hands of his successors, which could be used against Christianity. Thus Hume, the English philosopher, in pursuing the same method, placed as the criterion of reality

perception. Matter had already disappeared in the philosophy of Berkeley, and now Hume denied that there was a valid idea of self, or God. Thus philosophy was ending in sensationalism, egoism, and scepticism. On the other side of the Channel a somewhat similar development was taking place. Condillac seized upon the fundamental postulate of Locke, the English successor of Descartes, "Nihil est in intellectu quod non prius fuerit in sensu"—a postulate which is found in the works of one of the old schoolmen, William of Occam. All ideas were products of sense perception, and the highest act of intelligence, according to Condillac, was simply *une sensation transformée*. Thus, mind in his philosophy came down to the level of matter. Man became *une machine animée*.

Some found the mind or soul in the respiratory and circulatory apparatus: others who have not dared to go as far as that, who had not the courage to pursue the mind in its mysterious habitation (no doubt, because they could not find a worthy substitute) . . . these, the most timid, have contented themselves with giving limits to its action. They have not dethroned it, this sovereign of the world, but they have given to it responsible ministers. It reigns, say they, but it does not govern. There is a soul, but all ideas come from sense perception. From these ideas the greatest possible confusion necessarily followed.

Sense perception was proclaimed the absolute monarch.

"In the philosophic republic which was thus constituted a short period before the other Revolution, the sensations of touch, hearing, sight, taste, and smell were made into a Committee of Public Safety, and it was proclaimed that all ideas came from the senses." The establishment of the cult of the Goddess Reason was the social consequence of this formula. Now Itard, as Séguin informs us, understood, in company with Rousseau and Condillac, the utility of education through the senses, but according to him there could be nothing beyond sense-education. The senses were the be-all and end-all of education.

He never understood how and why ideas are very different from sense perceptions, and that the character is superior to the intellect. From this basis proceed all the errors and impossibilities into which he has fallen, for, by mistaking the various orders of phenomena, he removed himself from the possibility of leading the child by the hand from the education of the muscles to that of the nervous system and to the senses; from the education of the senses to that of sense perception; from sense perception to ideas; from ideas to the education of the will.

The above is probably the most complete and most important outline of the right order of education that has ever been given. We are inclined to forget how much precedes the education of the senses, and the enthusiasts in sense education often forget how much follows. Dr. Stanley Hall, the great modern advocate of muscle education, has, by the help of modern science, reached the same conclusions which Séguin reached in his assiduous devotion to idiots. By the education of the muscular system Séguin means the securing of control over the basal, and next the accessory, muscles; next comes the education of the senses in order, beginning with touch. But these will be treated more fully in their proper place. The maxim of Stanley Hall must be added to the time-honoured maxims of method. The key to muscle education is "Proceed from the fundamental to the accessory."

In Stanley Hall's great work on adolescence there is one reference to Séguin, where he is mentioned as a writer on mental diseases who has neglected the significance of the period of puberty. "Most standard writers, like Ireland, Séguin, Warner, . . . and many others who treat of mental defects in the young, ignore puberty" (Vol. I, page 282). As a matter of fact, Séguin devotes a paragraph, in his chapter on the effect of age on idiots, to "L'adolescence et la puberté" (page 244, paragraph III).

To return to the subject after this short digression, Séguin, with the true modesty of greatness, acknowledges that his own success was due to the fact that he was born at a time when the kingdom of philosophy threw the Utopias of the eighteenth century on the rubbish heap. In concluding his long preface, Séguin informs us that the first time he wrote on the subject of idiocy eight years ago, the whole work only

mounted to fourteen pages, the second time there were fifty, and the present volume, which, although still incomplete, he claims as the last word on the subject of idiocy, extends to over seven hundred pages.

In the next article the characteristics of idiocy will be dealt with, also the general principles which underlie the whole system. The succeeding articles will embrace muscular, sensational, intellectual, and moral education.

THE COLLEGE OF PRECEPTORS.

PRACTICAL EXAMINATION FOR CERTIFICATES OF ABILITY TO TEACH.

The following candidates were successful at the Examination held in May 1915:—

Class II.

Bown, E. E.

Smith, F. J.

CORRESPONDENCE.

READING OR DOING?

To the Editor of "The Educational Times."

SIR,—Your interesting report of the Knaresborough experiment in *The Educational Times* for June raises a wide question, affecting not only rural children, but all children of school age. The Knaresborough experiment was doubtless based on the view expressed in one of the reports: "Rural children who do not usually respond well to a literary type of education, do respond to, and develop, individuality, expressiveness, and resource through a practical education in close touch with their daily life and probable occupation." If you substitute the word "many" for "rural," the statement still, to my mind, holds good, and gives still more reason for thought and possibly for further experiment. Anyone can supply "food" to a child's mind, but the crux of the question lies in presenting only such food as the child can digest. "The nineteenth century," said a brilliant educationist, "made the mistake of supposing that the food for the mind consisted entirely of books, and of trying to develop the wits by filling the memory. The sixteenth century, having learned to print, printed and read Greek books and found them a wonderful storehouse of everything human. They naturally taught their best boys and girls to read these books. The nineteenth-century schoolmasters went on in the rut which the sixteenth century had made without observing that the written word is not for all, but only for those who can receive it. They assumed that the literary boy was the only proper boy, and they could give neither food nor exercise to the minds of the majority whose instincts draw them to things rather than to words."

Let it not be imagined that I am underrating the influence of reading. It is essential that every child born in Britain be taught to read, but that knowledge should not be looked upon as the be-all and end-all of education. Undue importance is at present attached to it because of its difficulty. With an unphonetically spelt language such as English, the English child takes 2,320 hours to learn to read; the Italian child, whose language is phonetic, learns in 945 hours. Furthermore, even when the English child has mastered the art, his attention is partially diverted from what he reads by the difficulty of reading it. Much time also is wasted in spelling drill, discountenanced by the Board of Education as of little educational value, and yet absolutely necessary if we are to turn out good spellers. Even with spelling drill the results are scarcely encouraging. A Civil Service tutor in the largest preparation college in Britain informs me that the amount of time devoted by their college pupils to spelling is one hour in every three of tuition. We can very easily imagine that some more fruitful occupation could be found for the future servant of the State than this drilling in unreason, this committing of strings of letters to the reluctant and over-burdened memory.

As to the means by which spelling reform is to be effected or could be effected, the American schools and colleges have already pointed the way. Over a hundred of them have adopted in their official correspondence, or sanctioned in students' examination papers, the use of certain simplifications prescribed by the American Spelling Board. Among these are the State University of Ohio, and the great Universities of Missouri and Minnesota. We

hope that the dream of a Royal Commission of Inquiry into the subject may materialize in Britain when the War is over.

—Yours, &c.,

A. COPESTAKE.

24 Mountfield Road, Ealing, London, W.

June 7, 1915.

A SUGGESTION.

To the Editor of "The Educational Times."

DEAR SIR,—May I make the following suggestion to games masters of schools as an easy way of gaining money for the Red Cross, of inspiring patriotism, and an idea of helpfulness? When in charge of net practice for cricket, the games master may put a penny or more on the wicket. If he is out in any way, this goes to the Red Cross Fund. A schoolmaster would surely not grudge a shilling or two, say twice a term, and the boys themselves would feel that they are improving their cricket for the school and helping the country and the wounded at the same time. The idea might be extended to other games, the master giving a certain sum for every goal scored against a rival school in a match. If a boy makes fifty in a match—he is probably an elder one—in return for winning popularity he may give, say, half-a-crown. I have myself tried one of these methods with success and happiness all round. Mufflers, cuffs, &c., have also been made by young children.—Yours truly,

J. F. E. CHEVALLIER (B.A. Oxon.).

Burstow School, Horley, Surrey.

June 13, 1915.

CURRENT EVENTS.

At the monthly meeting of the Teachers' Registration Council, held on Friday, May 21, it was announced that the total number of applications received up to and including May 13 was 9,643, an increase of 3,321 since March 12. Of these recent applications, 1,936 came from teachers in elementary schools and 1,027 from teachers in secondary schools.

THE Teachers' Registration Council has undertaken the task of compiling a list of all teachers who have withdrawn from teaching to engage in service connected with the War. This list will not be confined to registered teachers, and it is hoped that school authorities will assist in making the record as complete as possible.

THE Senate of the University of London have elected Sir Alfred Gould to be Vice-Chancellor for the year 1915-16, in succession to Sir Wilmot Herringham.

SCHOOLMASTERS and schoolmistresses who are willing to give their summer holidays to work in the fields or in the factories should write to Dr. C. Davison, King Edward's High Schol, Birmingham, or to Miss Byrne, King Edward's School for Girls, Birmingham, respectively.

TEN years ago the Government grant for secondary schools was £163,000; it is now £730,000.

MR. J. A. PEASE and his successor at the Board of Education, Mr. Arthur Henderson, have each been Mayor of Darlington.

IN the year 1913-14 there were 910 secondary schools on the grant list as compared with 898 during the preceding year. In addition there were 117 other schools recognized by the Board as efficient. What of the thousands of secondary schools of which the Board has no official knowledge?

IN these "efficient" schools there are nearly 200,000 children.

THE Board of Education calculate that in the secondary schools under their influence there is one teacher to every fifteen pupils.

IN the secondary schools of which the Board of Education have official cognizance, the average leaving age of boys is 15.7, and of girls 16. The average duration of stay in the schools is for boys 2.8 years, and for girls 2.11.

DURING the year 1913-14 the Board of Education, with a staff of some thirty Inspectors, inspected 219 secondary schools. If all secondary schools are to come under inspection the staff will have to be increased twenty-fold.

THE Conference of Teachers of History will be held at Stratford-on-Avon from August 2 to 14. Information from Miss D. M. Macardle, Shakespeare Memorial Theatre, Stratford-on-Avon.

THE Uplands Summer School will be held from August 7 to 28. Particulars from Miss A. F. Purvis, Darbishire House, Upper Brook Street, Manchester.

THE current number of the *Journal of Scientific Physical Training* contains a most interesting illustrated article on "Stiffness in Children," written by a gymnastic instructor in Denmark. The same number contains a reprint of the valuable article on "Compulsory Games," by Dr. Parker, which appeared in our issue of February.

MR. L. A. VYAS, Music Master in Ahmedabad, sends us copies of pamphlets that he is circulating in an effort to improve the teaching of music in India. He finds musical appreciation to be lacking and calls upon the Government for help.

THE July issue of *The Scout* will contain the first of a series of articles on the subject of the training of Scouts, written by Mr. Ernest Young, Head Master of the County School, Harrow. Mr. Young has had a wide experience in this matter, and he has evolved a system that will be helpful to intending Scout Masters who do not see their way clearly.

THE Guildford Education Committee has granted permission to the boy students in the engineering works at the Technical Institute to make munitions in the shape of small fittings for the Royal Aircraft Factory.

MR. JOHN ORR, M.A., B.Litt. Oxford, L. ès L. Paris, Assistant Lecturer at Manchester University, has been appointed Lecturer in French at the East London College (University of London).

Prize Competition will be found on page 262.

TEACHERS' REGISTRATION COUNCIL

REPRESENTATIVE OF THE TEACHING PROFESSION.

(Constituted by Order in Council, Feb. 29, 1912.)

: o :

**IMPORTANT
NOTICE.**

MEMORANDUM TO TEACHERS WHO WERE REGISTERED IN COLUMN B OF THE FORMER REGISTER (1902-1908).

The Teachers' Registration Council has had under consideration the position of teachers who were registered in Column B of the former Register (1902-1908). This Register was abolished under the terms of the Education (Administrative Provisions) Act of 1907, and at a later date the Board of Education, as an act of grace, assumed responsibility for the repayment of the registration fee of one guinea to every teacher registered in Column B, provided that due application was made before a certain specified date.

Notices to this effect were circulated by the Board, but the Teachers' Registration Council is now assured that from various causes there were cases in which no application for repayment was made. For this circumstance the Council disclaims responsibility, but nevertheless it has decided that such cases deserve consideration, and in order to obviate hardship to individual teachers the following announcement has been authorized:—

Teachers registered in Column B of the former Register (1902-1908) are invited to submit applications for admission to the present Register in accordance with the Conditions of Registration as modified thus—

(1) Teachers registered in Column B who, for any reason, have not recovered from the Board of Education the fee paid on registration will be accepted for enrolment on the present Register without payment, provided that application for registration is made in the usual way before October 31, 1915.

(2) Teachers registered in Column B who, for any reason, have not recovered from the Board of Education the fee paid on registration, but have paid an additional fee to secure enrolment on the present Register will be entitled to the return of the second fee, provided that formal application is made before October 31, 1915.

(3) Teachers registered in Column B who recovered from the Board of Education the fee paid on registration will be accepted for enrolment on the present Register on payment of a fee of one guinea, provided that application for registration is made in the usual way.

NOTE.—Teachers applying under the Condition 1 or 3 above are not required to submit certificates or testimonials, but the Council reserves the right to make such inquiries as it deems desirable concerning the bona-fides of any applicant for registration.

Applications and inquiries should be addressed to—

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FREEDOM AND DISCIPLINE.*

THE subject which we are to discuss to-day is not an easy one. What is meant by *freedom*: how far we are free; or how far we should seek for freedom. What is meant by *discipline*: is there a right and wrong discipline: how far is discipline good or bad? These are questions as old as the hills: they have been dealt with by philosophers and theologians of all ages, and many and varied are the answers that have been given. I do not want to treat the subject either from a philosophic or from a theological standpoint. I want to consider freedom and discipline quite simply so far as they affect us ordinary people in bringing up children, either at home or at school. These are matters of interest and importance to us all, and I hope we shall have a helpful discussion. The view I wish to put forward is this: Freedom can be gained only through discipline. No child can gain his or her own freedom who has not learnt to exercise self-control and self-discipline. How can the elders help the child to gain this self-control and afford opportunities for the practice of self-discipline? It is this power of self-government that we call "character."

This generation has seen great changes in the ideas of bringing up children. The stern repressive policy of our grandfathers is no longer openly advocated. They seemed to have no misgivings, no hesitation. They knew exactly what was wanted—to make the children just like themselves; and they issued their orders with decision. Children were to be seen and not heard: they were to shut the door after them, and do as they were bid. These and many similar maxims have come down to us as traditions that we no longer enforce. Duty was taught as something cold, pitiless, and unpleasant. I remember a book that had a great influence on my boyish mind. It was called, I think, "The Two Guardians." I have forgotten the name of the author. It was a well written story, full of interest. Its aim was to teach duty: and if one was ever in doubt what one's duty was, one had only to choose the most unpleasant alternative and one became happy in the confidence that the duty was performed. This was the moral preached on every page:

* An address delivered to the Surbiton Branch of the P.N.E.U.

duty is unpleasant. Charlotte Yonge, whose stories were very widely read some thirty and forty years ago, taught the same lesson, and so did George Eliot in a more intelligent way. This generation has mostly come to feel that repression is not the main object in the training of the young; but that duty is or ought to be pleasant. It is this general change of feeling that has made us welcome with eagerness such writers as Mr. Edmond Holmes, Mrs. Weller (the Egeria of Mr. Holmes's "What Is and What Might Be"), and Mme Montessori. I mention these three names, and in this order, because here in Surbiton we have had addresses from the first two, and we have had papers written about the teachings of the third. But the whole of the educational writings of the last ten years or so is concerned to preach the same gospel, freedom for the children to develop their own natures and their own powers. But the word "freedom" must not be misunderstood. We want to give children freedom to develop the best that is in them: we do not want to give them freedom to develop the ill. The adult with all suitable humility must still take the responsibility of judging what is good and what is ill.

It seems characteristic of the growth of ideas on education, as, indeed, of ideas of all sorts, that the enthusiasm that brings about a revolt from an idea no longer tenable is likely to over-emphasize the new idea and to introduce fresh dangers. The reaction is carried too far. Mr. Holmes preached revolt against mechanical obedience. Mme Montessori urges that children should be allowed to choose their own occupations. The notions have in consequence got about that obedience is a discredited virtue and that every child may do as he or she likes. These notions are, I believe, quite erroneous and have done, and are doing, a vast amount of harm. Obedience, rightly understood, is still a virtue: discipline, rightly applied, is still a necessity. Under the influence of the new ideas parents and teachers are less autocratic than they were: less certain that their view of life is correct and that it should be forced whole upon the children; less confident that they are the final product of human evolution; and less inclined to try to make the children like themselves. A spirit of greater humility is coming upon us. We speak of the progress of the race, and this involves the belief that the next generation will surpass us, or ought to surpass us, in mental, moral, and spiritual qualities. We no longer want to mould the children on the pattern of ourselves. We want to give them opportunity to develop their own individuality and to become better and freer than ourselves.

We want the children to be free; but freedom is only attained by means of discipline. Mr. Holmes and Dr. Montessori see this quite clearly, and it is a travesty of their writings to say that children are to be allowed to do as they like. Already the reaction has been carried too far. In aiming at freedom, the necessary discipline has sometimes been forgotten. The undisciplined child is the spoilt child, a misery to himself and to others. The spoilt child is the indulged child who wants to follow each whim of the moment, who is without any definite purpose, and who therefore fails to find happiness.

Discipline is absolutely necessary: the child must be led to self-discipline, the ultimate goal, by the discipline that surrounds him in his early years. The difficulty is to know and follow right methods of discipline. Mr. Holmes cries out against the system of mechanical obedience which, as he maintains, pervades the whole region of thought in the civilization of Western countries. I will not follow him into the wider realms of speculation: I will consider only what he means by mechanical obedience as applied to school life. Mechanical obedience means obedience to some compulsion from the outside as opposed to an obedience to some compulsion resulting from inward conviction, fortified by the power of obeying one's own desires. Boys' schools are conservative institutions and tradition has great force; they accept new ideas slowly and the principle of mechanical obedience is still, in many cases, the mainspring of government.

Let us consider, as an example, the simple act of getting up in a morning. The adage tells us that "Early to bed and early to rise makes a man healthy, and wealthy, and wise." Accordingly the boys are made to get up early. There are other reasons why they should do so besides those contained in the adage I have quoted. For instance, the management of a school of a hundred boys would be impossible if every boy came down to breakfast just when he liked. But these other reasons are not put forward. It is supposed to be good for a boy to learn habits of early rising and so he is compelled to get up at a fixed hour. For most boys this is not difficult. The clanging of a bell, the bustle in the dormitory, the desire to do as the others do, the possibility of a mild punishment in the background: these reasons enable him to turn out of bed, if not with alacrity, at any rate with sufficient energy to huddle on his clothes in time to appear for roll-call at the required moment. Here is an example of mechanical obedience as a result of outside compulsion. It is effective for just so long as the conditions remain and for no longer. Boys who are never late at school, when they come home for the holidays will sleep or want to sleep to the middle of the morning. The irritated father scolds: the sympathetic mother says: "Poor boy, he doesn't get enough sleep at school," and she induces the cook to keep breakfast hot. The point I want to make is this: the habit of early rising has not been acquired as a result of the compulsion exercised at school. So soon as the compulsion ceases the habit ceases with it. The desire to get up early has not been implanted, and the wisdom of getting up early has not been appreciated. I am not here arguing that the practice of getting up early is a beneficent one or that it is not. I am trying to show that the school system which admittedly aims at teaching early rising as a duty entirely breaks down. The boy gets up early at school because there are all sorts of outside props and supports to help him. When these props and supports are removed he stays in bed until he is inclined to get up.

I have taken this as a simple example of the failure of a good deal of school discipline, but one could bring fifty other sides of school life to prove the same point. Assuming for the moment that early rising is a virtue, then I maintain that the only way for a boy to acquire the virtue is that he should be convinced of the value of early rising for a definite purpose, and that he should train himself to get up at the required hour, on his own initiative, and in pursuance of the definite purpose. The freedom to do as one really wants to do—that is, the power to get up at the time one wishes—can only be gained through self-discipline and self-control. The boy can be brought to see that there is a purpose in getting up at a regular hour, and he can be helped to obtain the necessary command over his inclinations. Then he gets up from inward instead of from outward compulsion: he has learnt to master the inclination to lie abed; and to this extent his character is strengthened.

A good deal of mechanical obedience is necessary and is quite valuable when its purpose is understood. This purpose, both in the school and in the home, is not for the development of the individual character, but for the sake of society of others. The greater part of school discipline and much of home discipline is really based on consideration for others. The real reason for punctuality at breakfast is the convenience of the household, not the moral character of the family. The dining room may be wanted for other purposes: the servants may want to clear away and get to other work. The same principle applies in school. Morally it is just as sound for a boy to do his Latin prose at eleven and his mathematics at ten, as to do his mathematics at eleven and his Latin prose at ten. But if there are twenty boys desiring to do Latin prose and one master to take them, a regular hour must be fixed for the general convenience.

Breaches of mechanical school discipline are not as a rule moral offences but merely crimes against society—*i.e.* they are actions that show a want of consideration for others. We all live together, in larger or smaller groups, and a certain

amount of mechanical or automatic obedience is a necessary preliminary to social life. It is important to keep the two sorts of discipline distinct one from another. The confusion causes much difficulty.

Obedience to certain regulations is necessary for any group of people living together, but such obedience has little or no effect on character and does little or nothing to bring about the self-discipline that is essential for freedom. The child soon realizes that there is a certain purpose in the life at home and at school, and that in order to carry out this purpose obedience to rules is required, but the child should not be allowed to confuse this obedience with the obedience to his own higher impulses which he must acquire in order that he may attain to a condition of freedom.

Even mechanical discipline, to be effective, must be founded on understanding. This is easy in school life. Boys are as a rule very willing to obey orders. They have a trust in the wisdom of their elders and seek for guidance. They readily believe what they are told. When this discipline is based on intelligent understanding it does not destroy initiative nor prevent independence of thought. It is comparable to discipline in the Army: the soldier obeys orders because he is intelligent enough to realize that bodies of troops cannot be moved about with precision until each soldier has learnt an automatic obedience to the word of command. He realizes that even if in his judgment the movement ordered is not the best one or the right one, yet that the only possibility of carrying it out effectively is for him to obey the orders of his commander; and further, he knows that his refusal to obey would not help matters. The automatic obedience of a soldier does not exclude intelligent thought. So it is with boys: they soon learn to obey certain regulations or certain words of command without necessarily losing their independence of judgment or their activity of thought. Discipline in school is based on the reasonableness of the governed; and it is fair to tell the boys why the orders are given. Discipline in school is not based on force. It is conceivable that if a riot broke out in a school the police might be called in, and if these were ineffective the military might be summoned, and the boys might be shot after court-martial or hanged after civil trial. But this element of force is not really operative. Boys obey because they like to be told what to do and because they are intelligent enough to discover that school cannot be carried on without discipline.

I have described the good and necessary side of the mechanical obedience of school life. There is another aspect which is not so attractive. Rebels are sometimes formed and the judgment is perverted by unwise discipline. When the outside compulsion is cold and unsympathetic and makes no appeal to the reasonableness of the boy's mind, he is inclined to revolt and to take a positive pleasure in disobedience. There will perhaps always be the occasional rebel against established authority, but he need not be deliberately manufactured, as he often is both at home and school by wrong discipline. Another evil aspect of discipline is seen when obedience to regulations for the sake of convenience is made a moral duty that overrides all others. In this way a boy's sense of values and his judgment are perverted.

I have said that compulsory discipline has little, if any, effect on the character. So soon as the compulsion is removed the obedience ceases to operate. I have said that a certain amount of mechanical obedience may be necessary for the convenience of those among whom the children live, but that this discipline is not the valuable discipline that makes for a free life.

The obedience that we wish to produce is the obedience to the child's own right impulses. The child is not to be left to do as he likes. He must be taught to distinguish between right and wrong, between beneficent and harmful impulses.

The educator's task under the new regime is indeed far harder than it was before. Modern education sets before us two principal aims: (1) to bring out and to give opportunity

of development to the child's powers; and (2) to enable the child to learn self-control and therefore to gain freedom. How are we to effect these aims?

There is a story—a true story, by the way—of an inn-keeper in Yorkshire many years ago who became the proud possessor of a barometer. On one occasion the instrument remained at "set fair" when the rain was pouring down in torrents. The inn-keeper was much annoyed and at last, losing all patience, he took the barometer out of doors and, shouting out "There, tha fule, look for thaself," he smashed it to pieces against the wall. Looked upon as discipline the action failed to improve the barometer. Patient study of the mechanism and intelligent manipulation might have effected a remedy. Sometimes I am inclined to think children are treated as our friend treated his weather-glass. Children are, or seem to be, stupid, and instead of patiently finding out and removing their difficulties we crush them with rebuke that still further paralyses their mental activity. No one, either child or man, does his best in an atmosphere of cold criticism: the fear of punishment or of disapproval acts like a drag on the wheel of the coach. Constant or even intermittent repression is harmful. The first necessity for the sound development of young children is an atmosphere of affectionate confidence and trust. It is only in such an atmosphere that a child will do his best. The fear of a scolding or the fear of being misunderstood is a check on a child's activities. It is this quiet all-pervading atmosphere of loving trust that the Montessori school endeavours to create in order that the children's powers may freely be exercised and expand. It is here that the children learn to have confidence in themselves, the first step towards progress, whether on the mental, moral, physical, or spiritual plane.

It is confidence and the assurance of affectionate sympathy that enable a child to put forth his best powers and to try to do whatever he may be engaged upon. It is by trying to do things that children learn their powers and how to exercise them. The child must be free to practise all his activities, while the teacher stands by ready to check those that are harmful either to the community or to the child himself. It is a very ineffective sort of education for a child to watch other people doing things or to listen to explanations how they are to be done. We have had Froebelian schools for a hundred years, and they are based upon the principle of allowing scope for the natural activities of children. Yet, speaking generally of our education, both at home and in school, there is still too much telling how a thing is done, and too much showing how it is done, and too little letting the child do a thing that he may learn by experience and practice. This, then, is the first necessity—a warm sunny atmosphere of cheerful and affectionate confidence, not the terrifying and repressive atmosphere of the chill east wind of disapproval.

The second point is to provide opportunities for the learning of self-control. It has been laid down in the earlier part of this paper that compulsory obedience does not teach self-control. How, then, are we to teach, or to give opportunities for the practice of, this necessary virtue? In one of two ways (the two ways may indeed be combined): either by letting the child do something that he wants to do, or by making him want to do some particular thing. Mrs. Scott, reading a paper to us some time ago, gave an example of the second way. A tiny child was trying to climb up a grassy bank, but failed and soon tired of the attempt. An encouraging smile and the pleasant words, "Oh yes, you can," made the child try again and concentrate all his slender energies in getting to the top in order to win the smile of affectionate approval. This child won a victory over his inclination to be half-hearted and lazy: he learnt to concentrate his energies for a definite purpose, and he experienced the joy that comes from an effort consciously made to surmount a difficulty. The incident was a step in the formation of his character. Until they are constantly thwarted and repressed children want to do things. No cry is more

pathetic than that so often heard in the nursery: "Let me do it"; and there is nothing more destructive of the formation of character than the answer so often given: "No, you can't do it: watch me do it for you." Perhaps among all the useful things that Dr. Montessori has taught this generation, there is nothing of greater value than her discovery that if young children are provided with occupations suitable for their age, there comes a time when each one eagerly desires to complete the task, and that this moment is the beginning of the conscious formation of an individual character. At first the children in a Montessori school browse about with indifference among the various toys. Then, quite suddenly, so observers tell us, a child is seized with a desire to complete the action involved in one of the toys. From that moment the child's whole attitude towards life is changed. He has found a definite purpose. He has found something on which it seems to him worth while to concentrate all his energies. He now desires to be let alone to practise his toy: and he begins to understand that the other children also want to be let alone to practise theirs. He has begun to get a conscious grip of himself and is beginning to understand his relations to the community. He has not done the thing because he is told, but because he wants to do it. It is this desire on his part that brings out his powers, that teaches him concentration, patience, industry, attention, and perseverance.

Contrast this with the attitude that the boy will meet when he leaves the Children's House for a regular school. The teacher will say, in effect if not in words: "Attend to me now, I am going to teach you how to do multiplication. You are to attend because I wish it and because it is good for you to learn habits of attention. And further, if you disobey me—and I call inattention disobedience, because I have told you to attend—there will be my disapproval or perhaps punishments." Well, boys are by nature docile and obedient creatures. Most of them do their best to attend. But—and this is the point that I wish to emphasize—this enforced attention is of little value in comparison with the concentration that comes from wanting to learn how to multiply numbers. If it is the right function of the school to teach multiplication at this particular stage, the teacher's business is, first of all, to make his boys want to learn how to multiply. If he cannot do this he has either mistaken his vocation or else the boys at that stage are not ready for multiplication.

The self-discipline that is valuable is not learnt by the boy doing the task because he is ordered to do so by the master. In all discipline that forms character there must be a definite aim in view that the boy can understand and wish to gain. If we want a boy to save his pocket money, we are not wise in vaguely talking of the value of saving. We find something that the boy wants and then help him to save up his pocket money until he has enough to buy it.

I end as I began by saying that freedom can only be acquired by discipline. I am using the word "freedom" in two senses. A boy must have freedom in the one sense to exercise his faculties and practise his activities in order that he may learn to control his own desires and gain freedom in the other sense. He will learn to control himself when he has a definite purpose before him, whether that purpose is to complete the Montessori stair, to multiply numbers, to save money for a bicycle, or to train himself to become an archbishop or a field-marshal. It is when he has learnt this self-control, when he has—to use another phrase meaning the same thing—when he has acquired strength of character, that he obtains the real freedom to obey the highest impulses of his conscience and his reason.

THE Middlesex Education Committee have agreed to pay a War bonus of 2s. a week to all uncertificated and supplementary teachers, caretakers, and groundsmen; 1s. a week to boy laboratory assistants, and charwomen, and cleaners. It was resolved to make a yearly grant to County schools having Cadet Corps recognized by the County Territorial Association of 5s. per cadet, up to the number of fifty, and 2s. 6d. for each cadet above that number.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE JUNE COMPETITION.

The best way to spend £10 that has been sent to a form teacher, by a benevolent person on the condition that the money is to be expended for the benefit of the pupils, but without in any way saving the money of the public body that finances the school.

When this subject for competition was proposed we did not at all realize how many things would have to be taken into account in making an award. Accordingly, we are faced by much more than the ordinary difficulties in coming to a decision.

It turns out to be an exceedingly unfortunate time to suggest the spending of money. One competitor from the North puts very well what is at least suggested in many of the papers sent in: "The expenditure of the £10 would be an all too easy task in these sad times. One can hardly imagine the form which would not hasten to devote all to the good of our soldiers. A portion, at any rate, would be wisely spent in material for the girls to knit or sew, so that they might make the double offering of money and of time." With this we cannot but agree, and, in a roundabout way, ingenious persons might argue that, after all, this sacrificing our own interests to those of others is, in the long run, the best way of benefiting ourselves. But, in fairness to the plain man who takes things at their face value, we must adhere to the conditions of the competition, and insist on the money being spent for the benefit of the form in the ordinary sense of the words.

But even with this restriction difficulties arise through a certain ambiguity inherent in the nature of the word "form." To the form belongs the royal privilege of immortality. We may understand by "form" the boys and girls here and now belonging to it, or we may understand the collective unit of the school organization known as "Form So-and-so," and that goes on for ever. The answers fall naturally into two classes, according as the one view or the other is taken of what "form" means. We have great sympathy with the man who writes: "First of all we will banish all things of school; we will have with the £10 no books and no prim journeys to 'museums and other places of educational interest.' We will contrive some unconventional thing for our form of fifteen boys." Then he takes them off to camp for eight or nine days. A lady has the same sort of idea, but bursts almost the whole £10 in one glorious day of sunshine at the Kew Gardens, leaving however, a balance of £1 to buy a photograph to remind her thirty girls of the sublime occasion. Others, in a more conventional way, favour the school journey expenditure. One plumps for cricket-bats and balls and footballs, supplying what looks like a very workable budget to guide the spender. We note that he emphasizes the need of leaving 10s. "for reserve." One grim person, who obviously writes in a quite disinterested way and with no hope of a prize, would spend the money in repairing the windows and the hinges of the door of his classroom, and "in frightening the old room by giving it a genuine cleaning." He truculently advises us not to suggest that this would result in saving the money of his Committee. Any such suggestion, he believes, would merely show how little we knew of the education politics of —.

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A very unexpected recommendation is put as follows:—"I assume that the gift of £10 is given to a form in the class of school where I am at present teaching—a county secondary school, where the pupils are not, as a whole, from very well-to-do homes. I think the money should be spent on securing some attention to the girls' teeth—cases of early disfigurement owing to neglect are too common. I would have the whole form examined by a dentist, and the cases that were not hopeless attended to before it were too late. I believe the money would be sufficient to do a great deal of good. Perhaps some school authorities deal with this important question, but this is not so with us as yet." This raises important questions into which, fortunately, we are not called upon to enter here.

It is with some diffidence that we award the first place to a paper that in some points is no better than several of the others. Its claim lies in the fact that it is an ingenious compromise of all the various claims that may be made on the money. In the first place the individual gets his share as a mere junior human being. The teacher doles out to each of his forty boys a genuine white shilling "to be spent in *whatever useful fashion* he likes." The competitor writes cogently about the opportunity this disbursement affords the teacher of testing "the judgment and character of each boy." But it is evident that he has not much hope of the boys spending their booty on academic goods, for his next outlay is on books as the private property of each individual boy. "Each boy would spend a happy half-hour looking through the book lists of Dent's (1s.), Nelson's (7d.), and Jack's (6d.) firms respectively, selecting one volume from each as his own *private property and delight*." This combined free and guided spending of money accounts for £6. 3s. 4d., leaving £3. 16s. 8d. to be spent on something for the benefit of the immortal form. This takes the shape of certain books of a recreative kind the competitor knows his Council would under no circumstances provide from their collective chest.

It is very interesting to note the seriousness with which

many competitors have dealt with this matter. It is quite manifest that they are full of interest in the problem, quite apart from the claims of the competition. As a relief from the strain our next subject will be of a lighter character.

A Half-guinea Prize is awarded to Mr. James Hardman, A.C.P., 112 Manchester Road, Blackpool. The next two or three are so close to each other that it is not possible in fairness to award a second prize.

SUBJECT FOR JULY.

The most ingenious excuse presented by a pupil for either absence or lack of preparation.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College of Preceptors, Bloomsbury Square, W.C., on June 23. Present: Mr. J. F. P. Rawlinson, Vice-President, in the chair; the Rev. J. B. Blomfield, Mr. Brown, Mr. Butler, Mr. F. Charles, Mr. Cholmeley, Miss Dawes, Mr. Eagles, Mrs. Felkin, Miss Lawford, the Rev. R. Lee, Mr. Morgan, Mr. Pendlebury, Mr. Rushbrooke, Mr. Starbuck, Mr. Thornton, Mr. Whitbread, Mr. White, and Mr. Wilson.

The Diploma of Associate was granted to Mr. Edward Benson Hazlewood, who had satisfied the prescribed conditions.

Prof. John Adams was appointed to deliver the next course of twelve lectures on the Practice of Teaching.

The Secretary reported that an examination for Certificates of Ability to Teach was held at the Holborn Estate Grammar School on May 31, and that the examination was attended by two candidates, both of whom passed in the Second Class.

The Examination Committee submitted revised syllabuses in certain subjects of the College examinations. On the recommendation of the Committee, it was resolved that the

existing Certificate Examination syllabuses in Practical Chemistry, Senior Magnetism and Electricity, and Senior and Junior Botany to be replaced by the revised syllabuses in June 1916, and that the existing Diploma Examination syllabuses in Chemistry, Physics, and Botany be replaced by the revised syllabuses in the summer of 1917. It was further resolved that, after January 1917, candidates for the Associateship be not allowed to use dictionaries at the examinations in Latin and Greek, and that the words "simple continuous English prose" be substituted for the words "English sentences of moderate difficulty" in the Licentiate Greek syllabus.

Dr. T. Slater Price was appointed an additional Examiner in Chemistry.

On the recommendation of the Finance Committee it was resolved (a) that the Agreement with Mr. Francis Hodgson relating to the sale of the College publications and the collection of advertisements for those publications be renewed; and (b) that an electric ventilating fan be provided for the Council Room.

The Report of the Private Schools Section of the College was adopted.

A framed portrait of the late Rev. Dr. Douglas Scott was presented to the College by some members of the Council.

The following persons were elected members of the College:

Miss C. J. H. Cowdroy, L.L.A., A.C.P., Crouch End High School and College, Hornsey, N.

Mr. C. R. Glaysher, A.C.P., Sperrin Lodge, Simla, India.

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

By the AUTHOR.—Butler's Pond Life: Insects.

By GINN & Co.—Gronow's *Für kleine Leute*; Haertel's German Reader for Beginners; McPherson and Henderson's First Course in Chemistry; Parker's Methods of Teaching in High Schools.

By MACMILLAN & Co.—Gaskin's Schmidt's Reineke Fuchs; Pellissier's Erckmann-Chatrion's Waterloo; Taylor's Conspectus.

By J. MURRAY.—Proceedings of the Classical Association, 1915.

By RIVINGTONS.—Florian's Passages for Translation into French, Senior Course.

Calendar of the University of Cape of Good Hope.

Calendar of University College of Wales, Aberystwyth.

Joint Scholarships Board Yearbook.

N.U.T. Report.

REVIEWS.

The Education of Karl Witte. Edited by H. Addington Bruce. (4s. 6d. net. Harrap.)

To begin with, it is unfair that the author of this work should not have a place on the title-page of his own book. We have the editor's name and the name of the man who translated the text from German. But we have to wait till we come to the text before we realize that the author is the father of the Karl Witte in question.

The book has the sub-title "The Training of the Child," which conveys the impression that the work is a general treatise on education. This it has no claim to be. It presents certain very interesting, and even valuable, facts for the consideration of teachers, but the applications of these facts must be made by the teachers themselves. The main thesis may be summed up in the heading of Chapter V, "Every Ordinarily Organized Child may become a Superior Man if he is properly Educated." We have read something not unlike this as the heading of certain sections of the works of Comenius, but the older writer was a little less optimistic than Witte *père*. The troublesome thing is that Karl did turn out a rather remarkable man, and what is still more annoying to the level-headed, sensible man who knows that the thesis is false is the fact that Karl lived to be eighty-three. There is, therefore, no comfort to be got from a complaint that Karl's head was cultivated at the expense of his body. The editor naturally gets together as many cases as he can of extraordinarily early education, resulting in wonderful maturity. Probably the less said about John Stuart Mill the better for the supporters of very early education in the bookish sense of the term. Lord Kelvin's case is more troublesome, for he had a very happy life and lived as long as Karl himself. The other examples supplied by the editor are not convincing.

When we come to the text, we have the remarkable spectacle of a father so proud of his method that he gets a clergyman's certificate to prove that the son's "aptitudes are only mediocre" in order that the merits of the method may stand out in clearer relief. One recalls Jacotot's strenuous efforts to show what a mediocre teacher he was in order to enhance the glory of the "Universal Method." Basing on Helvetius, Witte *père* ventured on a prophecy made in the presence of thirteen or fourteen people: "If God grants me a son, and if he, in your own opinion, is not to be called stupid—which Heaven forbid—I have long ago decided to educate him to be a superior man, without knowing in advance what his aptitudes may be." We are at once carried back into the eighteenth century, with its optimistic, materialist educators, to whom all things were possible. There appears to be no reason to question the facts of the case. Karl's education began at the dawn of his intelligence, and before fourteen he became a doctor of philosophy and at sixteen joined the teaching staff of the University of Berlin. Further, he did not die of his education. This raises the practical question: Should the child's education begin immediately with the dawning of his intelligence? "This book," says the advertisement, "is an argument for this course." As an argument it leaves a great deal to be desired. How can we reason in this flagrant way from an individual case? But, as a detailed record of a scheme of education based on a definite belief, it has some value. The editor tells us that in its original form it was one of those books that "do not allow themselves to be read." But in the form in which he has presented it we find it very attractive. There is a quaint old-world air about the whole that is very pleasing, and the naive arguments are rendered palatable, if not convincing, by the conviction that the incidents described are true to a life that is no longer available for first-hand inspection. The book is well worth reading.

Studies Introductory to a Theory of Education. By E. T. Campagnac. (3s. 6d. net. Cambridge University Press.)

This little book of 180 pages contains enough matter to keep a class of post-graduate students discussing for a whole session. Prof. Campagnac has a singularly elusive style, and the reader will find, particularly in the earlier parts of the book, a certain difficulty in assuring himself that he is quite sure what his author means. It is not that sentence by sentence he is obscure. On the contrary, the style is eminently clear. But there are so many lines of possible development that the reader is not always sure along which line he is being led at a given moment.

The book contains eight chapters. The first two are vaguely introductory; the next two are mainly historical, with, of course, a strong running current of criticism. Chapter V comes to the point under the heading of the Aim and Province of Education. Chapter VI introduces an unexpectedly practical element, and actually discusses the Code—the Education Code—the Code that elementary teachers revolve round. Nothing could illustrate better the catholicity of Prof. Campagnac than his treatment of this code in its relations to the teachers and to the Board of Education. Few people have had the courage to say what honest teachers know to be the truth about the activity of the Board of Education at the beginning of this century. "The extraordinary spectacle was presented to a people at first delighted, then astounded, and at last a good deal frightened, of a Government Department reforming itself and bent on reforming other people, a bureau with a mission, an office with initiative." The last two chapters deal with the Freedom of the Pupil and the Business of the Teacher.

Few of Prof. Campagnac's fellow professors of Education are entitled to speak with his authority on matters dealing with the classics, so we turn with interest to his Survey of Certain Ideals. With most of what he says there will be general agreement. His treatment of the relation between the Greek citizen and the Greek gods is particularly illuminating, and gives guidance in reaching a true view of the educational bearing of Greek religion. The contrast between the Greek

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and the Roman ideal is admirable, and will help many students to escape the textbook fluidity of opinion on this subject.

What we specially admire about the book is the proportion that is maintained between the historical, the critical, and the constructive. Prof. Campagnac can be as destructive as anybody—indeed, we rather gather that he could excel in this direction if he laid himself out for it. But he has here confined himself to just that amount of destruction that is essential to make room for a proper foundation for the structure he proposes to erect. The book, however, is not to be regarded as in any way an introduction to education. The modesty of the title must not mislead readers into supposing that we have here a primer that will save them the trouble of reading larger books. Its place is really after the bigger books have been mastered. When the student has gone through Henderson's "Principles of Education" and Monroe's "History of Education," he is in a position to benefit by these excellent Studies.

The History of Tacitus. An English Translation by George Gilbert Ramsay. (15s. net. Murray.)

The suicide of Nero on June 9, 68 A.D., marked the beginning of that period "rich in calamity," which was to see almost the whole armed strength of Rome ranged in hostile camps, and to set at brief intervals upon the throne of the Caesars the feeble Galba, the voluptuous Otho, and the gourmand Vitellius, before the advent of Vespasian restored once more concord and stability to the Roman world. Never did Rome stand more in need of her proverbial good fortune than in those anxious days when Otho, fresh from the murder of the aged Galba, made feverish preparations to meet the mighty armies of the Rhine descending upon Italy; while the city populace mourned that "of all men the two most shameless and abandoned had been chosen out by fate to compass the ruin of the Empire." Torn asunder by civil warfare, her finest troops fighting in battles where no principle but the

prestige of an army was at stake, and faced by the formidable rebellion of Civilis, Rome might well fear that the whole fabric of the Empire was on the point of dissolution. Fatal, indeed, were the consequences when that "secret of the Empire was divulged that an emperor could be made elsewhere than at Rome."

Yet amid all the black incidents of the time the sack of Cremona, the shameless plunder of Italy and the provinces by the legions of the State, the burning of the Capitol, the treachery of leaders, and the constant mutinies among the rank and file, one cannot fail to be impressed by the splendid qualities of the legionary soldier. Mere gladiators though they were, they still retained those martial instincts upon which the greatness of Rome had been built. The soldiers of Vitellius, who, betrayed by their general and exhausted by a march of thirty miles, scorned to rest for the night in Cremona and with fatal courage sallied out of the citadel and fell upon the foe, were worthy descendants of the race of Cincinnatus and the Scipios. Such, too, was the spirit of the two Flavian soldiers who, on that same night, gave their lives to cut the cords of the engine which was inflicting losses on their ranks.

Of such a kind are the events immortalized by Tacitus in the "Histories," a book which contains some of the finest work of that master artist. The nervous terseness of the style of Tacitus and his marvellous powers of vivid description and biting epigram have ever been the despair of translators, and it is, perhaps, impossible from the nature of the language to get the same effects in English. Mr. Ramsay, however, has achieved a large measure of success, and is at be congratulated upon his translation, which is a fine piece of work. He has written on definite principles, aiming at producing a version which should have none of the flavour of a translation, and at the same time avoiding words conveying modern ideas and associations. On the whole, these aims are excellently carried out, although here and there phrases occur which would not, we think, have been used by an independent

English writer—as, for example, “What were the sound things, what the sickly things, throughout the world?” The epigrams of Tacitus are often admirably rendered; thus, the famous characterization of Galba is happily turned by “As a private citizen, he seemed too great for a private station; deemed by all men fit for Empire—had he never reigned.”

Excellent, too, are the following: “He (Hordeonius Flaccus) did nothing to quell the sedition; nothing to hold back waverers or encourage the well disposed; inert and cowardly by nature, he was only innocent because imbecile. . . . For Vitellius himself could neither prohibit nor command; he was not so much an emperor as an excuse for war.”

The notes with which the text is accompanied are full of sound learning, and an able introduction, maps, and an index add to the value of the work. The Oxford text by Mr. Fisher is generally followed, but in one place (II, 71, 6) the translator suggests a conjecture of his own reading, *canantem* for *cantantem*, and translating “For Vitellius openly proclaimed himself an admirer of that Emperor (*sc.* Nero), having been accustomed to attend him at his entertainments, not from compulsion as did even the best of men, but because he was given over like a bondsman bought and sold to gluttony and gormandising.”

The change, which is designed to introduce the mention of a meal, is not necessary, since we know from Suetonius that Nero's exhibitions of singing were often given after dinner (Suetonius, “Nero,” 20 and 22). Moreover Vitellius is mentioned by the same authority as flattering Nero's vanity in connexion with singing (Suetonius, “Vitellius,” 4), and the compulsion referred to is more natural with the reading *cantantem*. In conclusion we recommend the book most heartily not only to students of Tacitus but also to the general public.

OVERSEAS.

Do our readers know what an Equalitarian is? If not, they must learn, as we did the other day, that the word stands for a person who believes that men and women should get the same pay for the same work. We fear that Equalitarians will not like an article by Miss Elizabeth Hodgson in the May number of *Education* (Boston). She tells us that the National Education Association not long ago voted in favour of the equalitarian principle, and she adds gently, but firmly, that that is where the Association made a mistake—“an amiable, chivalrous, and very modern one, but a mistake just the same.” Our English Equalitarians will read her argument without enthusiasm, and will question some of her statements—for example, “to marry is to leave the profession.” Some of our English women teachers will be inclined to ask Miss Hodgson to wait and see. So far as present conditions hold, her arguments appear to be sound enough, but our feminists are prepared to say that they are about to change all that. Miss Hodgson makes the striking charge that the reason “why thousands of voters let party leaders huddle and drive them like sheep, or merchandise them like bars of soap” is because “the men of to-day were almost wholly educated by the women of yesterday”; and those women have not trained the civic sense of their male pupils. But she is open to conviction. “The women of to-morrow may do it, but few of the present generation are doing it.”

The same magazine reports the development of the Summer Review School. These are schools that carry on during the summer vacation so as to enable the backward pupils, or those who have fallen behind through sickness, to catch up their work so as to begin the next session level with their classmates. The scheme has an all-the-year-round suggestion about it that is not very attractive to teachers.

The May number of the *School Review* (Chicago) contains an article that will hardly stir the pulses of our vigorous schoolboys. It is on “Non-Competitive Track Games.” The boys are arranged in teams, and do not compete boy for boy against each other. Room is found for even the otherwise hopeless duffers, for the whole is equalized up by means of a terrible statistical table that stretches threateningly over two pages and flows over the margin in both cases. It would

glad the heart of Dr. W. Brown and other correlation experts. Probably, however, every school will be able to provide a mathematician to manipulate the table, and the general letterpress is quite intelligible, and deserves the attention of all teachers who are anxious to reform a state of affairs in which a few athletes do almost all the work, and the other boys fall into the ignoble part of mere spectators.

Mr. and Mrs. Sidney Webb will no doubt read with pleasure, in the recently issued ninth Annual Report of the Carnegie Foundation for the Advancement of Teaching, that the writers of the report regard with favour the establishment of the Association of University Professors. It points out that to the members of these professions and to the public it means something to be either a lawyer or a physician, but the term “professor” has a very indefinite significance, either to the professor himself in his relation to the community or to the community in relation to him. How far the new Association is to have a defensive character remains to be seen. At the present moment it has an excellent opportunity for making a beginning at Utah. The disturbance in that romantic University shows no signs of dying down. The number of professorial resignations has now reached a score, and there is the ominous suggestion spread abroad that the students are taking sides, and that of the twelve hundred at present in attendance only four hundred are likely to return next session. Why don't the professors and students make common cause and fall back upon the ancient University right of *migratio*? After all, the students and professors form the University.

It is from the *English Journal* (Chicago) that we quote the following: “Some of the more aggressive of the teachers of public speaking in the colleges have started a new organization called the National Association of Academic Teachers of Public Speaking.” How strangely that American use of “aggressive” sounds to an English teacher of English! One of these aggressive teachers communicates to the same number of the magazine an article on “The Function of the Speaking Contest,” in which he questions the usefulness of competitive declamation. His argument is that no speech can be delivered really well by anybody but the person who has written it. Accordingly he recommends the oratorical contest in which subject-matter and declamation are combined and are both taken into account in the award. It seems to us as if we had heard something of all this in connexion with schools that would certainly not claim to be aggressive in the American sense. Still, the article, like most of the others that appear in this magazine, is of genuine value to the teachers concerned.

In this column we have not yet referred to the new American educational magazine called *School and Society*. It appears once a week, and thus has more of the nature of one of our high-class reviews than of the ordinary monthly magazines. The editor is J. McKeen Cattell. It gives a good deal of attention to the reviewing of educational books, and English readers will be glad to know that it had on May 1 an admirable review of Prof. Welton's recent book. In its six months' life, *School and Society* has won its place among the leading professional papers of America, so far, at any rate, as quality of contributions is concerned.

GENERAL NOTICES.

CLASSICS.

Greek Exercises. By Rev. E. E. Bryant, M.A., and E. D. C. Lake, M.A. (2s. Oxford University Press.)

This exercise book is based on the “Greek Grammar” by the same authors, and aims, like the grammar, at imparting a thorough knowledge of the elements of Greek without confusing the learner with unessential points. An introduction contains, in a very brief form, the outlines of Greek syntax and some of the most necessary rules for writing Greek. At the head of each exercise the references are given to the parts of the grammar which are illustrated. There are special vocabularies to be learnt by heart, and a general vocabulary. Greek-English and English-Greek. Teachers will find the book very suitable for class use.

"Cambridge Elementary Classics."—(1) *Apology of Socrates*. Edited by Adela Marion Adam, M.A. (2s. 6d.) (2) *Homer, Odyssey*, VI and VII. Edited by G. M. Edwards, M.A. (2s.) (Cambridge University Press.)

These little books, furnished with short notes and vocabularies, should prove very useful indeed to teachers. The notes give just the sort of aid which pupils in lower and middle forms require, and are not overloaded. The Homer is tastefully illustrated with photographs of Greek vases, and both books have suitable introductions.

P. Ovidi Nasonis Elegiaca. Edited by R. L. Strangeways, M.A. (2s. Clarendon Press.)

Each of these extracts from Ovid's "Elegiac" poems is preceded by a short introduction in Latin, and there are notes or paraphrases of difficult lines, also in Latin, at the bottom of the page. The extracts themselves are well chosen, and there is an "all Latin" vocabulary in which the pupil is told that "lana = tanquam crines qui in tergo ovium gignuntur: id quod ex ovium vellere in usum vestium netur"—whereby the author avoids the word "wool." Teachers who are prepared to "go the whole hog" with the Direct Method will find the book very useful.

Selected Letters of Pliny. Edited by G. B. Allen, M.A. (2s. 6d. Clarendon Press.)

This edition is primarily intended for students offering a selection of Pliny's "Letters" as a subject for Pass Moderations, but will also be found useful in schools. The text is Kukulá's, reprinted from the Teubner edition. All the best known letters of Pliny are included, the letters to Tacitus on the Eruption of Vesuvius, those to Trajan on the Christians, those on Martial, Regulus, Arria, and the trial of Marius Priscus. There are short notes and an interesting introduction on Pliny and his time.

The Year's Work in Classical Studies. Edited by Cyril Bailey, M.A. (2s. 6d. net. Murray.)

This year the method followed in this well known publication has undergone some slight modification. Articles on subjects of less general interest have been definitely limited in length, and contributors have aimed at dealing with the more important writings or discoveries of the year rather than at making an exhaustive record of all work done. The result is that the book is of even greater interest than heretofore to the general classical public. Papyri are dealt with by Prof. A. S. Hunt; Greek Palæography and Textual Criticism by Mr. T. W. Allen; and Latin Palæography by Prof. A. C. Clark. Prof. E. A. Sonnenschein writes on Grammar Lexicography and Metric, Mr. M. N. Todd on Greek History and Inscriptions, and Mr. C. G. Stone on Roman History. The editor contributes chapters on Greek and Roman Religion, Ancient Philosophy, Greek and Latin Literature, and other topics are also handled by well known scholars. We fear that next year's volume will be a very thin one.

Via Romana. A Latin Course for the First Year. By Frank Granger, D.Litt, M.A. (1s. 6d. net. G. Bell.)

This book is based on the Direct Method. The lessons are dramatic in form and consist of a series of dialogues assigned to a small group of characters who journey from Chester to Rome. Attached to each *colloquium* is a *porta*, or exercise in which the words are parsed in Latin. The books aims at proceeding in a psychological order—the interjection, the imperative of verbs, the vocative and dative of nouns being introduced first. There are *nova voce* exercises and a series of pictures which should give good subject-matter for conversation. A Latin-English vocabulary enables the teacher to proceed on traditional lines as far as he finds it necessary.

FRENCH.

C'est la Guerre. By Marc Ceppi. (1s. net. Bell.)

This volume contains original stories by M. Ceppi. The War only supplies a background. Both stories and illustrations have imagination and humour—and good humour.

Lectures Historiques. By E. Moffett. (2s. 6d. with, 2s. without, vocabulary. Harrap.)

This volume covers the ground from 1610 to 1815. The extracts are taken chiefly from Michelet, but we have some from Voltaire, Mme de Sévigné, Rousseau, Quinet, Mignet, Lamartine, Thiers, and other writers. This volume will certainly be of great use for reading with the classics of the seventeenth and eighteenth centuries.

(1) *Voyage au Centre de la Terre*; (2) *Cinq Semaines en Ballon*; (3) *De la Terre à la Lune*. (1s. 6d. each. Harrap.)

Jules Verne's famous romances are appearing in all publishers' catalogues. It is doubtful whether they are worth so much attention. Their subject-matter is a little out of date, though boys may hardly realize it, and, in any case, such work is more suited for

(Continued on page 268.)

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THE GROUNDWORK OF BRITISH HISTORY.

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rapid than intensive reading. The notes are not remarkable, but the volumes are well printed.

- (1) Perrault: *Quatre Contes*. Edited by A. Wilson-Green. (2) Porchat: *Le Berger et le Proscrit*. Edited by A. Truan. (1s. each. Oxford University Press.)

These are two additions to the "Oxford Junior French Series." Perrault's tales, somewhat modernized ("Peau d'Ane," "Riquet," "Le Petit Poucet," "Les Souhais Ridicules"), are too well known to call for any comment except that it is pleasant to see the last tale, which is often omitted because it is in verse. Porchat's tale of simple country life, with the Terror as historical background, seems to be new among school books.

- (1) *Petite Anthologie du Seizième Siècle*; (2) *La Fontaine, Fables*; (3) *Lamartine, Poésies*; (4) *Victor Hugo, Poésies*; (5) *Alfred de Musset, Poésies*; (6) *Théophile Gautier*. Edited by Walter Rippmann. (3d. net. Dent.)

These little volumes, of some 40-60 pages, are without introduction or notes except a glossary of two pages in (1) and (2), but they will not be the less useful for that. The poems are not specially chosen for young students.

HISTORY.

A History of the Ancient World. From the Earliest Times to the Fall of Rome. By Hutton Webster, Ph.D., Professor in the University of Nebraska. (6s. net. Harrap.)

Recently there has been a steady flow of volumes endeavouring with varying success to comprehend an intelligible history of ancient times. The present volume, we think, takes the palm. It runs from prehistoric conditions down to Charlemagne, as a stream of human development, though it is so ordered that the stories of contributing nations can easily be followed separately; and it adds two special chapters, on the private life of the Greeks and Romans, and on the art of Greece and Rome. The success of the work arises from thorough grasp of the materials, judgment in selection and arrangement, and clear and nervous statement, together with the valuable aid of 55 maps and plans and 236 illustrations.

"The Inductive English History."—Book I, *England before the Normans*. By F. G. Snowball, M.A., F.R.Hist.S., Head Master of Hele's School, Exeter, and T. H. Bowtell, M.A. (1s. 6d. Harrap.)

"In this book," say the authors to the pupil, "we have tried, not so much to tell you what happened, or the causes and results of events, or the characters of the actors, or their reasons for doing things, as to provide you with the means of finding out all these for yourself." Hence the designation "inductive." So that the book consists mainly of extracts from the sources, with occasional explanation, and questions to each chapter. No doubt, the principle is good; yet we cannot but think that the detail in some of the chapters will be found embarrassing to young heads. There is also a *Teachers' Handbook* to the volume (1s. net), offering suggestions for the use of it in class and giving full summaries of the results that may be expected from the pupils.

"Home University Library of Modern Knowledge."—*Belgium*. By R. C. K. Ensor, sometime Scholar of Balliol College, Oxford. (1s. net. Williams & Norgate.)

This is an exceedingly opportune volume, and a thoroughly good one. Mr. Ensor treats his subject in a very sympathetic tone, and perhaps he is rather aggrieved at a certain popular lack of appreciation of what the Belgians are and what they have done. We have to grasp four facts: "They are a nation. They are an old nation. They are a proud nation. They are a nation which has a good deal to teach as well as to learn." The reader will grasp these points firmly enough before Mr. Ensor lets him go. The review of the geographical characters of Belgium in connexion with its history, of the characteristics of the people, of the constitution and its practical working, and of the social and literary and artistic conditions, is well informed and judiciously critical. It will certainly open the eyes of the understanding of a good many readers. By the way, the area of Holland (in comparison with Belgium) is stated—probably by some clerical or typographical accident—as 1,275 square miles (page 22): it should be 12,597. The context shows that the figure is wrong.

Europe in the Nineteenth Century, 1802-1914. By E. Nixon and H. R. Steel. (2s. G. Bell.)

The volume sketches the history of the century in a series of short chapters, lightened here and there by a pointed quotation or a striking expression. It is interesting, at the moment, to note that Humboldt, the great traveller, naturalist, and scholar, declared at the Congress of Vienna, a century ago: "Might is right: we do not acknowledge the law of nations." At some points, however, the condensation is serious: thus, the Indian Mutiny is disposed of in six lines. Still, the book will convey a very fair general notion of the course of events

The British Empire. Six Lectures. By Sir Charles P. Lucas, K.C.B., K.C.M.G. (2s. net. Macmillan.)

These lectures are inscribed "To the Members of the Working Men's College," and so were presumably delivered to them; and we are glad to note the moderate price of the volume, for it ought to circulate widely among other working men and generally. We do not think that the author's attempt to justify the term "Empire" in the present connexion succeeds in being more than ingeniously plausible: but there the term is, and there is no use in worrying about it now. The essential thing is that these lectures are extremely careful, full of matter, effectively arranged, expressed in simple language, and attractive as well as instructive. There are five or six maps.

GEOGRAPHY.

"Cambridge County Geographies."—(1) *Moray and Nairn*. By Charles Matheson, M.A. (2) *Clackmannan and Kinross*. By J. P. Day, B.A., B.Sc. (Each 1s. 6d. Cambridge University Press.)

In the first volume Morayshire is made the foundation of the book and occupies about two-thirds of the whole. The treatment of the form and origin of the physical features of the dry Northern Lowlands is very good. In (2) the two smallest counties in Scotland have yielded quite a substantial volume. Geology, river history, and communications are all well treated, while the correlations between history and geography are rather better analysed than is usual in this series.

Rambles in Rural England. By William J. Claxton. (1s. Harrap.)

This is not a geographical textbook, but it should make an excellent reader and lead to an increased respect for the beauties of the home country. It is difficult to decide which to commend the more—the author's keen appreciation of local character and custom or the splendid prose used in recording his analyses. There are many accurate details of several minor rural occupations accompanied by well chosen illustrations.

The Surface of the Earth. By H. Pickles, B.A., B.Sc. (2s. Cambridge University Press.)

An elementary physical and economic geography of considerable merit. The subject is well developed. Land forms and their sculpture occupy two-thirds of the book, and excellent photographic illustrations, chiefly of local examples, are used. Vegetation, animal life, human activities, and world routes are dealt with rather less successfully in the final fifty pages, where some little revision is necessary—e.g. girth of tropical trees, shell (?) fish, &c.

"Dent's Historical and Economic Geographies."—*North America: Senior Course*. By Horace Piggott, M.A., and Robert J. Finch, F.R.G.S. (3s.)

This is even more satisfactory than the first part, "World Studies," favourably noticed in these columns two years ago. It was suggested then that the authors had set up a very high standard for future volumes. The book is intended for senior pupils and teachers, and the latter will find the material sound and logically arranged, though the absence of an index is a blemish. The historical sections of the book deserve special praise. The illustrations are good, but not very numerous; in fact, this part contains only 63 illustrations compared with the 263 of the first part.

The Map and its Story. (1s. net. Bacon.)

Forty-four maps for physical and commercial geography. Contours, Vegetation, Rainfall, Winds, Isotherms, Trade Routes, and Products are shown for each continent separately, and also for the world as a whole. The British Isles maps have Geology, Population, and Railways in addition. Projections are named throughout, and the scheme of colouring is good. A distinctive feature is that nearly half of each page is occupied by an accurate description of the chief points shown by the map, and these descriptions contain sufficient material for lessons to the middle forms in this branch of the subject. We strongly recommend the adoption of the atlas where price is a consideration.

MATHEMATICS.

Exercises in Arithmetic and Mensuration. By P. Abbott, Head of the Mathematical Department, The Polytechnic, Regent Street, London, W. (4s. 6d. Longmans.)

Provides a more than usually comprehensive collection of questions covering all branches of arithmetical work. It is divided into four parts. Parts I and II include the usual introductory work on decimals and fractions, the measurement of length, area, volume and time, the method of unity, and simple mensuration. Part III is almost entirely devoted to ratio and proportion with the addition of work in connexion with the mensuration of the cylinder, cone, pyramid, and sphere. A noteworthy feature of this section is the use of functional notation and the application of simple trigonometrical ratios. Part IV, with the exception of two sections on contracted methods and logarithms, is devoted to

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The **Exercises** will shortly be published as a separate volume.

Extract from the Preface

WE began with the intention of writing a text for *The Winchester Arithmetic*—a collection of examples published in 1905. But eventually it proved desirable to entirely rearrange and revise the examples after nine years' experience in using them; and also to add very largely to their number.

We draw attention to the **large type** used, which conforms to the standards laid down for various ages by the British Association Committee on "The Influence of School-books upon Eyesight."

The book has, perhaps, a rather practical flavour, but we have not departed so far from the traditional course as to make it unsuited to the needs of schools that take the ordinary public examinations. We have, however, lightened it by omitting matter that may now fairly be considered obsolete. Parts I and II correspond broadly to the first two stages of the syllabus of Mathematical Teaching issued by the Head Masters' Conference. The **Revision Papers** at the end of each Part are supposed to provide straightforward out-of-school work for about forty-five minutes. The **Miscellaneous Exercises** are less straightforward than the revision papers.

A prospectus will be sent on request. Applications for specimen copies will be considered. The number of copies likely to be required if the books are adopted for class use should be stated.

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business problems. Parts III and IV are supplemented by notes on certain important points. Graphical work is made considerable use of, and plenty of diagrams are given. The questions as far as possible are of a practical type and based on everyday problems. The book should prove itself invaluable both to the teacher of arithmetic and to the private student. Answers to all the questions are appended.

Macmillan's Reform Arithmetic for Rural Schools. By Pollard Wilkinson, B.A., B.Sc., Principal, Ipswich Municipal Technical School, and F. W. Cook, A.C.P., Head Master, Springfield Boys' School, Ipswich. (Supplementary Book, Standards V-VII, paper, 5d.; cloth, 6d. Teacher's Book, 1s. 3d.)

The book before us is the one designed for the use of the teacher. The left-hand page shows the exercises contained in the pupil's book. The right-hand page gives the answers with additional oral and blackboard exercise work. The work forms a revision and extension of arithmetical processes learnt in previous years, with special reference to their application in farming problems. The mensuration is of the type required for the measurement of fields, buildings, hayricks, &c. Quite a useful book for its purpose.

A Shilling Arithmetic. By W. M. Baker, M.A., formerly Head Master of the Civil and Military Side, Cheltenham College, and A. A. Bourne, M.A., formerly Mathematical Master at Cheltenham College. (1s.; with answers, 1s. 4d. Bell.)

Covers, in the course of about 180 pages, the usual range of arithmetical work. Considerable use is made of the unitary method. Algebraic notation is introduced where this simplifies the work. Exercises on mensuration are included, the necessary formulæ being stated. There is plenty of work on decimals, but logarithms are omitted. Approximations and checking of results are a useful feature. The book is suitable for all except the absolute beginner.

Workshop Arithmetic. By Frank Castle, M.I.M.E., Lecturer in Practical Mathematics, Machine Construction and Drawing, Building Construction, and Applied Mechanics at the Municipal Technical Institute, Eastbourne. (1s. 6d. Macmillan.)

Just the book for students in the junior mathematical classes in technical schools. It is practical from beginning to end, and there is no useless material. There are three sections. Section 1: deci-

mals, fractions, generalized arithmetic, measurement of length, averages, ratio, graphs, logarithms. Section 2: measurement of area. Section 3: measurement of volume and weight. The examples and exercises are nearly all drawn from engineering and building practice. A very useful little book.

Constructive Textbook of Practical Mathematics. Vol. III, Technical Geometry. By H. W. Marsh, Head of Department of Mathematics, School of Science and Technology, Pratt Institute. (5s. 6d. net. Chapman & Hall.)

An extraordinary scarcity of diagrams, coupled with a conspicuous absence of conventional hypothesis, demonstration and conclusion, are the striking and somewhat novel features of a geometry which is, for sheer originality, in many respects unique. The method of instruction advocated by the author is practically one of suggestion, and, in what is an unusually readable preface, he attempts to justify this departure from the more general procedure. Briefly, the gist of his argument is that a student can best understand and appreciate the subject if it is self-originated and self-developed. The ultimate success of such a method depends as much upon the teacher as upon the book, and, although it may perhaps encourage self-expression and lead to more actual thinking than is usual on the part of the student, we doubt whether, unless the teacher has a special aptitude for this form of instruction, it would give the same successful results which, we understand, have attended its use at the Pratt Institute, under the able supervision of its originator. In any case the rigid class system and the use of the work book as described by the author would have to be adopted. There are two sections—Plane and Solid Geometry. Each is subdivided into books with theorems following Euclidean order. These are prefaced by abbreviated statements of contents, some of which require some little ingenuity to follow. Luckily the full statements are given. One contraction reads: "tan MP sec and ext seg." A set of algebraic and geometric axioms—also with abbreviations—are given for the students to learn and freely quote in support of the various statements they make in the course of their work. There are also two long lists of definitions, each relating to one of the two main sections of the book. The text is in addition enlivened by many appropriate quotations from which Xenophon's "No man is master of a science by another's understanding" may be cited as typical of the author's scheme of instruction.

SCIENCE.

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MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17957. (Prof. J. E. A. STEGGALL, M.A.)—Find the co-ordinates of the node in the unicursal cubic given by

$$x = a_1 + a_2\theta + a_3\theta^2 + a_4\theta^3, \quad y = b_1 + b_2\theta + b_3\theta^2 + b_4\theta^3, \\ z = c_1 + c_2\theta + c_3\theta^2 + c_4\theta^3.$$

Solution by C. M. ROSS, M.A.

The parameters of the points of intersection of the given cubic and the line $Ax + By + Cz = 0$ are given by

$$A(a_1 + a_2\theta + a_3\theta^2 + a_4\theta^3) + B(b_1 + b_2\theta + b_3\theta^2 + b_4\theta^3) \\ + C(c_1 + c_2\theta + c_3\theta^2 + c_4\theta^3) = 0,$$

or $(Aa_4 + Bb_4 + Cc_4)\theta^3 + \dots + Aa_1 + Bb_1 + Cc_1 = 0.$

If $\theta_1, \theta_2, \theta_3$ are the roots of this equation, we have

$$s_1 \equiv \theta_1 + \theta_2 + \theta_3 = -(Aa_3 + Bb_3 + Cc_3)/(Aa_4 + Bb_4 + Cc_4), \\ s_2 \equiv \theta_1\theta_2 + \theta_2\theta_3 + \theta_3\theta_1 = (Aa_2 + Bb_2 + Cc_2)/(Aa_4 + Bb_4 + Cc_4), \\ s_3 \equiv \theta_1\theta_2\theta_3 = -(Aa_1 + Bb_1 + Cc_1)/(Aa_4 + Bb_4 + Cc_4).$$

From these equations

$$A(a_4s_1 + a_3) + B(b_4s_1 + b_3) + C(c_4s_1 + c_3) = 0, \\ A(a_4s_2 - a_2) + B(b_4s_2 - b_2) + C(c_4s_2 - c_2) = 0, \\ \text{and } A(a_4s_3 + a_1) + B(b_4s_3 + b_1) + C(c_4s_3 + c_1) = 0.$$

Eliminating A, B, C from these equations, then

$$\begin{vmatrix} a_4s_1 + a_3 & b_4s_1 + b_3 & c_4s_1 + c_3 \\ a_4s_2 - a_2 & b_4s_2 - b_2 & c_4s_2 - c_2 \\ a_4s_3 + a_1 & b_4s_3 + b_1 & c_4s_3 + c_1 \end{vmatrix} = 0,$$

which may be transformed into the bordered determinant equation

$$\begin{vmatrix} 0 & 0 & 0 & 1 \\ a_4s_1 + a_3 & b_4s_1 + b_3 & c_4s_1 + c_3 & s_1 \\ a_4s_2 - a_2 & b_4s_2 - b_2 & c_4s_2 - c_2 & s_2 \\ a_4s_3 + a_1 & b_4s_3 + b_1 & c_4s_3 + c_1 & s_3 \end{vmatrix} = 0;$$

therefore $\begin{vmatrix} a_4 & b_4 & c_4 & -1 \\ a_3 & b_3 & c_3 & s_1 \\ a_2 & b_2 & c_2 & -s_2 \\ a_1 & b_1 & c_1 & s_3 \end{vmatrix} = 0 \dots\dots\dots (A).$

This is the condition that the three points $\theta_1, \theta_2, \theta_3$ should be collinear.

If the left-hand side of (A) be expanded thus

$$A_4 + A_3s_1 + A_2s_2 + A_1s_3 = 0 \dots\dots\dots (B),$$

where A_4, \dots, A_1 are the determinants contained in the matrix

$$\begin{vmatrix} a_1 & a_2 & a_3 & a_4 \\ b_1 & b_2 & b_3 & b_4 \\ c_1 & c_2 & c_3 & c_4 \end{vmatrix}$$

and θ_1, θ_2 are the parameters of the node, θ_3 may be regarded as quite arbitrary. Hence (B) must be zero for all values of θ_3 , and therefore

$$A_4 + A_3(\theta_1 + \theta_2) + A_2\theta_1\theta_2 = 0, \\ \text{and } A_3 + A_2(\theta_1 + \theta_2) + A_1\theta_1\theta_2 = 0.$$

If the quadratic whose roots are θ_1, θ_2 be

$$\theta^2 - \theta(\theta_1 + \theta_2) + \theta_1\theta_2 = 0,$$

we have, on elimination,

$$\begin{vmatrix} \theta^2 & -\theta & 1 \\ A_4 & A_3 & A_2 \\ A_3 & A_2 & A_1 \end{vmatrix} = 0.$$

This quadratic equation gives the parameters of the node, and, these being known, it is now easy to find the co-ordinates of the node.

17911. (Prof. K. J. SANJANA, M.A. *Suggested by Prof. ESCOTT's Question 16885.*)—Prove that the surd $\{a - r(a^2 - k^2)\} \div k$ may be transformed into the infinite continued fraction

$$\frac{k}{2a - k^2 + 4a_1 - k^4 + 16a_2 - k^8 + 64a_3 - 256a_4 - \dots}$$

where $a_1 = a^2 - \frac{1}{2}k^2, a_2 = a_1^2 - \frac{1}{4}k^4, a_3 = a_2^2 - \frac{1}{8}k^8, \dots$ and find the corresponding infinite series.

Solution by H. R. WALES.

$$\frac{a - \sqrt{a^2 - k^2}}{k} = \frac{k}{a + \sqrt{a^2 - k^2}} = \frac{k}{2a - [a - \sqrt{a^2 - k^2}]} \\ = \frac{k}{2a - 2a^2 + 2a\sqrt{a^2 - k^2}} \\ = \frac{k}{2a - 2a^2 + 2a\sqrt{a^2 - k^2}} \quad [\text{where } a_1 = a^2 - \frac{1}{2}k^2] \\ = \frac{k}{2a - (2a_1 + k^2) + \sqrt{(4a_1^2 - k^4)}} \\ = \frac{k}{2a - k^2 + 4a_1 - 8a_1^2 + 4a_1\sqrt{(4a_1^2 - k^4)}} \\ = \frac{k}{2a - k^2 + 4a_1 - (8a_2 + k^4) + \sqrt{(64a_2^2 - k^8)}} \\ = \frac{k}{2a - k^2 + 4a_1 - k^4 + 16a_2 - k^8 + 256a_3 - \dots}$$

where $a_1 = a^2 - \frac{1}{2}k^2, a_2 = a_1^2 - \frac{1}{4}k^4, a_3 = a_2^2 - \frac{1}{8}k^8, \dots$

The fraction may be written

$$\frac{u_1}{v_1 - u_2} + \frac{u_2v_1}{v_2 - u_3} + \frac{u_3v_2}{v_3 - u_4} + \frac{u_4v_3}{v_4 - u_5} + \dots,$$

where $u_1 = k, u_2 = k^2, u_3 = k^4, u_4 = k^8 \dots u_n = k^{2^{n-1}}$, and $v_1 = 2a, v_2 = 4a_1, v_3 = 16a_2, v_4 = 256a_3 \dots v_n = 2^{2^n - 1} a_{n-1}$.

The corresponding infinite series can easily be shown to be

$$\frac{u_1}{v_1} + \frac{u_1u_2}{v_1v_2} + \frac{u_1u_2u_3}{v_1v_2v_3} + \dots = \frac{k}{2a} + \frac{k^3}{8aa_1} + \frac{k^7}{128aa_1a_2} + \dots$$

The n -th term of this series is

$$k^{2^n - 1} / 2^{2^n - 1} \cdot aa_1a_2 \dots a_{n-1}.$$

17944. (W. F. BEARD, M.A.)—Two rectangular hyperbolas are circumscribed about a triangle so as to cut the circum-circle at opposite ends of a diameter. Prove that the axes of each hyperbola are parallel to the asymptotes of the other.

Solution by MAURICE A. GIBLETT, B.Sc. Lond.

Let the hyperbolas cut circum-circle at T, T' respectively.

Draw TX perpendicular to BC meeting circum-circle again in t.

Take M, the image of t in BC. Then XB.XC = Xt.XT = -XM.XT.

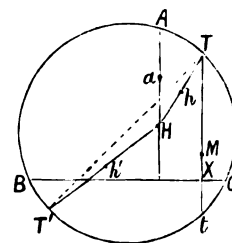
Hence rectangular hyperbola through ABCT traverses M (and also H).

But AH = TM; therefore ATMH is a parallelogram inscribed in the hyperbola.

Hence the centre of the hyperbola is h, the mid-point of HT, and, the hyperbola being rectangular, the asymptotes are parallel to the bisectors of an angle of this parallelogram. Hence the asymptotes are parallel to the bisectors of the angle hah, where Aa = ah, since ha, Aa are parallel to conjugate diameters.

So for the other hyperbola the asymptotes are parallel to bisectors of angle h'aH. But hh' = 1/2 TT' = radius of Medial circle; also h, h' lie on Medial circle. Hence hh' is diameter of Medial circle.

Hence h'ah is a right angle. Hence asymptotes of each hyperbola are parallel to axes of other.



17847. (W. F. BEARD, M.A.)—Parabolas are escribed to a given triangle. Prove that (i) the polar of the centroid of the triangle touches the minimum circumscribed ellipse, (ii) the polar of the centroid of the points of contact touches the maximum inscribed ellipse. Show that similar theorems hold in the case of circumscribed parabolas.

Solution by Lieut.-Col. H. W. L. HIME.

(i) The anharmonic equation of the circum-*escribed* parabola of origin (l, m, n) is $x^2 + y^2 + z^2 - 2yz - 2zx - 2xy = 0$, with the condition $mn + nl + lm = 0 \dots\dots\dots (1).$

The polar of the centroid $(1/l, 1/m, 1/n)$ of the given triangle is $mnx + nly + lmz = 0$ (2).

The equation of the minimum circum-ellipse, transformed to origin (l, m, n) is $mnys + nlzx + lmxz = 0$.

The condition that (2) shall be a tangent to this ellipse is

$$0 = -\Sigma l^2 m^4 + 2(l^2 m^2 n^2 + l^2 m^4 n^2 + l^2 m^2 n^4),$$

$$=, (1), -\Sigma l^4 m^4 + \Sigma l^2 m^4 - 2l^2 m^2 n^2 (mn + nl + lm) = 0 \text{ identically.}$$

(ii) The points of contact of the circum-cribed parabola with the given triangle are $(011), (101), (110)$, and their centroid is $(m^2 + n^2, n^2 + l^2, l^2 + m^2)$,

the polar of which to this parabola is $l^2 x + m^2 y + n^2 z = 0$ (3).

The equation of the maximum in-ellipse, transformed to origin (l, m, n) , is $l^2 x + m^2 y^2 + n^2 z^2 - 2mnys - 2nlzx - 2lmxy = 0$, and the condition that (3) shall be a tangent to this ellipse is $0 = l^2 m^2 n^2 + l^2 m^2 n^2 + l^2 m^2 n^2 = l^2 m^2 n^2 (mn + nl + lm) = 0$, identically.

Similarly for the other two escribed parabolae.

The PROPOSER solves as follows:—

(i) Taking the given triangle as the triangle of reference, let the areal equation of one parabola be $\Sigma \sqrt{\lambda x} = 0$ with the condition $\Sigma \lambda = 0$ (i).

The polar of the centroid is

$$\Sigma \lambda x (\lambda - \mu - \nu) = 0 \text{ or } \Sigma \lambda^2 x = 0,$$

which with the condition (i) envelopes the conic $\Sigma yz = 0$, which is the minimum circumscribed ellipse.

N.B.—The point of contact with this ellipse is $1/\lambda, 1/\mu, 1/\nu$, which is the point of intersection of the joins of each vertex of the triangle with the point of contact of the opposite side.

(ii) The point of contact of $x = 0$ with the parabola is

$$x/0 = y/\nu = z/\mu = 2\Delta/(\mu + \nu) = -2\Delta/\lambda;$$

therefore the centroid of the points of contact is given by

$$x = -2\Delta/3(\mu/\nu + \nu/\mu), \dots,$$

or $x/[\lambda(\mu^2 + \nu^2)] = y/[\mu(\nu^2 + \lambda^2)] = z/[\nu(\lambda^2 + \mu^2)]$

therefore the polar of the centroid is

$$\Sigma \lambda x [\lambda^2(\mu^2 + \nu^2) - \mu^2(\nu^2 + \lambda^2) - \nu^2(\lambda^2 + \mu^2)] = 0$$

or $\Sigma (x/\lambda) = 0$,

which envelopes (using $\Sigma \lambda = 0$) the conic $\Sigma \sqrt{x} = 0$, which is the maximum inscribed ellipse.

In the case of the circumscribed parabola we shall find that the polar of the centroid of the triangle envelopes the conic

$$\Sigma x^2 + 3\Sigma yz = 0,$$

which is an ellipse with its centre at the centroid, and that the polar of the centroid of the triangle formed by the tangents at the vertices envelopes $\Sigma \sqrt{x} = 0$, which is the same conic as in (ii).

17976. (NORMAN ALLISTON.)—In $a^2 = b^2 + c^2$, bc may be any odd-power number; but b and c may not both be odd-power numbers of like degree; that is, the equation $a^2 = b^{2n+2} + c^{2n+2}$ cannot subsist, unless $n = 0$.

Solution by the PROPOSER.

Multiply $a^2 = b^2 + c^2$ by $(bc)^{2n}$. Then

$$(ab^n c^n)^2 = (b^{n+1} c^n)^2 + (b^n c^{n+1})^2 = b_1^2 + c_1^2;$$

and $b_1 c_1 = (bc)^{2n+1}$, any odd-power number.

Next suppose $a^2 = b^{2p} + c^{2p}$, with p odd;

and let it be such an instance that a, b, c are prime to one another; for any common factor of the square roots would be a p -power, and might be divided out without altering the form. Therefore u and v , the generating numbers of the instance, are also prime to one another, and not both odd. Therefore $(u+v)$, $(u-v)$ are inter-primarily; and because $b^p = u^2 - v^2$, they are both p powers.

$$u + v = d^p, \quad u - v = e^p.$$

Further, $c^p = 2uv$; and either

(i) v is even, making $2v$ prime to u ; therefore $2v = f^p$;

(ii) u is even, making $2u$ prime to v ; therefore $2u = f^p$.

In case (i), $(u+v) - (u-v) = 2v$; that is, $d^p - e^p = f^p$.

In case (ii), $(u+v) + (u-v) = 2u$; that is, $d^p + e^p = f^p$.

Both these equations are inconsistent, by Fermat's theorem, unless $p = 1$; therefore so is the original.

17955. (B. HOWARTH.)—Let D be a prime number greater than 5, and let $1/D$ have a period of p figures. Then (1) D is a factor of $\overset{m \rightarrow}{000 \dots 001}$, if mn be a multiple of p and n be not; (2) D is not a

factor of $\overset{m \rightarrow}{000 \dots 001}$, if mn be not a multiple of p . Prove also that (1) and (2) hold when D is not prime providing that the reciprocal of each factor of D gives rise to a pure circulator with a period of p figures.

[Notation.—I use $\overset{m \rightarrow}{000 \dots 001}$ to denote

$$\overset{(n)}{000 \dots 001}, \overset{(n)}{000 \dots 001}, \overset{(n)}{000 \dots 001}, \&c.,$$

to m groups, (n) denoting the number of figures in the group

$\overset{m \rightarrow}{000 \dots 001}$. Hence, if $(n) = 1$, then $\overset{m \rightarrow}{000 \dots 001} = \overset{m \rightarrow}{1}$; if 2,

$\overset{m \rightarrow}{01}$; if 3, $\overset{m \rightarrow}{001}$, and so on. Thus

$$\overset{m \rightarrow}{1} = 111 \dots \text{ to } m \text{ terms, } \overset{4 \rightarrow}{99} = 99999999 = \overset{8 \rightarrow}{9},$$

$$\overset{3 \rightarrow}{001} = 001001001.$$

N.B.—The arrow-head of the group-index is placed over the first figure of the group, and (n) , the digit-index, is placed under the last figure of the group.]

Solution by the PROPOSER.

First part.—

(1) Let mn be a multiple of p , and n not.

Now $1/D$ gives rise to a pure circulator with a period of p figures:

therefore D is a factor of $\overset{p \rightarrow}{9}$;

therefore D is a factor of $\overset{mn \rightarrow}{9}$, because mn is a multiple of p ;

therefore D is a factor of $\overset{n \rightarrow}{9} \times \overset{m \rightarrow}{000 \dots 001}$;

therefore, as D is prime, D must be a factor of either $\overset{n \rightarrow}{9}$ or $\overset{m \rightarrow}{000 \dots 001}$.

But D cannot be a factor of $\overset{n \rightarrow}{9}$, because n is not a multiple of p .

Therefore D is a factor of $\overset{m \rightarrow}{000 \dots 001}$.

(2) If D be a factor of $\overset{m \rightarrow}{000 \dots 001}$,

then D is a factor of $\overset{m \rightarrow}{999 \dots 999}$;

therefore D is a factor of $\overset{m \rightarrow}{9}$.

But D cannot be a factor of $\overset{m \rightarrow}{9}$, because D is a factor of $\overset{m \rightarrow}{9}$, and, by hypothesis, mn is not a multiple of p .

It follows that D is not a factor of $\overset{m \rightarrow}{000 \dots 001}$, if mn be not a multiple of p .

Second part.—

(1) As shown above, D is a factor of $\overset{n \rightarrow}{9} \times \overset{m \rightarrow}{000 \dots 001}$; and as the reciprocal of each factor of D gives rise to a pure circulator with a period of p figures,

therefore each factor of D is a factor of $\overset{p \rightarrow}{9}$;

therefore no factor of D can be a factor of $\overset{n \rightarrow}{9}$, because n is not a multiple of p .

Therefore D is a factor of $\overset{m \rightarrow}{000 \dots 001}$.

(2) Part (2) in Question is true when D is not prime, and whatever be the period of the reciprocal of any factor of D , providing $1/D$ gives rise to a pure circulator with a period of p figures. Proof of this is identical with that given in (2) above.

17906. (W. J. MARTYN.)—If $a_2 b_3 + a_3 b_2 = a_3 b_1 + a_1 b_3 = a_1 b_2 + a_2 b_1$, the determinant

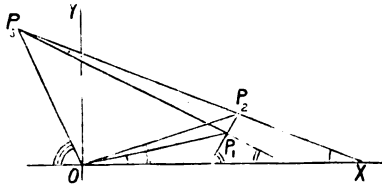
$$\begin{vmatrix} a_1^2 + b_1^2 & a_1 & b_1 \\ a_2^2 + b_2^2 & a_2 & b_2 \\ a_3^2 + b_3^2 & a_3 & b_3 \end{vmatrix} \text{ vanishes.}$$

Solutions (I) by R. F. DAVIS, M.A., E. R. NOBLE, M.A., and C. M. ROSS, M.A.; (II) by F. MAYOR, B.A.

(I) Let each of the given equalities = t . Put $\Sigma (b_i/a_i) = q$, then $b_i/a_i = q - t/(a_i a_3)$ with two similar equations. Then eliminating $t/(a_i a_2 a_3)$, $-q, 1$ linearly we have the determinant $\{(a_1, 1, b_1/a_1); (a_2, 1, b_2/a_2); (a_3, 1, b_3/a_3)\} = 0$,

or $\{(a_1^2, a_1, b_1); \dots\} = 0$.
 Similarly $\{(b_1^2, b_1, a_1); \dots\} = 0$ or $\{(b_1^2, a_1, b_1); \dots\} = 0$.
 Adding $\{(a_1^2 + b_1^2, a_1, b_1); \dots\} = 0$.
 (II) $a_2 b_3 + a_3 b_2 = a_3 b_1 + a_1 b_3$;
 therefore $(b_1 - b_2)/(a_1 - a_2) = -b_3/a_3$(1)

Let P_1, P_2, P_3 be the points $(a_1, b_1), (a_2, b_2), (a_3, b_3)$ referred to rectangular axes OX, OY .



Then (1) shows OP_3 and $P_1 P_2$ make equal angles with OX , but in opposite senses. This and the two similar conditions show that $OP_1 P_2 P_3$ is a cyclic quadrilateral.

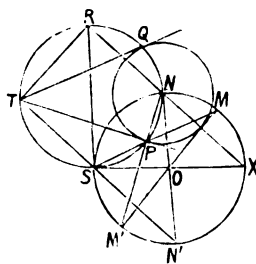
Therefore the lines through P_1, P_2, P_3 perpendicular respectively to OP_1, OP_2, OP_3 are concurrent.

But these lines are $a_1 x + b_1 y = a_1^2 + b_1^2$, &c., &c.
 Hence the determinant vanishes.

17982. (W. N. BAILEY. Suggested by Question 17625.)—A circle touches a limaçon at P and Q , the points of contact being on different loops. Show that the locus of the point of intersection of the tangents at P and Q is a cissoid.

Solution (I) by C. E. YOUNGMAN, M.A.

Let S be the node and SOX a diameter of the directrix; P on the limaçon is obtained by taking MP a fixed length along any chord SM . This chord is at the moment turning round M' opposite to M , therefore $M'P$ is normal to the curve; let N be where it cuts the directrix again. Then the two right-angled triangles SPM', NSX have



$\angle SPM' = \angle NSX$,

and therefore $SPM' = NSX$;

therefore the circle SPN touches OS . Also, from similar triangles, $SPN, M'PM, NP : NS = MP : MM' = \text{constant}$;

thus P may be regarded as the intersection of two varying circles, the first orthogonal at S and N to the directrix, the second having centre N and radius $k.NS$; and the limaçon is the envelope of the second, having double contact with it at P and Q , where the two circles meet.

The tangents at P and Q meet at T opposite to N on the first circle; and R opposite to S lies on XN ; hence TR is a tangent to the parabola whose focus is X and vertex S ; and the locus of T is the pedal of this parabola for S ; a cissoid.

QUESTIONS FOR SOLUTION.

18032. (E. R. HAMILTON, B.Sc.)—The quantities x_1, \dots, x_n vary harmonically about mean values a_1, \dots, a_n in such a way that

$$\begin{aligned} x_1 &= a_1 + A_1 \sin(pt + \alpha_1) \\ &\dots \dots \dots \dots \dots \\ x_n &= a_n + A_n \sin(pt + \alpha_n). \end{aligned}$$

If $y = f(x_1, \dots, x_n)$, show that y varies in the same way about a mean value provided that the x 's are always very nearly equal to their means.

Hence show that if y_1, \dots, y_n are functions f_1, \dots, f_n of x_1, \dots, x_n , and these x 's vary as in the first part of the Question, the arithmetic mean of the y 's is of the form

$\bar{y} = Y + P \sin(pt + q)$.

18038. (T. MUIR, LL.D.)—For the zero-axial determinants of the 4th and 5th orders Cayley, in 1859, gave the expressions

$$\begin{aligned} \Sigma \{ (12.21)(31.43) \} - \Sigma (12.23.34.41), \\ - \Sigma \{ (12.21)(34.45.53 + 35.54.43) \} + \Sigma (12.23.34.45.51) \end{aligned}$$

respectively. Find the similar expression for the corresponding determinant of the 6th order.

18034. (Professor K. J. SANJANA, M.A.)—Solve the following differential equations

- (1) $x^2 y'' - xy' + y = \log(x+a) + \frac{a(3x+2a)}{(x+a)^2}$,
- (2) $x^2 y'' + xy' - y = \log \frac{1}{x+a} + \frac{ax}{(x+a)^2}$,
- (3) $(1+y^2)(xy' - y) = y''(x^2 + y^2)$.

18035. (C. M. ROSS, M.A.)—If p and q are functions of x, y, z satisfying the equations

$$\begin{aligned} x^2/(a^2 + p) + y^2/(b^2 + p) + z^2/(c^2 + p) &= 1, \\ x^2/(a^2 + p)^2 + y^2/(b^2 + p)^2 + z^2/(c^2 + p)^2 &= 1/q^2, \end{aligned}$$

show that

$$d^2 p/dx^2 + d^2 p/dy^2 + d^2 p/dz^2 = 2q^2 \{ 1/(a^2 + p) + 1/(b^2 + p) + 1/(c^2 + p) \}.$$

18036. (S. KRISHNASWAMI AIYANGAR, B.A.)—If

$$\begin{aligned} s_n &= 1 + \frac{1}{3} + \frac{1}{5} + \dots \text{ to } n \text{ terms,} \\ \sigma_n &= \frac{1}{2} - \frac{1}{4} + \frac{1}{6} - \dots \text{ to } n \text{ terms,} \end{aligned}$$

and prove that

$$\begin{aligned} \frac{1}{2} \log 2 \{ \frac{1}{2} + s_1/3.4 + s_2/5.6 + \dots \} - \{ s_1 \sigma_1/3.4 + s_2 \sigma_2/5.6 + \dots \} \\ = \frac{1}{2} \int_0^{\pi} \theta^2 \operatorname{cosec}^2 \theta d\theta. \end{aligned}$$

18037. (B. HOWARTH.)—Let

$$N = 000 \dots 001, 000 \dots 001, 000 \dots 001, \dots, \text{ to } m \text{ periods,}$$

each period (000 ... 001) consisting of p figures. Then, if m be resolvable into n different primes (unity excluded), the number of different ways in which N can be resolved into n factors cannot be less than $n!$.

18038. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Factorize (into prime factors as far as possible)

$$N = 102030405 \dots 95969799 \text{ [195 figures].}$$

This number contains all the numbers 1, 2, 3, ... 99 in succession, except 98.

18039. (C. M. ROSS, M.A.)—OABCD is a regular pyramid on a square base ABCD, O being the vertex. A plane PQRST cuts it so that $OP = a, OQ = b, OR = c, OS = d$. Show that

$$1/a + 1/c = 1/b + 1/d.$$

18040. (Professor R. SRINIVASAN, M.A.)—On the parabola $y^2 = 4ax$ on the horizontal plane another equal parabola whose plane is vertical is made to roll, their vertices coinciding at some moment, and the plane of the rolling parabola contains always the tangent to the horizontal parabola at the point of contact. Find the curve traced by the focus of the rolling parabola.

18041. (C. E. YOUNGMAN, M.A.)—If three points on a tricuspid are collinear, putting the triangle of tangents into perspective with the triangle of normals, the centre of perspective lies on the cuspidale.

18042. (W. N. BAILEY.)—A circle has double contact with a limaçon, the points of contact not being symmetrical with respect to the axis. Show that the chord of contact passes through a fixed point on the axis, and that the limaçon can be inverted into itself with respect to this point.

18043. (W. F. BEARD, M.A.)—PN is the ordinate of a point P on a hyperbola, NQ is a tangent to the auxiliary circle. Prove geometrically that PQ envelopes a conic.

18044. (The late Professor LAUVERNAY.)—Lieu des centres des hyperboles équilatères circonscrites à un triangle donné.

18045. (W. F. BEARD, M.A.)—T is any point on a circle X, centre O, and S, S' are two fixed points on a diameter such that $OS = OS'$. TS, TS' meet X again at P, P' and the circles OSP, OS'P' meet again at Q. PQ, P'Q meet these circles again at R, R'. Prove (i) R, R' are inverse points with regard to X; (ii) SR', S'R are parallel to S'T, ST; (iii) SR'. S'T = S'R. ST = constant.

18046. (H. D. DRURY, M.A.)—The diagonals of a quadrilateral inscribed in a circle cut at right angles. Show that the distance of the centre of the circle from any side of the quadrilateral is equal to half the length of the opposite side.

18047. (R. F. DAVIS, M.A.)—ABC is a triangle (in which $2AB > AC$) and D is the middle point of the base BC. It is required to find a point P lying upon the internal bisector of the angle A which satisfies the relation $BP^2 = 2DP \cdot AB$. Prove that the biquadratic determining the length AP can be completely resolved; and give the corresponding geometrical constructions. Hence also prove that in the general triangular notation $OI^2 = 2R \cdot NI$.

18048. (F. G. W. BROWN, B.Sc., F.C.P.)—The sides $I_2 I_3, I_1 I_3, I_1 I_2$ of the triangle $I_1 I_2 I_3$ formed by joining the ex-centres of any triangle ABC are α, β, γ respectively, and the in-radius of $I_1 I_2 I_3$ is σ ; prove that, in the usual notation for a triangle ABC,

- (1) $\alpha^2 + \beta^2 + \gamma^2 = 8R(4R + r)$;
- (2) $1/\sigma = ar_1/\alpha + br_2/\beta + cr_3/\gamma$;
- (3) The equation giving the diameter of the circle which touches and encloses the ex-circles of ABC is

$$r \Sigma (b+c) \sqrt{[(a-r_2-r_3)^2 \cdot \alpha^2]} = 2abc$$

hence find x when $a = 21, b = 10, c = 17$.

18049. (E. G. HOGG, M.A.)—If p_1, p_2, p_3 be the perpendiculars from the Symmedian point of the triangle ABC on the sides of any triangle inscribed in the circle ABC and touching the Brocard ellipse of the triangle ABC, then

$$4R^2(1/p_1^2 + 1/p_2^2 + 1/p_3^2) = \operatorname{cosec}^2 \omega \cot^2 \omega,$$

where ω is the Brocard angle of the triangle ABC.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

18548. (The late Professor SYLVESTER.)—If $[a, p, \beta]$ means that one of the integers 1, 2, 3, ... p , when multiplied by β , gives a product congruous to a to mod p and ρ is any irrational p -th root of unity, prove that $\sum \frac{\rho^a}{1-\rho^p} = [a, p, \beta] \frac{p-1}{p} - \frac{p^2-1}{2p}$.

18607. (Professor MORLEY.)—Prove that the greatest length of a beam of square section b which can exist in a cube of side a is approximately $a\sqrt{3} - \sqrt{2}(2 + \sqrt{3})b/3 - (2 - \sqrt{3})b^2/9a$.

18724. (Professor H. LANGHORNE ORCHARD, M.A., B.Sc.)—Sum to n terms the series

$$0 + 2 + 18 + 192 + 2500 + 38880 + 705894 + \dots$$

18736. (H. W. CURJEL, M.A.)—Solve the equation

$$u_{x+1}(1-u_x) = a,$$

and hence, by putting $a = \frac{1}{2}$ and $u_x = \{\frac{1}{2}(\sqrt{5} + 1)\}^2$ (or otherwise), show (1) that the radius of the hypersphere circumscribing the regular hypersolid of four dimensions contained by 600 regular tetrahedra, each edge of which is unity is $\frac{1}{2}(\sqrt{5} + 1)$; (2) that the only regular hypersolid, the plane faces of the three-dimensional components of which are pentagons, is the four-dimensional one contained by 120 dodekahedra.

18988. (Professor UMES CHANDRA GHOSH.)—Solve the equation $e^{ax} = bx$.

14044. (Professor E. J. NANSON.)—In the case of a non-circular algebraic curve, prove that the product of the finite normals from any point divided by the product of the distances of the point from the finite real foci of the curve is a constant multiple of the power of the point with respect to the curve, and extend the theorem in the case of a curve which is circular in any degree.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, June 10, 1915. — Prof. Sir Joseph Larmor, M.P., F.R.S., President, in the Chair.

Messrs. H. Jeffreys and G. R. Goldsbrough were elected members.

The President reported the death of Prof. M. W. Crofton, formerly a member, and spoke of his mathematical work.

Prof. W. Burnside read a paper: “On Periodic Irrotational Waves at the Surface of Deep Water.”

Mr. G. H. Hardy communicated a paper by Prof. M. Kuniyeda: “A Theorem on Series of Orthogonal Functions.”

The following papers were communicated by title from the Chair:—

“The Effect on the Tides of the Variation in the Depth of the Sea”: Mr. G. R. Goldsbrough.

“Oscillations near an Isosceles Triangle Solution of the Problem of Three Bodies, as the Finite Masses become unequal”: Prof. D. Buchanan.

An informal question was asked, on behalf of Mr. E. H. Neville, as to the connexion between the zeros of an integral function and the zeros of the derived function.

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The Educational Times.

INSPECTION INDISPENSABLE TO EFFICIENCY.

THE Schools Inquiry Commissioners (1864-8) recommended inspection as indispensable if efficiency was to be secured in the domain of secondary education. "Even the best masters," they say, "will not do so well without this aid as with it." In reference to private schools, the Commissioners came to the conclusion that it was of public importance that they should be put on the best possible footing and aided to do their work well. They pointed out that on the Continent it was usual to allow no man to teach who did not possess the requisite attainments, and no school to receive pupils except on condition of inspection by public officers. The Commissioners admitted that the general feeling of the day was against the application of compulsion to private schools, and they saw that inspection, without authority to insist upon reforms, would be valueless. They advised, therefore, that a Register of private schools should be formed and that inspection should be one of the conditions of a place on this Register.

Throughout the Report the Commissioners insist upon the importance of examination in conjunction with inspection—a systematic use of both aids is, in their opinion, essential to efficiency. In reference to endowed schools, they say that "if all endowments heretofore had been regularly inspected, it is hardly conceivable that the grammar schools should have fallen into their present condition"; and, in reference to private schools, they expressed the belief that, if a precise and impartial test were applied to their work year by year, they would rise above their existing conditions and be found thoroughly efficient.

For many years the recommendations of the Commissioners with regard to inspection remained an ideal to be aimed at. The early inspections of the Science and Art

Department were mainly designed to check and supervise administrative detail. It was not until 1894 that the Department's Inspectors extended their survey to all the subjects of the school time-table, and it was ten years later that the Board of Education were able to establish a complete system of inspection of the secondary schools that were officially under their control.

The development of examinations for secondary schools has been upon quite other lines. When the Commissioners were sitting, these examinations were comparatively new and affected a limited number of schools. At the present time the test that the Commissioners desired is applied annually to all schools, both public and private. But these examinations have grown up entirely apart from the organization of the State. The Commissioners argued that examination and inspection ought to be closely allied; but while the Science and Art Department, the Education Department, and, later, the Board of Education, were gradually developing and perfecting a complete system of inspection, examinations under the control of Universities and other bodies leaped ahead and covered the whole ground, so that practically all secondary schools are now subject to an examination test.

The Board of Education, returning to the findings of the 1864 Commission, are endeavouring to secure the close connexion of examination and inspection. This is the reason why the latest Report of the Board of Education (1913-1914) contains a full account of the growth of inspection, with suggestions for its future development. The Board are rightly convinced that the public good requires the inspection of private no less than of public schools, and they are now assured that private schools desire such inspection. The principal difficulty is the cost. Parliamentary powers are given to inspect, at the public charge, all schools that receive State grants. In the past there have been no powers for the free inspection of private preparatory schools (which are not secondary according to the Board's definition) or any other group of private schools. It is true that since 1899 such schools, by payment, could be inspected under the Board of Education Act; but the cost proved in almost all cases to be prohib-

itive. In 1908 the Board established a List of Efficient Secondary Schools, which "includes all schools on the grant list, and is also open to schools which, though not receiving grants, do not fall below the educational standard required for that purpose." Inspection for this purpose is given without cost to the school. A further concession has been made by the Treasury, which allows the Board to inspect a limited number (understood to be twenty) of preparatory schools each year.

With the present staff of thirty-four Inspectors the Board are able to carry out each year about two hundred and fifteen full inspections. If all private schools are to receive, as we are convinced they ought to receive, the benefit of inspection, the inspecting staff will need to be greatly increased. At the present time additional grants for education are hard to come by. It is possible that the difficulty may be partly met by making the full inspections less frequent and less detailed. The more the teaching profession is organized, and the more complete the qualifications and training of teachers, the less need for minute inspection of methods of teaching.

The Report tells us that numerous applications for inspection in order to qualify for admission to the Efficient List have been received. In many cases it was obvious on inquiry that the school could not fulfil the conditions, and inspection was refused. Inspection was carried out in over ninety cases, and twenty-one private schools have been placed on the List. The Board are evidently willing to inspect more private schools. It is quite certain that many private schools hesitate to apply for inspection from a belief that they will be judged mainly on their buildings, as they hold that their buildings are less important than the spirit that dominates and vivifies their teaching. It is interesting to learn that, out of the seventy-four private schools that after inspection failed to obtain admission to the Efficient List, not one was refused on the ground of buildings alone.

Inspection and examination should be in close union. At the present time examination has outstripped inspection, and is altogether outside State control. This makes union difficult, but we are not without hope that the Board of Education, profiting by the suggestions that have been made in reference to their proposals for a closer connexion between the two tests, may be able to devise a satisfactory scheme. The first scheme put forward, based upon a Report of the Consultative Committee, has been shown to be unworkable. Inspection should be extended to all schools, and we consider that every private school should ask for inspection with a view to inclusion in the Efficient List. If this inspection is refused after a preliminary inquiry, the school has an idea of what are its shortcomings and has an incentive to overcome them. If, on the other hand, inspection is granted, but without success, the school has received the advantage of sound advice, which it can endeavour to follow for a few years and then make further application. The knowledge of the failure to qualify does not become public and the criticism is at all times valuable.

NOTES.

If teachers are to maintain freshness and effectiveness in their work it is almost essential that they should have a "holiday" — i.e. a change of occupation. The principal strain of school life lies in the time-table. The teacher, unlike the worker, must keep one eye on the clock and the other on the class: he cannot concentrate his energies on his individual work. The day is split up into a number of artificial divisions; in each an infinitesimal part of the subject of study has to be done and completed at the hour. The strain is there, because the feeling is constantly present that the task must be finished at a fixed moment. For the children it is the same. Interest is just beginning to be aroused in drawing a map of Europe when the bell rings, and the mind has to be switched on to the curious behaviour of irregular verbs. Contrast this with the hay-field. One enters at six o'clock in the morning and, with enjoyable intervals for rest and refreshment, one continues to rake the mown hay until it is all in cocks. There is no need to carry a watch.

TEACHERS must have their holidays; but few will be satisfied with the kind of summer holiday that was enjoyed two years ago. Everyone wants to share in some work that will directly help the War. The Board of Agriculture have issued circulars to farmers suggesting that teachers might help in the harvest; but the returns received show no indication that the farmers wish to any considerable extent to make use of such offers. This is probably because farmers are not accustomed to plan beforehand for amateur labour. But it may be quite different when the harvest begins, and it is desirable that teachers who are willing to do this sort of work should give in their names at the nearest Labour Exchange. It is also very likely that any teachers who decide to spend their holiday in a country spot will find when they arrive that it is easy to get work in the fields. With regard to Munition work, it is stated that the factories now contain a sufficient supply of unskilled labour. Employers are reluctant to train workers for a short period.

THE information that we have given in the preceding Notes is taken from a letter issued by members of the staffs of King Edward's Schools, Birmingham. For further details reference should be made to the Correspondence Column. It seems that the most obvious work for the summer holidays is in connexion with the formation of the National Register. Arrangements will be pressed forward as rapidly as possible, and it is probable that by the time these words are in print the Local Authorities will be in a position to employ additional labour. The Registration Authorities are the Borough Councils, the Urban District Councils, and the Rural District Councils. It must not be thought that the work will be altogether unskilled.

War Work in Holidays.

Harvest.

The National Register.

There will be envelopes in plenty to address, but there will probably be a need in many localities for house to house visitation and assistance in filling up the form. Then will follow the tabulation of returns and the arrangement in suitable form for transmission to headquarters. This work may not sound so healthful as labour in the harvest; on the other hand, the number of hours a day for voluntary workers may well be limited to four or five.

The War is already entailing great hardship on schools.

In some cases there is no money to meet working expenses. Parents often demand a reduction in the fees, on the ground that their income has been reduced; or they take a pupil away a year earlier than they would have done in normal times; or the fees remain unpaid. But we shall win this War just because the spirit of freedom has been developed by education, and when the War is over, if we are to continue a free nation, the need for education will be greater than ever. On all sides comes advice to practise thrift. We shall have to practise thrift. If the compulsion has not yet reached us all, it will soon do so. Gradually the rise in the cost of provisions and of labour, and the increase of taxation, will affect everyone. But the nation is not yet so poor that it cannot educate the children. Such economy is the last that should be practised.

The Board of Education are continuing their conferences with the representatives of various educational bodies on the subject of the examination proposals contained in Circular 849; but we have not yet been informed that the Council of the College of Preceptors have been invited to express its views. But we have no doubt that all published criticisms of the document are collated by the Board, and it is probable that they have already prepared a scheme that will prove more acceptable than the one issued in June, 1914. We print on another page the memorandum of the Teachers' Registration Council on the subject. The Council see a danger lest a new machinery should be established without effecting the purpose aimed at—viz. relief from numerous examinations. They suggest that they themselves should appoint not less than one half of the members of the proposed advisory body. In this we fully concur; in fact, we think that the whole scheme might well be carried out by the Registration Council. The Council are of opinion that there should be no compulsion on schools to take the proposed new examination, and they express the view that inspection is a better test of efficiency than examination.

MR. A. ROBINSON writes in *The Times Educational Supplement* for July criticizing Circular 849. The letter is too long to quote, but we give the concluding paragraph, which sums up the writer's view that the proposals, if carried

out, would merely restrain the liberty of teachers, while failing to effect the desired reforms. He ends his letter:

This brief critical survey of the Nine Great Aims and Objects makes it clear enough that Circular 849 does not bring the millennium appreciably nearer. In the meantime it takes away the liberty of the individual school. Those schools which now prefer to take no external examination will have to take one or forfeit their grants. Those which submit two, three, or four forms to external examinations will have the number cut down, perhaps to two, perhaps to one. The Circular has been called a great step; but it is merely a great fraud. Because it was meant to cure certain (real or imaginary) ills, uncritical minds assume that it does, of course, cure them. But, in fact, it will leave them just where they are. But it will not leave the schoolmasters of England just where they are. These will wake up to find, too late, that their leaders have signed away one more of their precious liberties.

At the Annual Conference of the Imperial Union of Teachers, held in conjunction with the Annual Meeting of the League of Empire, it was natural that the speakers should deal chiefly with the War in two aspects: the evils of the over-organization of education as exemplified in Germany, and the spirit of solidarity shown by the Dominions overseas. Mr. J. W. Gilbert, Chairman of the London Education Committee, struck the right note in saying that the great national emergency had brought out remarkably the spirit of unselfish social service. From the newspapers it is easy to collect instances of blind selfishness, of desire to turn the War to personal profit. But though cases of this sort may appear numerous, they are trifling compared to the enormous outburst of unselfishness that has actuated the majority of the people. That the schools have borne their part, as Mr. Gilbert suggested, in arousing this feeling we may thankfully admit. Social service is not a subject on the time-table, but the spirit that makes it possible underlies the teaching in a very large number of schools.

The Board of Education have called upon Local Authorities to do all that lies in their power, by the holding of classes and the dissemination of information, to help the nation to a greater economy in the use and preparation of food. They have issued a very valuable pamphlet containing suggestions for simple and nourishing meals. In the recipes given meat plays a subordinate rôle. The pamphlet is issued at one penny, and can be had through any bookseller. The title is "Economy in Food," Circular 917. The National Food Reform Association, 178 St. Stephen's House, Westminster, S.W., has published some admirable booklets with the object of helping us to a right understanding of food values. These booklets are: "Facts for Patriots," Series I and II, 3d. each; "Hints towards Diet Reform," 2d.; "Economical Dishes for Workers," 1d.; and "Aids to Fitness," 1d.

MR. ARTHUR HENDERSON has issued a very reasonable statement on the vexed question of boy labour. He holds that Local Education Authorities who take the responsibility of excusing boys from attendance at school cannot disclaim

an equal responsibility for seeing that the boys are paid suitable wages. Mr. Henderson regards it as indisputable that, unless it is worth the while of the employer to pay something substantial for the services of the boy, those services cannot be of substantial value to the country, and that in the interests of the boy, and of the country as a whole, he had better be at school. The answer he gave to a question in Parliament is as follows:—

I am investigating certain cases in which there is *prima facie* reason for thinking that the administration of Local Education Authorities or School Attendance Committees in excusing children from school attendance for employment in agriculture has been lax, and that the principles laid down in the debate which took place in this House on February 25 have not been observed.

I am fully alive to the importance of securing reasonable and adequate remuneration for children so employed, and I will ask Local Education Authorities to co-operate with me in securing it. I have, however, no power to fix or enforce a minimum wage, and I can only appeal to the humanity and public spirit of employers and of those who are responsible for the local administration of education. If this appeal fails of its effect, the question of taking further action will have to be carefully considered by the Government.

SUMMARY OF THE MONTH.

EDUCATIONAL FREEDOM.

Germany has roused the national spirit of England. Economic pressure after the War will compel us to concentration and to greater unity of action. It will force us to make further use of science and of scientific co-operation. By contact in the field of war, as already in the field of commerce, England is learning what is strong and admirable in German methods as well as what is barbarous and despicable in her standards of conduct. We shall graft on to our English system of education much that has proved effective in the German—clearer planning of courses of study, more liberal aid from the State, attention to the duty of national defence, the development of technical education, the encouragement of research, the better professional training of teachers. But I see no likelihood of any reversal of the fundamental principles of English educational freedom, which has produced greater independence of character than has German organization, and has given us infinitely greater reserves of strength upon which to draw in a long struggle.—M. E. Sadler in *Indian Education*.

THE TEACHER'S INFLUENCE.

On July 7, 1914, before the War broke out, Mr. Cloudesley Brereton, speaking at an educational meeting, said that about three months ago two Japanese gentlemen came over to study our secondary-school education, and came to see him. One of them said: "When we established secondary education in Japan, we went to Germany for our models. Now, we have been running the German system for some twenty or thirty years, and we are beginning to see that it is not quite so perfect as we thought. I have come to study your system, and I see in your system much which takes into account the character of the pupil and the great influence the teacher can exert on discipline generally. I think you are a thousand years in front of Germany." "I am not responsible for that view," remarked Mr. Brereton; "it came from an impartial and outside authority."

CLERGYMEN AS SCHOOL TEACHERS.

At a meeting of the Herefordshire Education Committee a letter was read from the Bishop of Hereford (Dr. Percival), who stated that he was recommending the clergy in the county to offer to undertake the school work of any young master in their parish or neighbourhood who might wish to join the Army. Mr. J. Wiltshire (Secretary to the Education Committee) said that, in view of the fact that the code dis-

tingly laid it down that clergymen could not act as school teachers, he at once wrote to the Board of Education explaining the offer made by the Bishop of Hereford and asking if it would be possible for the Committee to accept it, in view of the fact that there were many young teachers in the county who were eligible for the Army. He received a reply from the Board saying they had no power to give the permission asked for, and that they did not think the present position of affairs justified an alteration in the code so that clergy should be able to take the places of young masters.

TUTORIAL CLASSES.

In 1913-14 there were 145 tutorial classes, every University and University college in England taking part in the work. Joint Committees composed of an equal number of University and working-class representatives are now in being at the following Universities: Birmingham, Bristol, Cambridge, Durham, and Newcastle; Leeds, Liverpool, London, Manchester, Oxford, Sheffield, University College (Reading); and of the Welsh Universities, University College of Wales (Aberystwyth), and the University College of South Wales (Cardiff). The movement is also spreading to Scotland and Ireland. In 1913-14 there were 3,234 students in the classes, of whom 746 were women, and there can be no doubt of the real demand for this type of education—a demand which is steadily becoming stronger and more determined. During the session just ended (1914-15) the classes have naturally lost a very considerable number of students through enlistment and also through overtime on Government work, but those who remain have shown the utmost enthusiasm for the study of events leading to the present state of affairs, and there can be no doubt that the movement has established itself more firmly than ever before by showing the importance to the national welfare of a study of international affairs by working people.

THE MONTESSORI METHOD.

Within the last two years the vogue of Mme Montessori's ideas has undoubtedly contributed to the spread of the desire for greater liberty in the infants' school. But the movement had not only begun before then, but also at present shows few signs of a slavish following of the "Montessori Method." There are a few babies' classes in the division where the Montessori apparatus is used, but, I think, none where the pure doctrine is applied to the exclusion of all other. English infant-school teachers will not sacrifice the many good features long existing in their schools, the physical activities, the Nature lessons, the stories, the free occupations, for the sake of a somewhat rigid, however scientific, set of apparatus from abroad. What they do welcome in Mme Montessori is her uncompromising claim for the child to be allowed to develop, with as little interference as necessary, in school, and this idea they are cautiously—and, so far as I have observed, very intelligently—carrying out.—From the General Report by Mr. H. Ward, H.M.I., upon Elementary Education in the North-Western Division of England.

GRANTS TO SCHOOLS FOR MOTHERS.

The Board of Education have issued regulations under which the Board will make grants to schools for mothers during each financial year, commencing on April 1, in respect of the provision made for promoting the care, training, and physical welfare of infants and young children. The grant payable in a financial year will be assessed on the basis of work done by the institution during the previous year. Where, in the Board's opinion, the provision made by the institution is adequate, and its working is efficient, grant may be paid at the rate of one-half of the approved expenditure. In other cases the Board may either pay at a lower rate or withhold the grant. In fixing the rate of grant the Board will take into consideration the scope, character, and efficiency of the work, which must not be conducted for private profit or farmed out to any member of the staff.

TEACHERS' INSURANCE.

At the Annual Meeting of the Secondary, Technical, and University Teachers' Insurance Society, held at University College, London, Sir John McClure, Chairman of the Society, presiding, the financial statement and accounts for the year were submitted by Mr. Lunn, Chairman of the Finance Committee. He said that he considered the financial position of the Society was most satisfactory, both with regard to expenditure on sickness benefits for men and women, and also on account of administration expenses. The Society hoped to be in a position later on to devote its surplus funds to additional benefits. He also stated that the Dividend Section of the Society had much improved, but that the Committee would like to see its membership considerably enlarged.

SECONDARY SCHOOLS ASSOCIATION.

Sir P. Magnus, M.P., presiding at the Annual Meeting of the Secondary Schools Association at Caxton Hall, expressed the hope that, when the Board of Education considered in the coming year methods of removing certain recognized defects in our school organization and of improving upon the present methods of instruction, they would refrain from adopting any changes in the existing system of secondary education which would supersede or destroy those traditional features which had implanted in our youth the moral qualities so conspicuously displayed by them in this gruesome War.

THE SCHOOL IN THE CELLAR.

The extraordinary tenacity with which even in a perpetually bombarded town human nature clings to its everyday life and occupations is shown by a letter published in the *Temps*. The writer, a woman, describes a "cellar-school" in Reims: "Imagine," she writes, "a large basement sufficiently well lighted by daylight to need for the moment no lamps. Imagine nearly two hundred children, between two and twelve, divided into five classes, and working with as much calm and application as if they were in their ordinary classrooms. The elder pupils, both boys and girls, were preparing for their certificate examinations. Their copybooks were models, with no trembling of the handwriting, though several shells had already fallen on the house. The little ones of the Maternal School, rosy-cheeked and laughing, were grouped round the excellent woman who looks after them so lovingly. One of them, who is not two years old, had not, the mistress told me, missed a single day. I had provided myself with some bon-bons, and the sight of the white bags caused far more excitement in the cellar than the bugle-calls up above which announced the approach of a hostile aeroplane."—The Paris Correspondent of the *Morning Post*.

SIR WILMOT HERRINGHAM'S LETTER FROM THE FRONT.

"I congratulate the Senate on the share that the University has taken in the War. I have met many of its members here. Most of them have, of course, been officers of my own branch and many of them were under my command in former days. But I have seen several others in combatant branches as well. It is hardly needful to speak of the value of the Officers' Training Corps. We had little idea when the Corps was raised in what desperate earnest we should carry out the lessons learnt during the pleasant years of training. It has been invaluable to me, and I am sure that officers of every branch have felt the same. I hope that it is still training men, for the need of officers will remain great so long as the War lasts, and when the War is over I hope that we and the whole nation will realize that the extreme peril into which our unreadiness has led us, and the thousands of lives that it has cost must warn us, first, that neither in peace nor war can private effort alone replace national enterprise and organization, and secondly, that it is necessary for our safety to spread as widely as possible the understanding of those

military principles on which the defence of the country and Empire must always depend. One thing more. I have once or twice said to the younger members of the University that a University education fails of its object unless it includes both a more intelligent and a more willing devotion to public service. Of all the lessons that we shall learn from our Allies and from the enemy—and they can teach us many—none is so impressive or so great as this. The sacrifice, the discipline, the unity of the French and German peoples are an example to us. They have understood from the first what this War meant, and have bent the forces of the whole nation to carry it out. We are amateurs compared to them, and we shall be unworthy both of friend and foe until we do the like."

HONORARY (WAR) DEGREES.

It was briefly announced [says the *Times*] that the Senate of the University of London intend to confer honorary bachelor's degrees on internal students who have spent not less than nine months in approved service in connexion with the War or have been invalided in such service. We are asked to explain that such students must have studied for two years in the University and have passed their Intermediate University Examination and their second year's College Examination, and must obtain from their teachers a statement that in their opinion they would, in the ordinary course, have passed the examination for the Bachelor's degree at the end of the third year's course of study. The Senate are anxious that these Honorary (War) Degrees, conferred partly in respect of academic attainments and partly in respect of War service, shall be clearly distinguished in the eyes of the public from the ordinary degrees of the University, conferred solely in respect of academic attainments, and they will be recorded in special lists. The degrees will not be conferred on students in the Faculty of Medicine, because the medical degrees of the University carry with them a licence to practise.

FREE PLACES.*

By Miss Lowe.

THE resolution which I have the honour to bring before you this afternoon is one which has been most carefully considered by the Sub-Committee for Educational Administration. Nearly two years ago we began to investigate the matter, and since then statistics have been procured, so that the resolution as it stands has arisen out of a knowledge of facts. The resolution will show you what the Committee has in view:

That in the interests of national education it is expedient that in the award of "free places," while the majority of such places shall be reserved for children from public elementary schools, some places shall be thrown open to all children of parents whose income falls below a certain limit irrespective of the place of previous education, such free places to be included in the percentage qualifying for the grant.

The reason for action is that we feel that a certain proportion of the community is not receiving fair treatment in the facilities given to them for secondary education, and that an extraordinary diversity of treatment exists among Local Education Authorities. Investigations proved to us that, while some of the Local Education Authorities admitted as candidates for their scholarships to secondary schools all children of parents whose income falls below a certain limit, others, possibly in the same district and as closely situated to the other as a county borough may be to a city borough, only accept as candidates children who have attended elementary schools, while a few, though happily very few, actually

* Paper delivered at the June Conference of the Association of Head Mistresses.

penalize the parents of non-elementary children by fixing for them a lower income limit than for the parents of elementary children. However, though there is this diversity of treatment among Local Education Authorities, with the result that children of parents living almost in adjoining roads may be subject to different conditions with regard to eligibility for scholarships, still I think it may be agreed that a large number of these Authorities are anxious to work towards the equal and just treatment of all needy children irrespective of the place of previous education: but the Government (and this is where the anomaly comes in) does not act in accordance with this principle, and consequently many Local Education Authorities and governing bodies of schools which are not richly endowed cannot afford to offer the scholarships they would wish to offer to needy children who have not previously attended an elementary school.

As we know, Local Education Authorities and governing bodies must depend to a great extent for their scholarship money on the Government grant, and this grant is at present only given when a school offers a required proportion of free places to pupils who enter the school from public elementary schools. This is the main condition, but reading carefully through the last issue of the Regulations for Secondary Schools, one is struck by the extraordinary number of hampering restrictions in addition to the one mentioned with regard to the provision of free places—*e.g.* no private scholarship: *i.e.* no scholarship offered by any body except a Local Education Authority or the governing body: not even one given by a co-operative society, even if it fulfils every other condition of tenure, can count, nor can free tuition offered to a boarder be reckoned in the required proportion; and, further, the Government do not countenance, from the point of view of their grant, the division of scholarships in suitable cases into half-scholarships, by which not only would the parent have the healthy satisfaction of paying what he could afford, but also an increased number of children could be benefited out of what are unavoidably limited funds. It therefore follows that a particular group of children is being inevitably neglected owing to the fact that the Government will not help, and consequently many Local Education Authorities and governing bodies cannot afford the scholarships required.

It is no use to urge that *all* children who need financial help in secondary schools should first pass automatically through the elementary school. For various reasons this is impossible. On the one hand, parents who can provide suitable education at home for the earlier stages refuse to be *forced* to send their children to one type of school; on the other hand, the financial difficulties may only have occurred (possibly through the death, illness, or business failure of the father) after the child has been for some years in the junior forms of a secondary school, and in the case of such children education may be suddenly and completely broken off unless scholarships can be gained.

It is very easy to understand how, when these regulations were being made, it was advisable for the Government to concentrate their efforts on the transference of the elementary child to the secondary school, as this was a large and revolutionary undertaking, and of course the children of whom I am speaking are, and always will be, a minority, but I feel that the time has now come for the Government to extend its benefits and to take in all needy classes of the community, otherwise the Government scheme fails to offer equal educational opportunities for all, and has no claim to be considered national.

It may be urged that the present is an inopportune and unsuitable time to press this new claim on the Government, but I urge that it is an exceptionally suitable and opportune moment at which to urge the claims of the poor non-elementary-school children, for it is quite clear that, as a whole, it is not the artisan who is suffering most severely through the War from a financial point of view, but what may be called for convenience' sake (though I do not like class distinctions in nomenclature) the poorer middle class—professional men, small business men, and, above all, the widows of men of this class who have fallen in the War. The children of many of

the above parents will have begun their career at a secondary school; some, on the other hand, will be only just ready to leave the hands of governesses or will be just finishing their training in preparatory schools. The educational needs of these children must be provided for. Scholarships must be offered, but they cannot be offered unless the Government will give their support by allowing them to count towards the required proportion of free places. The Government can easily make such regulations which will ensure that these scholarships are given in the right way and in the right quarter, but I need not go into these details now. The wording of the resolution will show you that it is intended to ensure this by an income limit applicable to all parents and to safeguard the interests of the elementary-school children by reserving a majority of the scholarships for them: but surely it is unfair to leave a certain proportion of needy children totally unprovided for (for in some cases this may mean that secondary-school children will be withdrawn even before the elementary-school age, and will grow up without adequate education at all—this, I know has occurred in the experience of many—and at the best these children will have to be transferred back to an elementary school, which could not be a satisfaction from an educational point of view). In consideration of these facts I feel that we are justified at this Conference of 1915 in pressing on the Government for immediate consideration this point affecting national education. After all, we are only asking the Government to undertake what Mr. Pease himself voiced and sent out to all schools in his letter of August 29, 1914, when he urged that we should see to it that the seven million children and those who follow them in the linked generations of school life should come to their task well equipped. I therefore ask the conference to pass the resolution.

Miss Oldham, M.A. (Streatham Hill High School), said: I have great pleasure in seconding the resolution proposed by Miss Lowe, who has explained its meaning and intention so clearly and forcibly that she has fortunately left me little to say. It seems indeed strange that it should be necessary to plead for a simple act of justice. The class of children we have in view contain many who should be the special charge of the community—children who have lost their fathers and breadwinners by premature death, disabling illness, or patriotic service, and whose due preparation by adequate education and training for the business of earning their own livelihood is of vital importance to them and to the State. Two cases come to my mind which occurred in my own school a year or two back. Within a month of each other two men, fathers of families and still in the prime of life, were struck down by totally unexpected, but mortal illness, and died leaving no provision for wives and families except in one case a small insurance, in the other a house and furniture. In both instances the wife and mother bravely took up the task of keeping the home together by her own exertions, but there was no money for education. Had it not been for the generosity of my Old Girls' Association, which voluntarily charged itself with the educational expenses of the girls attending the school, two of the most promising children I have known would have been deprived of further secondary education.

Such an instance brings home to one the urgency of the proposed reform. In these democratic days we rightly aim at, though we do not always attain, equality in the sacrifices and benefits imposed or conferred on us by the State. We gladly see the privilege of free education by the ladder of scholarships opened to the child of the artisan, and it is difficult to detect any sufficient reason why similar privileges should be denied to the child of the struggling professional or business man, or to that of his widow, because, while he had health and strength and was prosperous enough, he elected perhaps to pay for the form of education which he preferred. Surely his readiness to shoulder a responsibility which he might have relegated to the State is no reason why he should be denied its help when he needs it or why he should be penalized by the imposition of a lower income limit. The anomaly is too glaring, and we trust that this Association will unite in pressing for its removal.

THE TEACHERS' REGISTRATION COUNCIL. CIRCULAR 849.

THE Teachers' Registration Council has prepared the following Memorandum on the Board of Education Circular 849 :—

1. Many of the drawbacks of the present system of examinations in secondary schools are now generally admitted and need not be repeated here. The question of fundamental importance is whether the proposals outlined in the Memorandum of the Board of Education will effectively reform the present system. There is a danger lest a new machinery should be set up as is proposed without the desired changes being brought about, and it is on this point that the Council feels considerable anxiety.

2. The success of the scheme depends largely upon the nature of the authority which supervises it. The Council is of opinion that on any Council that may be formed on the lines suggested by the Consultative Committee, or on any Board or Advisory Committee which may be formed to assist the Board of Education in performing the functions of a co-ordinating authority, not less than one-half of the members should be appointed by the Teachers' Registration Council. The Council also strongly recommends that the representatives of Universities on the Board or Advisory Committee should be appointed by the Universities and not directly by any University Examining Body. The Council is of opinion that on any Examining Body approved by the Board of Education there should be an adequate number of representatives engaged in teaching.

3. The Council desires to see the present standard of matriculation maintained, and, as soon as possible, raised.

4. The Council is of opinion that the examination should not be made compulsory in any grant-earning school. The number of certificates obtained, many, few, or none, is by itself no effective evidence of the efficiency of a school. The demand for certificates comes from outside bodies, and under our existing methods most schools find it to be a necessity to prepare for them. But if any school does not desire to prepare for them it should be allowed complete freedom. Inspection as a test of efficiency is more important than examinations.

5. The Council is very strongly of opinion that the fourth group of subjects mentioned in (VI) of the Board's Memorandum should count towards a certificate. They think that this fourth group contains subjects which in some form ought to be part of the regular curriculum of a considerable proportion of pupils in a secondary school. To omit them from the groups which count towards a certificate is directly to discourage them just at a time when they most require encouragement. To leave them out now in the hope that they may come to count some day is to provide against their counting in some schools where the effort to prepare for subjects that do count for certificates absorbs most of the available energies of the teachers concerned. The reason given in (VI) for not testing candidates in this fourth group is that these subjects are not capable of being tested by a written examination. The great and increasing importance of these subjects, and their value in bringing out faculties which paper examinations alone can never test, deserve the most careful consideration of the Board before any new system of examinations is embarked upon. The Council is of opinion that whatever the cost may be of the provision of the means for the proper testing of subjects in the fourth group no new system of examinations should be begun until adequate arrangements for such provision have been made. The Council also holds that neither science nor modern languages can be tested in a thoroughly satisfactory way by a written examination alone.

In this connexion the Council desires to point out that : The proposals of the Board make no effective provision for establishing a system of visiting examiners to work in connexion with the written examination. The Council regrets this, particularly in regard to the subjects of Group 4. If this is a question of expense, the Council thinks it would be better to wait till the money is available rather than start on unsatisfactory lines. The provision that the reports of inspection will be available for the Advisory Committee and examining bodies, and that H.M. Inspectors will co-operate with these bodies, while showing a thoroughly friendly spirit towards the bodies concerned, does not appear in any way to meet the need, the great importance of which the Council has endeavoured to point out.

6. The Council welcomes the proposal in (IX) which is entitled "Teachers and the Examinations." As already stated, it is strongly of opinion that, in spite of certain possible geographical difficulties, teachers, both men and women, should be directly and adequately represented on all the examining bodies.

7. The Council wishes to point out that in view of the varying systems of organization which exist in secondary schools some definition of the term "whole form" will be necessary. It is of opinion, moreover, that in some cases it will be undesirable to require a school to present a whole form for examination.

The Council would welcome with the greatest satisfaction the removal of the great and growing evils that arise from our present system of examinations in secondary schools, which tend too often to make our education far too mechanical and to misdirect the energies of the pupils, which constantly fail to bring out some of the most important faculties of the boys and girls, and which frequently hamper and baffle teachers in their efforts to give a sound and broad education, well fitted to their pupils, on well organized lines. It is of the utmost importance that whenever the much-needed reform takes place which the Board desire to bring about it shall be the very best plan from the first, with so far as is possible a certain promise of success and the cordial support of all those who are most concerned.

DR. JEX-BLAKE.

We regret to record the death of the Very Rev. Thomas William Jex-Blake, D.D., formerly Principal of Cheltenham College, Head Master of Rugby, and Dean of Wells. A distinguished scholar, a successful and beloved head master, and for nearly twenty years the holder of, perhaps, the most delightful ecclesiastical position in England, he passed away on July 2, at the age of considerably more than four-score years.

To the older members of the College of Preceptors this announcement will recall many pleasant memories. There are some among us who can remember his stately and genial presence in the chair at some of our General Meetings and Prize Distributions. From an early period of his career, Dr. Jex-Blake was a member of the College of Preceptors. For forty years he was a member of our Council. He was elected President in succession to Dr. Haig-Brown in 1876, and held this office till 1902. On his resignation he was elected, as a token of respect, a Life Member of the Council. His tenure of the office of President extended over a period when the influence and prosperity of the College advanced steadily year by year under the able governance of Mr. Isbister and Mr. Eve, successively Deans of the College, and of Mr. Conrad Hume Pinches and Mr. Edward E. Pinches, successively Treasurers. How far his counsel and encouragement aided the remarkable development of the College during these years cannot be now measured, but we know that he was always a faithful friend of the College and a firm believer in its mission. In the course of a speech at the Prize Distribution in 1876 (reported in *The Educational Times*), after enumerating the manifold activities of the College, he made this striking statement: "The College of Preceptors is a small scholastic University. It early and wisely and firmly entered the then neglected field of middle-class education, and took upon itself, modestly but decidedly, the work that in some countries devolves on a Minister of Education, and a good deal of which work is in England done by a National Department."

At Harrow Mr. Pope's House at Church Hill, one of the oldest school buildings, has been transferred to the Grove, the house bequeathed to the School by Mr. E. E. Bowen. Some of the original members of the Grove have gone to West Acre, and the remainder have not moved. The change has brought with it an alteration in the Grove House colours; the red scarf remains the same; the match fez is being retained, while the plain blue fez will also be worn, and an amalgamated cricket cap is under consideration. Mr. Moriarty has given up the Grove, but he still takes the Army class.

THE University of Oxford has received a gift of £25,000 for further instruction and research in chemistry. The benefactor is Mr. C. W. Dyson Perrins, a former member of Queen's College.

CORRESPONDENCE.

HOLIDAY WORK FOR TEACHERS.

To the Editor of "The Educational Times."

SIR,—A few weeks ago we issued a letter suggesting that teachers might do useful work during the summer holidays, and offering to act as voluntary agents between employers and teachers. We regret that so long a time should have elapsed, but we are only now in a position to make any definite statement as to the work which can or cannot be done.

(1) Muniton Work: During the last month or more there has been a continual stream of labour into our muniton factories, and there can be no doubt that they now possess an ample supply of unskilled labour. It will be difficult for teachers, unless they possess local influence, to obtain work in such factories, the employers of which are reluctant to train persons for so short a time as teachers can afford.

(2) Harvest Work: This, being of a temporary character, would seem more adapted to teachers' conditions. Thousands of circulars have been issued to farmers by the Board of Agriculture and Fisheries, but "the returns received up to the present show no indication that the farmers wish, to any considerable extent, to make use of the offers in question." "It is possible, however," we are informed, "that there may be a larger demand for assistance when harvest begins, and, in order that it may be possible to take advantage at short notice of your offers to assist, Lord Selborne considers it desirable that your offer should be made to the nearest Labour Exchange."

(3) The National Register: On the whole, it would seem that teachers can be employed most usefully in connexion with the formation of the National Register. "All the local arrangements," we are informed, "will be in the hands of the local registration authorities (Borough Councils, Urban District Councils, and Rural District Councils), who will doubtless welcome the services of teachers in this connexion. These bodies should be communicated with by the teachers willing to act as enumerators or otherwise in the several districts."—Yours obediently,

C. DAVISON.
R. H. HUME.
M. W. BYRNE.

King Edward's High School, Birmingham.
July 9, 1915.

THE TEACHING OF CIVICS.

To the Editor of "The Educational Times."

SIR,—There are many signs that the present crisis will result in great educational changes. It has already produced a very strong and widespread idea of national unity, and great interest in national organization for common purposes, and it has served to give our current political ideas (liberty, democracy, &c.) new meaning and fresh vitality. There is no doubt that a reaction in education will take place—in all probability we are at the beginning of a period when social organization, social rights and duties, the value of national life, patriotism and its meaning, and so on, will occupy a large place in our educational schemes. The teaching of civics, in the broadest sense of the word, will be regarded as of great importance.

I do not think that such a change will be opposed by anyone. I feel sure it will be welcomed by many teachers. But as soon as its nature begins to be understood, the central difficulty (leaving out the question of overcrowded curriculum) shows itself; there is not a widespread tradition of teaching in such matters; it is only in late years that methods have begun to develop in the hands of the newer generation of teachers: even good textbooks are few. A great deal of spadework must be done before we can talk with certainty as to details of method, &c.

It has seemed to my Committee that the first step in promoting such a change as is outlined above is to get as much information as possible on present achievements. They believe that many teachers at present take opportunities given them by lessons on geography and history, and perhaps other subjects, to deal with the nature of social life and organization, and some of its details, in this country or elsewhere. Literature lessons are used for the

study of patriotic verse; many schools devote special periods to civics.

They would, therefore, be very grateful indeed to any teachers who will forward information as to the use they make of such opportunities as I have indicated, or as to any ways in which they deal with social organization, national life, patriotism, &c. I need hardly say that such information will in no case be published without the consent of the sender. I hope that many teachers will feel able to help in this way in a task which is of great importance for our national future.—Yours very truly,

ALEXANDER FARQUHARSON, Secretary.

The Moral Education League,
6 York Buildings, Adelphi, W.C.

SCOUTING.

To the Editor of "The Educational Times."

SIR,—For the last three years I have been giving most of my spare time to the training of Scouts. I have made endless mistakes, but have at last arrived at a fairly definite scheme of Scout training. I find that many schoolmasters would take up the work if they only knew how to proceed, and I have persuaded the Editor of *The Scout* to give me space to explain in detail the scheme in operation at this school, where we have over two hundred Boy Scouts.

The first article will appear in the issue for July 24, and I have been wondering whether you would be so kind, in the interests of the Scout movement, as to call attention to this forthcoming series of articles. I am sure they will prove of great value to all those who have found it difficult to run School troops.—Yours faithfully,

ERNEST YOUNG.

The County School, Harrow.

CURRENT EVENTS.

A PENSION of £1,200 a year has been awarded to Mr. J. A. Pease, ex-Minister of Education. A grant of £100 has been awarded to Mary C. Rowsell, in consideration of her services to literature (educational, historical, and biographical).

At the University College of Wales, Aberystwyth, a Summer School will be held from August 3 to August 21. There will be departments of Kindergarten, Art, Educational Handwork, Principles of Teaching, Physical Training, Needlework, Rural Science, and Geography. The last named is a special course in geographical survey, Nature survey, and allied subjects considered in relation to training in citizenship.

THE Uplands Summer School, to which we have already drawn attention, takes place from August 7 to August 28. The "Uplands Circular," price 6d., is now ready, and can be obtained from Miss M. M. Mills, Darbshire House, Upper Brook Street, Manchester.

A CONFERENCE on New Ideals in Education (successor to the East Runtun Conference of 1914) will be held at Stratford-on-Avon from August 14 to August 21. Particulars from Conference Secretary, 24 Royal Avenue, Chelsea, S.W.

A CONFERENCE of Teachers of History will be held at Stratford-on-Avon from August 2 to August 14. The Secretary is Miss D. M. McArdle, Shakespeare Memorial Theatre, Stratford-on-Avon.

THE University of Edinburgh has conferred the honorary degree of Doctor of Laws on Sir Robert Blair, Education Officer of the London County Council.

A LEGACY of £500 has been made to the Workers' Educational Association under the will of Lieutenant Ronald Poulton Palmer, 4th Battalion Royal Berks Regiment, the International Rugby player, who was killed at the Front.

THE London County Council Education Committee have agreed to employ a chaperon during the holidays at the Brixton Industrial School to entertain the girls and take them to places of interest.

ETON COLLEGE students recently began working in a munitions factory. They arrived in grey trousers and white cricketing shirts.

but, profiting by their experience, they wore overalls on the second day. Despite the great heat, they energetically stoked the furnaces, wheeled in the coal, and performed other duties.

MR. J. HERBERT LEWIS, M.P., Parliamentary Secretary to the Board of Education, has appointed Mr. C. W. Maudslay to be his private secretary.

MR. T. R. N. CROFTS, Head Master of Roan Boys' School, Greenwich, and formerly Assistant Master of Merchant Taylors School, has been appointed Head Master of the Royal Masonic School for Boys at Bushey, Herts, in succession to the Rev. H. E. Hebb, who is retiring after twenty-five years' service.

DR. ROBERT ROBINSON, Professor of Organic Chemistry in the University of Sydney, has been appointed to the Chair in that subject recently established in the University of Liverpool.

GIRTON and Newnham Colleges have sent £1,800 to the Committee of the Scottish Women's Hospitals for Foreign Service. The Committee propose to use the money to equip a hospital unit of two hundred beds for the wounded at Troyes.

THE Senate of the University of London have elected Sir Alfred Gould Vice-Chancellor for the year 1915-16, in succession to Sir Wilnot Herringham.

THE Senate of the University of London have appointed Mr. G. F. Goodchild, B.A., B.Sc. Lond., M.A. Camb., to the post of Registrar of the Council for External Students, in succession to Mr. Alfred Milnes, M.A. Mr. Goodchild has been since 1902 Principal of the Wandsworth Technical Institute.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE JULY COMPETITION.

The most ingenious excuse presented by a pupil for either absence or lack of preparation.

Almost all of the competitors have chosen to deal with lack of preparation rather than with absence from school. Probably absentees have to depend too much on mere hard lying, after the pattern of the Derby-day absentee in later life. There is little ingenuity in ringing the changes on the mortality among one's relations. There was, however, a touch of talent in the case of the boy who went fishing one Friday, and was uneasily suspicious that he had been observed by a hostile eye in the very act, not of catching fish—for fate did not favour—but of trying to catch them. His explanation was that, in her house cleaning the maid had by mistake placed at his bed-head a last year's calendar that properly belonged to the bed-head of his little brother, who had to be content with an old calendar each year when the new one came in. The result was that the innocent fisher had been misled into thinking it was Saturday, and only discovered his mistake next day when he tried in vain to get into church.

Saturday figures prominently in another answer sent in. "Saturday is a holiday" was posted up prominently in a certain school, but the pupils found that in practice the

teachers gave so many home-lessons at the week end that all Saturday had to be given up to preparation, and only the teachers had a real holiday on that day. The pupils resented this state of affairs.

"At last one enterprising pupil decided to spend all Friday afternoon and evening working conscientiously, and to leave the remainder of the work undone, assuming that to work on Saturdays was 'breaking the rules.' Hence, on Monday morning the excuse of 'not having had time' was given. The teacher's astonishment was shown by the following: 'Not time, when you had all Friday afternoon, all day Saturday, and you might have even done your Divinity on Sunday!' Young Enterprise replied: 'I am sorry, Sir, I can't work quicker, but I was working until 10.30 on Friday night, and, Sir, Saturday is a holiday, and, of course, I can't work on Sunday!'"

This, on the whole, is the most ingenious excuse sent in, and is ranked first, though the following is ingenious enough:—Master: "You haven't prepared this properly."—Pupil (smiling): "I'm English, you know! I was sure I should muddle through somehow."

There is more than ingenuity here; there is a touch of impudence, and, above all, there is really no hope of getting off. True ingenuity implies a chance of attaining the end aimed at. The same criticism applies to the excuse said to have been offered by a "pupil of an older growth" when challenged for lack of preparation: "I am combining the 'Look-and-say' and the 'Heuristic' methods." One or two competitors have sent in the well worn story of the father that would insist upon helping the son in his preparation.

"Balbus" sends us an excellent excuse that we can well believe was offered in all good faith in real life: "Mother was out." But this was obviously the result of blundering honesty rather than ingenuity. The enjoyment is entirely on the teacher's side. The charming *naïveté* of the answer, with its background of juvenile philosophy, gives it point. It is an ingenious rather than an ingenious excuse. The same is true still more markedly in the two following cases:—

(a) "Through the illness of teacher A., teacher B. was suddenly called upon to take Form IV. Pupil C. was found sadly wanting in his irregular verbs. Called to account he explained that he did not know that they were to be taken by Mr. B. How was he to know that there was to be a change that day?"

(b) "Here is the most astounding excuse for omitting preparation which I can recall. A boy, whose father was a barrister, requested to have his work arranged so that he might take the Preliminary Examination of the Law Society. He was well up in the fifth form, but somewhat shaky in the Latin unseen, and this subject was therefore carefully nursed. After about six weeks' work he came with no Latin preparation at all. When I went into the matter with him, he explained that he had dropped the work because 'his father was setting the papers.' . . . The only other case resembling this in my experience was that of a boy wishing to enter the Bank of England. He persistently took it easy on the ground that 'he had been nominated by the Governor.'"

There is something to be said for the readiness of the disarming excuse offered by the boy who had failed to memorize the passage set for this purpose. "You told us, Sir, in another lesson, that the best time to learn things by heart is in the morning, so I did not learn it last night, and this morning I overslept myself."

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SÉGUIN.

By R. P. H. BLORE.

II.—THE IDIOT AND THE NORMAL CHILD.

THE term "idiot" is used widely in the general sense to include all types of mental derangement. Scientifically it must be used in a stricter and more special sense. *Idios*—"alone," and signifies that the afflicted subject lacks relations with that world of experience which is common to the rest of humanity. The physiological characteristics are the vacancy of the glances, inability to look at an object with precision, inability to control the muscles, lack of balance, inability to exercise voluntary control over groups of muscles which are not paralysed—in fact, the physical apparatus may be, and often is, perfect. What is lacking is control. In fact, as Séguin beautifully puts it, all they need seems to be the voice of Jesus—"Rise and Walk." Psychologically, the idiot has all the characteristics of mind which ordinary individuals possess. The difference is one of degree. The idiot's clear perceptions are limited to objects directly connected with the satisfaction of his bodily wants. "Thus, in the order of present facts, and within the limit—narrow, no doubt—of his life in the present, wants, appetites, tastes, leanings, desires, repugnances, apprehensions, fears, terrors, preferences, whims, wishes are perceived in him, expressed by the means which are natural to him."

With regard to the past, the idiot is able to remember sensations of all kinds, actions, and even to compare the present with the past, and to reason from the past to the present, and to bind his present life to the past. The difference between the idiot and the normal person is, as before, the limited and relatively unorganized character of his memory. His anticipations of the future are limited to a very small number of phenomena and to a short occurrence of time, or even to one phenomenon that he can desire and foresee. But however limited these anticipations may be, they show the germs of the working of the intellect.

What does he lack, then? "No intellectual capacity is

wanting, but he has not the necessary liberty to apply his intellectual powers to the order of moral and abstract phenomena. What is lacking is the spontaneity from which springs the moral Will." Here Séguin has put his finger on the starting point of education. All children, whether educated by the old method of punishment and effort or by the new method of interest, can be educated only by making use of their own spontaneity or activity. The child can be guided either through fear of punishment or by love of activity to educate himself. The teacher of idiots, however, has a greater difficulty. With them, as with backward and subnormal children, the teacher must in a great measure supply the spontaneity, for each child must by his own activity work out his own salvation.

"The idiot enjoys the use of all his intellectual powers, but he only wishes to apply them to concrete phenomena; and, again, only to those concrete objects of which the texture, form, smell, taste, sound, or other particular property (which often he appreciates singly) stimulates in him a desire, a manifestation of intelligence, of life. But more than that. Not only does the idiot enter into a voluntary relation only with the concrete, not only does he limit even this concrete to a very small number of things, sometimes to one only (but do not think that he has an idea of even this single object or this small number of objects); in each phenomenon his intelligence, active even in its idleness, seems to hasten to eliminate all the properties which are not the end of its choice. In a picture he only wishes to see the colour, in a metal only the glitter, to hear only certain sounds amidst a great number, and, by a process of elimination which would perhaps be impossible to better organized natures, he succeeds in allowing himself to be impressed only by a single property in objects which have a great number of properties. The idiot, then, experiences instinctively the charm of sensations exceedingly unmixed and prolonged without any possible distraction, whether from the senses which are not brought into play or from the intellect which remains always entirely subordinated to a single perception."

Thus, the idiot may be characterized in short: "Physiologically he cannot, intellectually he knows not, psychically he does not wish to know, and he could and he would know if he wished, but, above all, he does not wish." The moral is evident. If education is to be real and effective, the teacher must recognize that the mainspring must be the will. The child must undergo the process willingly; his will must be brought into harness in the interests of his development, for only by his own activity can he be developed. A great deal of the backwardness described by psychologists as "inhibition" is due to want of will in a particular subject. Although not going as far as Jacotot in saying that every mind is capable to the same extent in all branches of knowledge—a statement which is contradicted every day in the teacher's experience—we can recognize a substratum of truth in the paradox. As the idiot has all the capacities of a normal human being, and the secret of the lack of development is want of energy and of will, so normal human beings perhaps differ not so much in capacity as in energy or will power. We all have the same capacities; our differences consist in the fact that some capacities seem to be more strongly marked in some individuals than in others, and so development tends to proceed in the direction of the strongly marked capacity. But there is no such thing in the normal individual as total incapacity in any branch (unless, of course, such incapacity proceeds from a physical defect, as in the case of the blind, &c.).

A child often gets into his head that he is "no good" at a certain subject. Consequently he gives up trying and makes no progress. He is in the state of an idiot with regard to that subject. The danger is that this special inhibition may spread to other subjects. Inhibition is sometimes caused by the teacher going too fast in his exposition. This is the constant danger of the brilliant scholar; he tends to fuse two or three steps together, he tends to give the logical order which does not appeal to the immature minds before him. Then he child who wanted to know becomes discouraged because he

cannot understand, and, if he goes further on the downward path, he may at last not wish to know. The spread of an inhibition to all school subjects reduces the child still more nearly to the idiot level—the child loses his self-respect. Change of environment, very often change of school, to a teacher who has the gift of sympathy and who shows that he believes in the child, may be necessary. Marryat's "Peter Simple" provides a case in point. Peter was the fool of the family. No doubt this idea set up a general inhibition with him. The first thing his captain said to him on joining his vessel was: "I don't believe you are a fool," with most happy and effective results.

The chief lesson which the brilliant scholar has to learn in teaching is patience, and the "Education of Idiots," by Séguin, points out this as one of the cardinal virtues of the teacher. Again, the very slowness of the process of education of idiots throws into high relief details in the stages of the development of the normal child which might otherwise pass unnoticed.

GENERAL PRINCIPLES.

Like many other great educators, Séguin saw the great defects of the education of the nineteenth century. After the work of Rousseau, Herbart, and Pestalozzi, the method and the matter of education in 1846 was still to a great extent unchanged.

If one was content to propose the problem of the education of idiots in the same way as that of the education of the masses, or even that of the privileged classes, one might as well leave it alone altogether. Education among the nations who proclaim that they are progressing, who modestly believe they have arrived at the highest apex of civilization, consists in shutting up thousands of children in kinds of barracks, where, without any attention being paid to physical differences or varied physiological needs or differences of an intellectual character, they are given each day, every one of them, four or five intellectual rations which their memory is called upon to digest without any care whether the intelligence functions or not. The organs of sense or movement are all more or less atrophied by this sedentary existence, where the whole personality, physical, intellectual, and moral, sinks itself in the usage of one power which is called "the memory"—a true symbol of equality as we understand it, an average education, common and vulgar, where everything which lifts the head is cut out, everything which lowers it is trampled underfoot: an education of the greater number, where thought is reproved because it has not made itself so common and so petty that the memory of all can contain it: an education in which men who think for themselves, independently of the current thought, are treated as dangerous animals, and hunted like ferocious beasts.

The education of the intellectual faculties alone by the memory alone—such is the leprosy of modern times. Barbarism has destroyed many monuments, but at least it has not prevented the rearing of lasting edifices wherein human originality shines forth, whilst public education, in proportion as it extends its influence, roots out pitilessly all that remains of individuality and of personality in the genius of our nation. Search out the heroes of your University triumphs; they hide themselves and they are right in doing so. See whence comes this talent which shines by its own ingenuity, an intelligence free from prejudices, thinking for itself, this kind of man has made himself without help, and he walks on his own path. Carrel, Chateaubriand, Béranger, &c., . . . all these who have not drunk from this fount of intellectual promiscuity the poisonous liquid which the memory absorbs.

But we must not pass education by because it is badly done. We must hasten to reconstruct it on other bases if we do not wish to see the human soul degenerate.

And when I demand that education should embrace the whole human being, faculties, functions, and aptitudes included, instead of developing a single faculty, the memory to the detriment of all the other faculties and of all the physical and physiological aptitudes of the individual, I do not think myself exacting, for I simply desire that we give the same care to the education of the French children that they give already in England and Normandy to the breeding of cattle and horses. If one asked a breeder to feed all his horses in the same manner, and to begin their education by teaching them to turn to the right or to the left before having fed them and having had them walked, mounted, and trotted, according to their several constitutions and the kind of work to which they are destined, we should be very sorry for the adviser. Yet we are still at that point of carelessness and

incapacity when the subject is the education of the men of the future. Happy is he who knows how to lay down the true principles on which the education of the future races is to repose.

Rousseau has written a good book in merely treating of the education of an individual; he who writes of the education of the masses will write a better. It will be a masterpiece if it is written like the "Emile," and based on the true principles of physiology and psychology.

My purpose is more modest, it is true; but, although I only busy myself with poor idiot children, I should blush to take for the basis of my method the mnemonic artifices by the aid of which ordinary education is undertaken.

Whilst all the sciences are in progress, . . . when anthropology has been enriched by numerous facts and bold hypotheses, would it not be strange that education—that, above all, which claims to carry light to the minds which are the least permeable to thought—had nothing to borrow from the most recent discoveries and doctrines of the anthropologists? On the contrary, if the education of the masses in particular can be bettered, if the education of idiots in particular can be attempted with some success, it is in calling to its aid all the resources of the most advanced science. Religion, philosophy, psychology, hygiene—all ought to be placed under contribution and concur to form a body of pedagogic doctrine, of which the formulæ could be applied. . . . The problem of education is to-day: Being given an individual or a people, it matters not which, to develop its apparatus in such a way that its functions acquire the maximum of activity, rapidity, extent, and precision possible; cerebral functions, muscular functions, the organs of thought, of movement, of sensation; functions of body, of soul, of craftsmanship, intelligence, and character. Education must embrace all.

For normal children this problem, complicated in its terms, is simple in solution; there is only need to make regular the use of healthy organs and to extend the field in which their functions accomplish themselves freely, voluntarily, and almost always easily.

With an idiot, however, it is much more difficult, for the state of the nervous system is unknown. Again, the idiot lacks the spontaneity by which the normal child is a great factor in his own development.

SPECIAL FORMULA.

Séguin finds in the human being three aspects—activity, intelligence, and will—and education must embrace them all. Placed thus they are in inverse order to their importance in human life, but they are in the order in which education must work. The education of activity must precede that of the intelligence, and last comes the education of the will, "for man moves and feels before knowing, and he knows long before he has consciousness of the morality of his actions and ideas." The justification of this doctrine is found in the most ancient anthropology as well as the most modern. It is written in the first page of the first Book, the book *par excellence*, where man is represented as a finite image of the Divinity, a human trinity, fashioned on the infinite type of the eternal Trinity. There is a trinity in Creation. Minerals have substance formless and immobile, plants have form without real movement, animals have an intelligence at the service of their wants, man has a moral sense, a free will over and above intelligence and activity.

Religion and science are therefore in accord, for science shows us by demonstration what religion has given to us by revelation. Our nature, then, has ceased to be mysterious, and has entered into the class of scientific facts. "Man is a living Trinity who feels, understands, and wills at every moment of his being, and it is to communicate the greatest sum of sensation, intelligence, and morality that all the resources of pedagogy must be brought into play."

Such a formula is far off in our primary, secondary, and central schools; but this formula is supported by authority, tradition, and the manifestations of experience. Finally, it is the only one which is applicable to idiots. The education of the activity embraces two correlative aspects of existence—movement and sensation. "Movement is divided into a great number of acts, functions, habits, and gestures, which adjust the individual to his environment, while sensation, spread over the whole sensitive surface of the individual,

carries to his consciousness the perception of external agencies which have modified it."

Movement which acts from within and expresses itself externally is not always so successful in accomplishing its purposes, even with normal children, as we are inclined to think. With idiots it is even in a worse state, being the "seat of anomalies, of striking and almost incredible ignorances." Sensation, which acts from the external world inwards by the intermediary of sense, has its divisions traced by the boundaries of movement. It is to sensation that we must address ourselves specially and energetically during the whole time of this long period of education. The end aimed at will be the regulation, precision, and acceleration of the exercise of the functions in order to carry to our consciousness the perception of all that is around us. Following this will come intellectual education. By the sense education the child will have acquired distinct perceptions, and his powers will be in a state to function in the abstract order, as far as the success obtained in the preceding studies will allow this.

But education will not be for us a blind alley; it will only be the beginning of something. It is to give to the child that we take in an abnormal, incapable, and unintelligent state, normal habits, an aptitude for work, whether manual or intellectual; it is to give to the idiot the greatest possible resemblance to the fortunate, gifted, and fruitfully educated child. . . . This has always been the end of my efforts. No one more than myself understands the emptiness of education for itself, of knowledge without fruit, of a life without result.

If he could make his pupils useful members of society, even in the most humble ways, he was satisfied. But the physiological and psychological means mentioned before are not sufficient to attain this end. "Strength, cleverness, and intelligence are bad workmen when they remain in the service of the evil instincts: the raising of the instincts, and moral education ought to rule the whole of educational doctrine. Thus, this question will be treated apart, for on this subject, I fear, I shall have to do as much for the education of the masters as for that of the pupils."

Morality, or the formation of character, is the final end of all education. Although this is repeated *ad nauseam* it is often forgotten. The acquisition of knowledge tends to be substituted for it. The authorities, the teacher, and the parents are all responsible in greater or less degrees—the first because of the systems of examinations, the second because of the first, and the last because of their ignorance, which prompts them to worship that which is unknown to themselves—much as the lay person looks upon one who has a knowledge of Greek, much as the unknown composition of a medicine endows it with supernatural powers. What will, no doubt, strike the reader is the tremendous breadth of Séguin's concept of education, the nobility of the end, and the patient and thoroughgoing analysis to which he subjects each branch of education; the power to take large and noble views does not often coexist with the more difficult task of attention to minute details. When both are combined we have not only a genius, but a great man.

Whilst treating of the physiological and psychological bases of education, he never forgets that the end is social as well as individual. The child must be educated "to pull his own weight through life," in the words of Bagley, to become a useful and productive member of society. Knowledge without fruit is empty, a life without result is blind. Another principle of Séguin's is worth consideration. The education of the intelligence depends in a great measure on the success of the preceding education of the muscular and nervous systems. If the child has not clear percepts, how can he have clear ideas? If his muscular education is imperfect, his senses will be imperfect; if his senses are undeveloped, his perceptions cannot be clear.

THE Ocean Steamship Company, in commemoration of the founders of the Company, the late Alfred Holt and Philip Henry Holt, have handed over to the "Holt Education Trust" the sum of £20,000, to be applied for the purposes of higher education in Liverpool.

CIRCULAR 849.

By the Rev. Canon RAWNSLEY.

THE question raised by Circular 849 is one that has been forcing itself upon the educational mind for some years past. It took definite shape that came to nothing in certain recommendations of the Consultative Committee in 1904. It was revived by a report of the same Committee, which began to take evidence in 1909. That evidence was given by (1) representatives of eight examining bodies, (2) eight officials of the Board of Education and Local Education Authorities, (3) thirteen persons engaged in teaching, (4) medical witnesses, (5) four general witnesses—viz., Sir William McCormick, Dr. Norman Moore, Major-General Sir Archibald Murray (Director of Military Training), and Sir John Struthers. The report was received with mixed feelings, but it was considered an important document, and the time, it was thought, had come to move the Board of Education to promote some needed reform in the matter of the multiplicity of competing examinations.

The need of such reform was apparent from the fact that there were in existence ninety separate examinations which professed to test the proficiency of pupils in secondary schools, and when we are told that in 1912 it was possible to pass the London Matriculation Examination in 352 different ways, the case seems pretty clear that the time is ripe for reducing order out of chaos, a simplicity out of complication, which is now a bewilderment to parents and an incubus upon schoolmasters, who have, at the sweet will of the parent, to prepare their charges for this or that examination. That at any rate was the view of the Federal Council of Secondary Schools Associations, and they called a Conference to consider the matter, backing up their conclusions by certain resolutions of the Head Masters' and Head Mistresses' Associations and by the opinions of such books as F. G. Hartog's "Examinations in their Bearing on National Efficiency," and Norwood and Hope's "Higher Education of Boys in England."

They reported to their Council on December 5, 1912, and this report, after amendment, was sent to the Board of Education with a request that the Board should call a Conference to consider the matter. This the Board willingly did, and we must thank the Board for doing so, though it is, perhaps, a pity that it was not rather wider in its purview.

The whole matter was brought to a head by Circular 849, which was issued to Local Education Authorities and secondary schools just a year ago. That Circular is clearly only tentative, but it is believed to embody the views of the Consultative Committee, the Federal Council of Secondary Schools Associations, and to have been compiled after the Board had conferred with all the Universities and had consulted representatives of some of the leading Local Education Authorities, and after having before them resolutions from the Teachers' Guild and the Registration Council.

I have gone into this at some length because I think it fair to the Board of Education to say that they have not done this work of their own initiative, but have been moved thereto by various educational bodies, and they have shown a willingness to listen to criticism and to hear the other side of the question, which is surely all to their credit. If they have done nothing else, they have by this Circular 849 set Local Education Authorities thinking, and, if my experience is general, they have proved that they were willing to give considerable attention to the views of Local Authorities, and, within limits, to give and take on the questions raised. We of this Association have from early days argued that no great changes in the educational world should be made by the Board without taking Education Authorities into their confidence before they bring in new legislation, and this they have done, and for this and for their frankness in consulting the various bodies in a document that is still under revision we must give them thanks.

That the minds of many are not likely to be easily reconcilable to Circular 849 is plain from the hostile criticism which

* Read at the meeting of the Secondary Schools Association on July 15, 1915.

the past few months have brought to light, and though, perhaps, it is not too much to say that some of this hostility is natural because vested interests are touched and some of it is partisan, if one may use the word in a non-invidious sense, some of it is based on ideas of education which are worthy of careful consideration and cannot be lightly dismissed. I do not understand it to be my duty to do more than open the discussion, and if I try to point out the pros and cons of the scheme you will, I hope, realize that I do it for the sake of promoting such discussion. We may not be agreed as to the opportuneness of pressing the matter forward in this time of War and trouble. The Head Masters' Conference, by having adjourned their debate on the subject to their next Christmas meeting, look as if they thought no immediate action would be taken by the Department, and the Teachers' Registration Council is emphatic in its pronouncement. "The present moment," say they, "does not appear opportune for revolutionizing the educational methods of the country," and they add "at any rate not in the direction of centralized bureaucratic control."

But we are all agreed that some method must be found to cure an acknowledged evil, and we cannot well wait till, as the National Union of Elementary School Teachers suggest, all the Universities and professional bodies have accepted the scheme in lieu of matriculation and their several preliminary examinations. The Scheme is tentative, and *solvitur ambulando* must be the motto both for Department and for schools if the scheme is to have a chance of trial or success.

What, then, are the aims of the now famous Circular 849? To discourage as far as possible the waste of time in preparing scholars for various external examinations by setting up a simpler machinery for examination purposes which shall be a test rather of the efficient work of a school at a particular period than of the individual capacity of the pupil, but at the same time an examination upon which a certificate may be given to scholars of fifth-form capacity, after three years' course in an efficient secondary school. This, it is hoped, may be a stimulus to the child and a satisfaction to the parent. This examination is to take the form of an examination of normal fifth-form standard, and the form is to be the unit for such examination.

Arrangements will be made for admitting to such examinations the scholars of private schools who desire to win the certificate. The examination is to be annual, but is to prevent cram by being a form examination, and not an individual one. The average age of the pupil is to be from sixteen years to sixteen years and eight months, but it is to be elastic, and the age will be liberally extended in the cases of girl students. The age and the form or class have been selected because it is believed that scholars of that form and age will not have been so advanced in study as to have begun specializing for University or profession. This examination will be the First-grade examination and will supersede, or rather make unnecessary, the Junior Oxford and Cambridge Local Examinations. It will correspond closely to the present School Certificate Examinations of the English Universities. Its subjects will be (1) English subjects, (2) languages, (3) science and mathematics, and the papers will be so set that the students may obtain either Honours or a Pass. It is believed, too, that those who obtain Honours will be accepted as having qualified for matriculation at the Universities.

It is to be noted that the fourth main group of subjects, including music, drawing, manual work, and housecraft, all of them subjects coming more and more into prominence, are not examined in this form test. We are told by the Board that the reason for this exclusion lies in the fact that these subjects cannot be tested by a written examination, and it is thought that a separate examination will be needed for them, and the results will be endorsed upon the certificate issued for the main fifth-form examination. The Second-grade examination that is proposed is to be the Sixth-form examination for scholars who, staying at the secondary schools for the two years beyond the first examination age, are specializing for University or profession and need this extra two years' training. The group of subjects, though great variation is to

be allowed, suggested for this course, is Classics and Ancient History, Modern Humanities studies, Science and Mathematics.

Now, of course, much will depend on the attitude of the various professions and the attitude of the Universities as to the proposal. And, whilst on the one hand I believe that the idea of examination by form rather than by candidates may prevent cramming, it is quite certain that, unless the standard is low enough to allow the majority of any fifth-form to obtain a pass, an outcry will be raised that we are defeating our own ends by making scholarship successes the sole aim of the school curriculum, and at the same time we shall be driving a lot of children to cramming and private schools. But, if the standard is low enough merely to represent a pass, it will not carry with it such weight outside the school as to help its winner to his work in life.

It is certain that the proposals of the Board, for which I think they are not responsible, so far as the initiative goes, but to which they have been moved by a large part of the teaching profession, have divided (and subdivided) the teaching profession into two camps—the one welcoming any plan that will rid them of the nuisance of competing examination tests, even at the risk of a kind of monotony of result and centralized control; the other seriously alarmed at the idea of bureaucratic control and a fear lest this attempt to co-ordinate secondary education by establishing a single standard of attainment irrespective of local needs and capabilities will mean a loss of freedom and flexibility for the whole secondary education of the country.

These latter point to Germany and to Scotland, and ask whether for the cast-iron mould that reduces all schools to one type we are willing to part with the variety which expresses itself now as differentiating public schools, grammar schools, local endowed schools, and the various grades of municipal secondary schools. The opponents of the scheme further assert that it proposes to deprive Local Authorities of the right hitherto exercised of determining from time to time—having regard to the secondary schools within their area and the needs of the pupils in their local circumstances—the kinds of external examinations to be taken by the pupils in the secondary schools maintained by them. They doubt whether a lower school certificate can be usefully granted to pupils below matriculation standard. They fear that the granting of such lower certificate might tend to shorten the school life. Whether such certificate should be granted in any area, they think should be left to the Local Education Authority to decide. They doubt the expediency of the upper or fifth-form examination, for pupils who stay on to the age of eighteen and are not working for the University or professional life will be very few in number, and hardly demand the extensive machinery to grant these comparatively few pupils their higher certificate. They doubt the advisability of the first examination being based strictly upon the curriculum of the school. They do not see how uniformity of standard can thus be obtained. They feel strongly that the omission from the Board's scheme of any proposal to associate nominees of the Local Education Authority with the examining body is unwise and unsympathetic with the work the local bodies have done for the last ten years. They think that, whilst teachers in secondary schools should certainly serve on the examining body, they should have nothing to do with the marking of the papers.

There are others who are friendly to the scheme, but who consider (1) that some assurance should be obtained from the Universities and the Authorities responsible for the entrance examinations to the professions that the new examination would be accepted by them in lieu of their preliminary examinations; (2) that further information is needed as to the constitution of University examining bodies which are proposed to be recognized for the new examinations, and that the Local Authorities and teachers actually engaged in secondary schools should be directly represented on all the examining bodies; (3) they think that the conditions laid down in the Circular as to the age of candidates for the first examination should not be rigidly enforced, and especially not in small schools.

where the attainments of the pupils in the same form may be very diverse. It should be at the discretion of head masters in such schools to withhold from examination in any year any pupils in the form that are not judged to be fit to take the examination in that year.

With regard to (1), after our interview with the Board, I believe we need have no doubt but that the assurance will be obtained. Unless the Universities and Authorities consent this scheme will go by the board. With regard to (2), I am also assured that teachers actually engaged in secondary schools will be represented on the examining bodies of the younger Universities, and that, as far as the older Universities of Oxford and Cambridge go, at least once a year they will call into consultation such representatives of Local Authorities and teachers as will form a consultative body *ad hoc*. With regard to (3), the idea of the Board is to test the work of the school at a particular stage, and the fifth-form stage has been chosen, for after the fifth form specialization begins. But there is no bar to any age of a pupil for this examination if he is in the form.

It seems to me that the crux of the whole problem lies in the new departure of examining a form *qua* form, and not *qua* individual. For, as the forms go now, it seems hardly possible, with any fairness, to make a form the unit for examination. There may be bright children in a form who would be terribly handicapped by the fact that the remainder of the form are below the average in attainment, and there will then be a lowering of the whole form to the detriment of the capacity of these brighter scholars. But, in addition to this the form is composed of scholars who can be presented within the limits of age, but one scholar is in Set 1 mathematics, Set 2 French, Set 3 chemistry, and Set 4 English literature, whilst another is in Set 4 mathematics, Set 1 Latin, Set 3 history, and so on. However praiseworthy the intention is to prevent cram and get a general idea of fifth-form attainment in a school, it looks as if the plan was unworkable, and especially in small schools where the average of attainment in each form may be very diverse. And, unless the head master has power to withhold from examination in any year pupils in that form who are not fit to take the examination, great hardship may result. I know, of course, that the Board is ready to admit that a head master may ask for the exemption of a scholar from examination on grounds of health or fear of pressure, but the Board, aiming at gaining a general idea of the work of the form as a whole, is unwilling to admit that only the bright scholars shall be brought forward for examination. The Board seems to me to have overlooked the fact that a boy may have a real genius in one of the three subjects offered for examination, and be absolutely dull and backward in the other subjects. We have all of us known scholars, who showed remarkable ability in English, who could hardly pass any examination in elementary mathematics, and *vice versa*. But, as matters are, each scholar is to show a reasonable amount of attainment in all the three groups.

With regard to paragraph 13 of the scheme, it is feared by some that the certificate there mentioned, if of any value, may tend to the taking away of children from school before the age of sixteen or sending them for only a year or two to qualify for the examination. But the idea behind that clause from the Board's point of view is that there must be some possibility of pupils in schools other than those recognized as efficient secondary schools taking the examination, and, seeing that no certificate to scholars in a recognized secondary school will be granted till the scholars reach sixteen, the scholar will need to have been in the school for at least three years. It is hoped that parents and employers alike, who recognize that the worth of the certificate lies principally in the fact that it carries on the face of it the proof of three years of school life at least, will bring pressure to bear to prevent children leaving before the certificate is granted.

It is urged by those who are friendly to the scheme that Local Authorities and governing bodies should have complete freedom of choice among the examining bodies recognized by the Board, and that to effect this the words "submit for the

approval of the Board proposals for the annual examination " should be deleted, and the words " arrange for the annual examination " should be substituted. It is not improbable that the Board will listen to this suggestion, for I understand that all that the Board wishes is to prevent caprice in the choice of examination, and to secure due consideration of all the circumstances. Some of us think that arrangements should be made to enable a school to take its annual examination at the end of either the autumn or spring term instead of only in the summer. I am assured that, as matters are, there will probably be a choice of two terms for the examination, and one of the Universities already proposes to offer these examinations three times in the year, and the Board will raise no objection to other Universities following suit.

Friends of the scheme demand that fuller particulars of the actual functions and constitution of the advisory body should be given, and that a larger representation thereon of Local Education Authorities and teachers is necessary. I understand that the Board will give these particulars as soon as the advisory body is nearer accomplishment, and that the Board sees nothing to prevent such representation, for their aim is to make the advisory body a real thing and not a formal body.

As to the question of financing the scheme, all, whether friends or opponents, are at one in demanding that adequate provision should be made by the Board of Education for the additional expenditure on examinations involved in the scheme, and that it is desirable there should be a uniform examination fee. I am not giving away any secrets when I say that the Board realizes that this demand is a just one, and would recognize gratefully any strengthening of their hands in dealing with the Treasury in this matter. The Board also realizes that a uniform fee would be an advantage, though it thinks it more important that a minimum fee should be fixed than to forbid any examining body to exceed that minimum.

There can be no question that friends and opponents of the scheme alike do welcome the suggestion that the pupils of secondary schools between the ages of fifteen and seventeen should take an examination to be conducted by one of the Universities or some other competent body, which examination should be fairly equal in standard and should entitle successful pupils to a school certificate, and that such examination should be of matriculation scope and standard, but there are many who feel that that examination must be so arranged that those who are not up to matriculation standard should receive a pass. What is deprecated in many quarters is the prohibition of all examinations except that proposed by the Board's scheme, and it is believed that if the scheme had been tentative and permissive a great deal of opposition would have been avoided, and the work of the Board in what is considered an important reform would have been facilitated.

There is a general lament, so far as I can gather, that the Board has left out of count from the schedule of subjects for examination the fourth group of subjects in our secondary schools—music, drawing, manual work, and housecraft—on the ground that these subjects are not, in the same way as others, capable of being tested by a written examination. It is felt that the Board rather gives itself away when it makes this assertion, for papers could be set in most of these subjects, whilst the oral or practical examination which will be necessary for these subjects, and for which every facility will be given to examining bodies to offer examination in, is not a necessity only in these subjects of the fourth group, but in some of the subjects of the three groups that are tested by written papers. It is to be doubted if we ever can safely omit oral examination if we would really obtain anything like adequate knowledge of the capacity of the pupils. In the German *Abiturienteneamen*, and also in several French examination *bourses* for diplomas, *viva voce* forms an integral part, and we might well take a leaf out of the book of some Local Authorities in their minor scholarship examinations, and see that *viva voce* had its proper place in the standard examination of the fifth form, which it is now proposed to establish.

One other matter I take it both friends and opponents of the scheme are agreed upon—that the arrangements in

Clause 18, which are to be made for the closest co-operation between His Majesty's Inspectors and both the examining bodies and advisory committee for co-ordination, is of great importance. But it is questionable whether the reports of inspection which shall always be available for the Committee, and the inspection reports of the schools of which the examination has been approved, and which each examining body will receive as a matter of course, will be all the use that they might be if inspection and examination do not proceed *pari passu*. As matters are, the inspections which are so helpful to the governing bodies and the head masters will probably not be near enough to the date of examination to be of the great service which they otherwise would be; and it has been suggested that if the triennial inspection of a school were supplemented by an external examination the year before, and an internal examination the succeeding year, this compulsory examination by an external body would not be necessary.

I have attempted to give the pros and cons of Circular 849. I have not touched upon the more important question as to how far this revolutionary change, with all its good intention, is really going to be the benefit it designs for the educational life of our schools. Judged by the findings of the Consultative Committee and report of 1911 on the evils of examination, it certainly does not seem likely to be a cure for any of them, though in some instances it may be a palliative, notably in the fact that it gets rid of the evil of the Junior Preliminary Locals; but my fear is that, though there are no payments by results, a great deal of effort will be expended on producing a fifth form up to standard, and if, as the Consultative Committee suggested, it is unfair to test a boy by a single examination—notwithstanding that the form, and not the individual, is the unit for examination—it is hard to see how this unfairness would be rectified. The greatest harm I see in the matter is the fact that it fastens an examination system for ever upon all the schools that desire to be considered efficient, which, after all, only tests a boy's intellectual equipment, and not all of that. We are more and more coming to see that our schools stand for the formation of character, and this fifth-form examination takes no account of things outside the classroom—the boy's conduct, the boy's relations with his fellows, the boy's success as a monitor, the boy's physique, and many other things that are as important to his future manhood as his success in class.

Nor does the Board seem to have recognized the fact that the girl attitude towards examination is different from the boy attitude. Some head mistresses assert that the having to prepare for an examination in some instances seems actually to paralyse a girl's powers. Her faculties appear dulled by the thought of it, whereas, if she is allowed to work on steadily and naturally, she can do fairly well. There is a good deal to be said for any single examination which the professions generally would have recognized as opening their doors to the student, and thus allowing him his freedom to go forward to preparation for his work in life, but I do not understand that this system in any way will tend to get rid of the competitive examinations for these professions or for the Civil Service, and there is a note of compulsion about Circular 849 which seems alien to that greater elasticity and freedom for experiments in school methods which certainly hitherto has, with all its drawbacks, fostered individuality and variety in our school system. On the other hand, I do not, as some appear to do, see in this Circular the cloven hoof of a demand for bureaucratic and central control. It appears to me, for almost the first time in its history, the Board has been willing to look upon the teachers as its helpers and comrades.

There is a natural tendency for University men to forget their schoolboy days in the setting of examination papers, and it is to the teachers that we must look to keep the papers at a schoolboy rather than at an undergraduate standard. Let me repeat that if, as I understand, the demand for this Circular has come from the teaching profession, that profession can hardly turn round now and disown its initiative, but it can urge amendments. I have touched on many points, but I dare say have omitted others; I trust the discussion that will ensue will bring these into relief.

REVIEWS.

Mothers and Children. By Dorothy Canfield Fisher.
(4s. 6d. net. Constable.)

By her previous work Mrs. Fisher has prepared for herself a public strongly prejudiced in her favour. She writes in a modest, but very effective, way. Some critics may be inclined to think that in this book she has not brought forward anything strikingly new. But this objection she has anticipated by a skilful use of the old story of Goldsmith's discovery, at the mature age of forty, of the literary excellence of Ezekiel. She maintains that we all know a great deal more than we can realize, and the main purpose of her book is to enable her readers to bring to clear consciousness what is implicit in their mental content. For this purpose her style is eminently suitable. She works by means of concrete instances and their implications. In our schooldays there was a figure of speech that had a great attraction for us. It implies the use of a proper name to represent a type, and obviously it makes an irresistible appeal to Mrs. Fisher. She has a veritable gallery of names of children, each of whom stands for a certain attitude of mind or line of conduct. Jack, and Anna, and Kenneth, and Pete all give to their names an illustrative meaning without losing any of the charm that belongs to the children as persons.

The highly figurative character of Mrs. Fisher's style is made clear by a glance over her chapter headings. Moral Sunshine, The Involuntary Zulu, Moral Thermometers, A Sliding Scale for Obedience, One Key for all Locks are not exactly self-interpreting, yet all become delightfully clear and appropriate when we read the text. The book falls into five main parts under the headings: The Background of our Children's Lives, Obedience, The Scientific Spirit for Mothers, On Joining the Older Generation, Maternity no Longer a Position for Life. In view of this list one naturally begins to wonder for whom the book is written. To begin with, it is not intended for teachers, unless in so far as they are also parents, for teachers are marked off from parents by the all sufficient difference that they "do not have to live with the children." Yet, at the end of the book, Mrs. Fisher appears to be drawn reluctantly, but almost irresistibly, to the conclusion that the solution of the bringing up of children is to be a state of affairs in which the parent will give place to professional people who may not be technically known as teachers because their work will be wider than that at present indicated by this term, but who will be as distinct from parents as professional teachers now are. Mrs. Fisher wants the teacher and the parent to coalesce. "Why in the world should there be a tacit understanding in America that 'teacher' means a childless spinster?"

While mothers will benefit most by this book, fathers will get nearly as much good from it, while teachers will find it to their advantage to look at their profession through the fresh eye of an exceptionally competent outside critic. Even those who are neither fathers nor mothers, nor even teachers, will find something to their advantage in these pages. For, after all, the subject is the relation—we had almost written "the conflict"—between youth and maturity. The section on Joining the Older Generation appeals to all, and is really very skilfully worked out. The wholesome broad-minded spirit in which the whole social fabric is treated by our author acts like a tonic on all of us who are inclined now and again to kick against the increasing claims of childhood and youth. The contrast between the English nurse in a comfortable home and the American mother, who in a corresponding home does the nurse's work, has naturally a bias towards the American scheme, but it does us good to have ourselves criticized in the honest kindly way our author does it. Uncles and aunts and other irresponsible critics of child nurture should read this book for their soul's good, and the large class of well-to-do parents who feel themselves shut out from their children's lives cannot afford to neglect it.

The proof that the general public is interested in the problems raised in the text is that, when the chapters on Obedi-

ence appeared in a popular American magazine, they led to a vast amount of correspondence in the papers as well as in private life. We cannot imagine anything more likely to give rise to intelligent and profitable social discussion than the final section of this stimulating book. Why does Mrs. Fisher not give us an index?

Play in Education. By Joseph Lee. (6s. 6d. net. Macmillan.)

The thesis of this book is that play is the only human activity that really counts. The author is disappointed that people will persist in regarding children's play as something unimportant. "Child's play," for example, means whatever is ridiculously easy. "Play is to the boy what work is to the man—the fullest expression of what he is, and the effective means of becoming more. And, in the case of the best work, the expression is of the same instincts; the two are identical." A good feature of the book is a page of definitions of some of the more frequently used terms. We may or may not agree with these definitions, but they at least let us understand what the author means. The volume is divided into five books—(1) Play is Growth, (2) The Baby Age (from one to three), (3) The Dramatic Age (from three to six), (4) The Big Injun Age (from six to eleven), (5) The Age of Loyalty (from eleven to fourteen). Then follows an Epilogue—Play the Restorer. The work itself runs to 494 pages, which, in our opinion, is excessive. One wonders whether such a vast array of words is necessary to make the points the author succeeds in making. All concerned with the training of the young are keen to have definite ages fixed for the appearance of certain stages of development, so we welcome the deliberate formulation of ages as set forth above. But we do not find that Mr. Lee justifies the classification he has adopted. He describes rather than analyses. In dealing with educational subjects at present there is, perhaps, a tendency to overdo the experimental and statistical method, but the recoil in Mr. Lee's pages is too great. We seem to be having little else than the personal experiences and opinions of the author throughout the book. It is hardly "documented" at all. Mr. Lee writes enthusiastically, and often works off a successful epigram. His work is, in parts, quite interesting, but it does not seem to carry us very far. All that is valuable in the book could be put into a third of the space. The style adopted becomes tiresome in a book of this length, even for the reader who wishes to be merely interested. What is the good of a sentence like this in a serious book on education: "If rhythm can kill time, it also made time for us in the first place"? Are we helped to any valuable conclusion by such a passage as the following?—"For the American child especially, who for all these years has had the care of the whole family on his shoulders, directing the actions of his father and mother, of the servants and the stranger within the gates, it is well that he should occasionally have a chance to lay aside the cares of office and unbend." If the book belonged to the purely literary and imaginative class of educational books represented by Mr. Grahame's "Golden Age" there might be room for this trifling, and we might excuse the plethora of detailed light-hearted description that occurs throughout. But a very little of the sort of thing that we find in connexion with the Big Injun and the Gang goes a long way. What we want is sufficient material on which to base our conclusions. The author is at his best when he deals seriously with such subjects as Drudgery and the Team. The chapter on How to Reconcile Life and Civilization deals admirably with an important subject, and would glad the heart of our Mr. Graham Wallas. Indeed, the latter part of the book compensates for a good deal of the dissipation of energy involved in the reading of the earlier part.

The Principle of Relativity. By E. Cunningham, M.A.
(9s. net. Cambridge University Press.)

In the history of scientific progress we have many instances of the fact that the science of yesterday may be revolutionized by the subsequent discoveries of to-day. Nor is this to be marvelled at when due weight is given to the truth that it is

at best only an aggregate of finite intelligence that is for ever striving to arrive at the laws which govern a universe ordered by an infinite wisdom. Moreover, we can but work on observed phenomena the number of which is incomplete even though the progressive training of the intellect constantly increases it. Thus the ancients walked on a seemingly flat and fixed ground, and saw—as they thought—the sun move round them. Yet they had doubtless observed many truths, though science was much younger then than it is to-day. Later times revealed their mistakes and we have become familiar with the true shape of the earth and its motion round the sun in common with that of kindred bodies. Still later researches have shown that the sun itself moves in space. Again, Newton promulgated the law of gravitation, but a few years since Osborne Reynolds assailed the accuracy of our preconceived ideas as to the influence of *mass*, and hinted at the substitution of “absence of mass” for “mass” as the cause of certain observed phenomena. There is no need to multiply examples; mathematicians and physicists are well able to add to the list. At the moment we are concerned with the principle of relativity, the study of which has developed in very recent years. In the present volume, Mr. Cunningham offers to his readers an expert discussion of the subject, treating it in its relation to the basis on which Newton built up his mechanical theory, to the fundamental equations of electromagnetic science, to the constitution of the æther through which light is propagated, to thermodynamics, &c. It is premature to attempt to express any definite opinion as to the probability of the ultimate acceptance or rejection of the principle as a valid one, for the far-reaching effects involved, the scientific issues at stake, form a subject of much controversy among the first scientists of our generation. It is difficult for the average student to grasp the full meaning of the new ideas, though a partial appreciation of them seems within the reach of the majority. We have most of us perhaps recognized that absolute position, whether in space or time, is beyond our power to ascertain. Position and time relative respectively to given axes of reference and to an agreed epoch are all we know. The principle of relativity as now set forth does not concern itself with quite so extensive a proposition, but it endeavours to establish itself as implying that what we determine whether by means of Newton’s equations of motion, or by the equations of electrodynamics, and so on, are purely relative results capable of issuing from any one of an infinity of parallel starting-points. We can in no case look on our solutions of problems as being absolute and unique. They are just accurate interpretations leading to alternatives of infinite sets of equally probable solutions.

Mr. Cunningham gives at the outset of the treatise a very valuable analysis of the contents of each chapter of the work. The text proper, however, opens with an interesting introductory section on the relativity of the Newtonian dynamics, and this is followed by a chapter historical in character and including an account of various well known experiments bearing on the theory of the constitution of the æther. The electron theory; Einstein’s views as to the relativity of time and space; the influence of his ideas; Minkowski’s four-dimension world, &c., constitute the contents of the subsequent chapters.

Algebraic Invariants. By Leonard Eugene Dickson. (New York: John Wiley & Sons. London: Chapman & Hall.)

The above-named volume belongs to the valuable series of mathematical monographs edited by Messrs. Mansfield Merriman and Robert S. Woodward. Altogether fourteen of these short treatises have now been published, and, as we have noted on a previous occasion, Nos. I to XI of them appeared originally as a single volume. In the present work Dr. Dickson approaches his subject from the standpoint of both finished scholar and able teacher. His exposition is notably concise in its method of expression, and the student must be prepared to fill in when necessary minor details in connexion with the calculations indicated. The treatise is arranged in three “Parts,” the first introducing the reader to invariant and covariant expressions as they occur in relation to plane co-

ordinate geometry and the subject of projection. The author points out in the course of the discussion the geometrical significance of the vanishing of a given invariant and the independence of systems of reference and of projective transformations which characterizes the geometrical property denoted by the zero value of the expression. The algebra and the geometry of Jacobians and Hessians claim attention, as also the application of functions of the latter type to the solution of cubic equations and to the investigation of cubic curves and their points of inflexion. In “Part II” geometry gives place to algebra and the properties of homogeneity and weight, and the law of reciprocity are amongst the topics discussed. Once more prominence is given to the application of the Hessian to the determination of the roots of equations, a quartic furnishing in this place the class of equation considered. In “Part III” the student will find an introduction to the symbolic notation of Aronhold and Clebsch. Here, too, we meet with both the proof and an important application of Hilbert’s theorem on the linear expression of the forms of a set by means of a finite number of forms of the set. Other interesting developments of the subject in hand are treated also in more or less detail in this, the final, section of the text.

A Theory of Time and Space. By Alfred A. Robb, M.A. (10s. 6d. net. Cambridge University Press.)

A work connected with the subject of Relativity can only be approached in a critical spirit—in so far as the theory is concerned—by a mere handful of experts in mathematics and physics. The theory discussed is of too recent a growth to admit of its having hitherto been widely studied. On its principles it is at this time impossible to speak with any measure of certainty, for even those who are devoting themselves to research in this special field are far from being in accord on the question of their validity. It follows that the reviewer of a treatise on the subject is reduced to the necessity of announcing briefly the existence of a new essay at the exposition of the theory and of voicing the fact that a fresh stimulus is being given to the inquiry. In the present instance Mr. Robb’s treatise appears to be an able, carefully worked out, and important production. The volume was heralded in a measure by the author’s preliminary publication issued a couple of years since. In fact the earlier investigation is practically reproduced here in the introductory chapter. Mr. Robb’s aim in treating of the theory of Time and Space would seem to be to establish Time as a fundamental concept and to reduce the relations of Space to the condition of derivative functions. Quoting his own words he has striven to build up a theory that “spatial relations may be analysed in terms of the time relations of *before* and *after*.” The writer claims for his argument that it leads to a geometry of which the Euclidean geometry forms a part. One of the outstanding fundamental ideas which is believed by Mr. Robb to be first developed in the present work is that of Conical Order, the theory of which he has elaborated at some length at the opening of the volume. The physical phenomena of Optics are intimately related to the line of argument pursued by the author. The mass of theorems—more than two hundred in number—which are enunciated and demonstrated in the course of the treatise are built up as the consequences of twenty-one postulates. Diagrams are supplied primarily as aids to the imagination of the reader. These and all the other details involved in the process of publication have been carried out with the characteristic excellence of the Cambridge University Press.

OVERSEAS.

The Brown University Teachers’ Association have been discussing educational efficiency in all its forms, and several of the papers read are reproduced in the June number of *Education* (Boston). They make good reading. The writers are apparently well aware of the dangers of an exaggerated confidence in the statistical method of testing efficiency. Official *questionnaires* are described as “diabolical instruments of intellectual vacuity,” and the editor, in his com-

ments, makes it abundantly clear that tables and graphs are but of doubtful value in estimating real efficiency. It appears that statistical critics are wandering about America seeking whom they may devour by the aid of their figures and diagrams. The editorial comment is emphatic: "We believe that an efficiency 'sharp' among the Pharisees would have eliminated the Master"—because His work would not have stood the test of immediate arithmetical returns.

Mr. Harold Foght, it appears, has made certain researches among the rural teachers of the United States, as a result of which he is able to tell us that "the average time for each public-school teacher to remain in any one school is less than two school years of 140 days each. As the average age when teaching is begun is nineteen years, and the average number of years taught is only six and a half, the statistics show that the rural schools of the country are taught largely by young unmarried people who have no idea of following teaching as a profession. . . . So long as teachers continue to be peripatetics the best results in community leadership cannot be expected."

In the *English Journal* (Chicago) we have a protest against "medicated drama." A writer in the section headed "The Round Table" objects to "the use of the 'Trojan Women' or any other Greek tragedy as a means of furthering a peace movement, raising money for the Red Cross, or stirring up sentiment for any specific cause, however worthy. . . . To use them as mere instruments of propaganda is a crime against art. It is almost like robbing the sheeted dead. Let us have no more of it." It appears that the teaching of English is a matter of special difficulty in Colorado, if we are to believe the *Colorado School Journal*. An investigation was instituted into the difficulties and remedies, but, as the report admits, "most of the teachers have difficulties, few have remedies." A list of seventeen of these difficulties is given, the final one being of special ill omen—to wit, "the teacher's own personal dislike for the teaching of English." The pupils seem to have an equal dislike to the subject in Pennsylvania, for there Miss Sylvia Hall has got tired of begging and cajoling her pupils to read English books, and has fallen back, evidently with success, on a demand for a certain amount of intelligent outside-school reading among her pupils. With regard to the teaching of English it is interesting to note the remark of the editor of an American educational magazine: "We were once asked by a pupil to give three rules by which one could become a good public speaker. Off-hand a concise answer sprang to our lips, which we have often since then thought of as summing up much that we should aim to cultivate in our pupils in English. These were the three rules: (1), Keep well, (2) have something to say, (3) say it briefly." The first two are, perhaps, counsels of perfection, but the third is within the reach of all, and not utterly beyond the average teacher.

The *American Journal of Educational Psychology* prepares us for the appearance of a book by Dr. W. Healy, of Chicago, with the alluring title of "Pathological Swindling and Lying." This seems a little remote from the business of an educational magazine, but, on turning to the actual text of the May number, we find an excellent article by Dr. Healy on "An Outline for Institutional Education and Treatment of Young Offenders."

School and Society for June 5 has the following paragraph, which is not without interest for us in England: "Educators in this country, who may view with some feeling of alarm the constant increase in the number of educational associations called forth by the increasing specialization of interests, will be encouraged by the long list of similar associations contained in the [English] *Journal of Education*, under the topic 'Directory of Educational Associations' giving the name, location, purpose, and publication of several hundred of them."

School and Society is interested in an article on "Der Stil der deutschen Erziehung," by Dr. H. Gaudig, in a German educational magazine: "The student of American educational theory would find this article almost commonplace nowadays in its claim for an education of all the people for all the people, and in its emphasis on the development of personality,

were he not confronted by the attempt to claim this as the essentially German type of education that is to come." The writer in *School and Society* searches in vain throughout the article for any argument in support of this preposterous claim. He finds nothing but good bold reiterated assertion, which, no doubt, serves its purpose of impressing German readers.

GENERAL NOTICES.

EDUCATION.

The Making of a University. By W. M. Ramsay.
(1s. Hodder & Stoughton.)

This is a paper-covered pamphlet of forty-six pages, in which the distinguished archaeologist tells us, in the words of his subtitle, "what we have to learn from educational ideals in America." The illustrative centre of the discussion is found in the curious career and life-work of an enthusiast better known in America than here. Dr. Isaac Conrad Ketler, after some experience as a village schoolmaster, went to a village (of two hundred inhabitants) called Pine Grove, in Western Pennsylvania, and founded a college, with the deliberate intention of developing it into a democratic University. His success provides ample opportunity for the learned author's comments. A man of Prof. Ramsay's attainments and experience may say, with impunity, many things that would be resented from one of ordinary academic standing. His views have a sort of justifiable piquancy that is very attractive.

CLASSICS.

The Oxford Latin Course. Part I. By R. L. A. du Pontet.
(2s. 6d. Clarendon Press.)

The aim of this book is to lead up from the elements of Latin to the text of Caesar's campaigns in Britain, modified to avoid the use of the subjunctive mood. The treatment of all the points of elementary Latin is full, and there are copious exercises of an interesting kind. Many of the latter are of a semi-direct character, giving plenty of scope for variations of method. We have no doubt that whoever works through this book will find the translation of the modified text of Caesar, with which it closes, an easy task.

A Short History of Classical Scholarship. By Sir John Edwin Sandys, Litt.D., F.B.A. (7s. 6d. net. Cambridge University Press.)

Sir John Sandys' "History of Classical Scholarship," in three volumes, is a work well known to scholars. The present work, complete in one volume, treats the same theme within a more moderate compass, and is intended for the classical student and the general public. Scholars of primary importance are treated with almost the same fullness as before, while the work of less important men is omitted or dealt with very briefly. The book covers an immense range from the sixth century B.C. to the present day, and the achievements of men of every age and every nation who have worked in the field of classical study are recorded in this wonderful summary. The rhapsodes of early Greece, Aristarchus and the great critics of Alexandria, Thomas Aquinas, Roger Bacon, and the schoolmen of the Middle Ages, the scholars of the Renaissance, Bentley, the modern scientific critics, Lachmann, Madvig, Munro—all these and many others are here passed in review. As a work of reference this book is invaluable to every classical student, but it is also a book which may be read for pleasure and interest. One may forget for a moment the strife and bitterness of these troubled days in this record of patient labour in the cause of learning, where the feuds of nations have no place.

L. Annaei Senecae. Dialogorum Libri X, XI, XII. Edited by J. D. Duff, M.A. (4s. net. Cambridge University Press.)

Those who are familiar with Mr. Duff's works will expect a high standard of scholarship in a book by him, and they will not be disappointed. Like his "Juvenal," this edition of some of the so-called "Dialogues" of Seneca is a model of what such works should be. The commentary, though concise, is full of interesting matter, and the many peculiarities of Seneca's style and diction are amply illustrated. The editor has purposely chosen many of his illustrative quotations from Pliny's "Natural History" in order to revive interest in a work, which, as he remarks, is less well known, even to scholars, than it deserves to be. In handling questions of the text, the editor shows excellent judgment, and his introduction is a delightful and scholarly piece of work. An interesting view is there put forward that the Marcus mentioned in the "Ad Helviam," who is usually held to be Seneca's own son, was really the son of Mela, Seneca's brother, and none other than the poet Lucan. There has been no commentary published

on these "Dialogues" since 1797, so that Mr. Duff has had to collect most of his material himself. The subject-matter of the treatises makes them very suitable for school reading, and this edition should restore to schools and colleges an author who has been unduly neglected. For the sake of future editions we call attention to three misprints—*a* for *ac* in "tres vomicas ac tria carcinomata sua" in note to page 7, line 2 (page 109); *erumpere gestiunt*, wrongly spaced in note to page 42, line 28 (page 193); *superiori* for *superiore* in note to page 42, line 29 (page 193). We wish the book the success which it deserves.

MATHEMATICS.

The Propagation of Disturbances in Dispersive Media. By T. H. Havelock, M.A., F.R.S., &c. (3s. 6d. net. Cambridge University Press.)

The above-mentioned short treatise forms No 17 of the valuable series of "Cambridge Tracts in Mathematics and Mathematical Physics." Students of the phenomena of wave motion will be deeply interested in the author's skilful investigation of the analysis connected with circumstances attending the propagation of waves in dispersive media, brief though that survey necessarily is. Considerable historic interest also attaches to the pages of the tract in which are reviewed those methods of such men as Sir W. R. Hamilton, Lord Rayleigh, Lord Kelvin, Fourier, and others, which are relevant to the matter under consideration. Illustrations of the subject of groups of waves and of group velocities are drawn from various scientific theories, as for example, those of water waves, of light, of electricity, and of earthquakes. A full summary of the subject-matter discussed in the course of the text is afforded by the pages showing the contents of the successive chapters, whilst a valuable appendix supplies the bibliography so helpful by its suggestion of suitable wider reading. A number of excellent diagrams render additional assistance to the student.

Plane Trigonometry and Tables. By George Wentworth and David Eugene Smith. (5s. Ginn.)

An exceptionally well written book. The early treatment of solution of triangles enables the practical side of the subject to be taken early in the course, a method of procedure which will not only tend to stimulate interest, but will give facility in the handling of the trigonometrical functions and a clear appreciation as to their uses and practical applications. Theoretical topics such as graphs of functions, identities and equations, and certain important algebraic applications involving the use of imaginary quantities are reserved till the last. A special point is made of logarithmic computation, and some excellent trigonometric and logarithmic tables are appended with full explanations regarding their use. The type used throughout is wonderfully good and clear, and the book will be found a pleasure to read.

SCIENCE.

Elements of General Science. By O. W. Caldwell, Ph.D., Head of the Department of Natural Science, and W. L. Elkanberry, B.S., Instructor in the School of Education in the University of Chicago. (4s. 6d. Ginn.)

The work outlined covers a wide field but is perfectly coherent. It is arranged under five main headings, (a) Air, (b) Water and its Uses, (c) Work and Energy, (d) The Earth's Crust, and (e) Life upon the Earth. Each section is of an entirely descriptive character, and has been designed to provide a large fund of general elementary information concerning the common phenomena of Nature, with special reference to their bearing on social and industrial life. Thus, the course includes such topics as Meteorology, Water Supply and Sewage Disposal, Land Drainage and Irrigation, Bacteriology, Food and Nutrition. Although written more particularly from an American standpoint, this fact need not detract from its general use, as it contains a large store of valuable information, expressed in a clear and interesting manner, on subjects that most boys and girls should know something about.

The Theory of the Solid State. By Prof. Walther Nernst, Director of the Physical Chemical Institute of the University of Berlin. (2s. 6d. net. University of London Press: published by Messrs. Hodder & Stoughton.)

This is a reproduction of a series of four lectures on "The Behaviour of Solid Bodies, with special reference to Low Temperature," given during March 1913 at University College, London. An investigation into the deviations which characterize Dulong and Petit's atomic heat law provides material for the majority of the subject. In connexion with this the author describes the conflicting nature of results obtained by the classical Kinetic theory and by actual experiment, and shows, further, how the Quantum theory as applied to the question by Einstein affords an explanation of the contradiction and establishes the fact that the so-called law is in reality dependent upon temperature. The agreement between ob-

served values and those calculated from the Einstein formula and its modifications—the Nernst-Lindemann and Debye formulæ—is certainly very marked. The apparatus and method employed by the author in the determination of specific heats at low temperatures is described with some detail. The rest of the work is stated more concisely, but no less clearly. Other topics entering into the discussion are the calculation of atomic frequency, the atomic heats of compounds, and the determination of molecular weights of crystalline substances. In conclusion, the author deals with the thermodynamics of solid bodies at low temperatures and discusses the general law concerning their behaviour with reference to specific heat, expansion by heat, conduction of heat and electricity, compressibility, thermoelectric force, and magnetic susceptibility. The book is relatively small (104 pages), but it contains, in a more or less compressed form, a large amount of valuable and definite information regarding recent research into a subject of some importance and interest.

MUSIC.

A Course in Music for Public and Secondary Schools. By Robert T. White, Mus.Doc. Oxon. (4s. 6d. net. Cambridge University Press.)

This is a book for which there ought to be a very big demand. Dr. White is to be congratulated most heartily upon having produced a very readable book, and one that is better by far than the usual "Courses of Music" for use in schools. The method of treatment is altogether novel, and the whole work is set out in an intensely interesting way. Teachers and pupils alike who use this book cannot help being fired by the evident enthusiasm of the author. Dr. White's aim is to impart a thorough knowledge of the usual rudiments of theoretical musical facts; but he does not accomplish this in the usual dry-as-dust manner. The inventive faculty of the pupil is made to play a great part, and he is made to see that music is always *sound*, and not some species of mathematics. A good teacher, using this book as the author intends it to be used, can do much to develop the general musicianship of his pupils. It is meant to be used chiefly for class work, but private pupils would also greatly benefit by studying it and working the numerous and interesting exercises. The concluding chapter on Schumann's "Album for the Young" is very good.

Melodies and Tests for Sight-Singing and Musical Dictation. By F. C. Field Hyde. (Book I, Tonic Sol-fa, 44 pages, 9d. net; Book II, Staff Notation, 82 pages, 1s. 6d. net; complete, 2s. net. J. Williams, Ltd.)

This is a really splendid collection of musical "material for practical training in sight-singing and musical dictation." It is based on "The Singing Class Teacher," by the same author, and is intended to be used with that work.

Rudiments of Music. Twelve Lessons by Evelyn F. Kirkaldy. (1s. Curwen & Sons.)

A word must be said in praise of the idea underlying this publication. The lessons are each on a separate card, and, on the whole, are carefully treated. But we would wish for a better explanation of time-signatures; and on Card No. 12 we would suggest that it were better to have some semblance of order in the list of musical terms relating to speed. The section dealing with the *turn* on Card No. 11 is almost incomprehensible, owing to a faulty arrangement of the illustrations.

HYGIENE.

Towards Racial Health. A Handbook for Parents, Teachers, and Social Workers. By Norah H. March, B.Sc., M.R.San.I. (3s. 6d. net. Routledge.)

A book to which Prof. J. A. Thomson, of Aberdeen, feels it a privilege to write an introduction needs no praise from a reviewer; but, in this case, to point out its merits is a pleasure not to be resisted. The work is, perhaps, the most practical and inclusive of all those that have appeared during the last year or two, and they have been many. It gives actual examples of questions children may ask, and suggests answers to them. It not only advises parents to help their children with Nature study, but tells them how to obtain and keep various interesting living forms, such as snails, worms, rats, and insects. It points out and explains how and why to give particular treatment at particular ages, and is, in short, an invaluable manual, and, indeed, just what a teacher with a reputation such as Miss March possesses might have been expected to write. It is balanced, sane, and human. All parents, teachers, and social workers should study it thoroughly.

The Next Generation. A Study in the Physiology of Inheritance. With a Supplement by F. G. Jewett. (New York: Ginn.)

The object of this book is to teach racial hygiene. The author, who wishes to do it by convincing the reason, gives a good summary of the chief theories of evolution and of recent studies in heredity, and has produced a very interesting account from the point of view of those who want an easily read, if partial, résumé of the subject.

This takes up about half the book. The other half consists of a discussion of environmental factors and of what Thomson has called our external inheritance, and it contains very good advice as to the safeguarding of the next generation against evils due to tobacco, to alcohol, to overwork, to racial poison, and so forth, and also a very good chapter on the prevention of the multiplication of the unfit. It would, perhaps, be unkind to insist on consistency in a book with such a praiseworthy object and containing so much good advice. But it is impossible to avoid wondering whether every thoughtful reader will not find himself pulled up short by apparent contradictions. The author gives equal weight to the views of Darwinians and of Mutationists, happily untroubled by any antagonism between them. On one page he says that nothing a parent can do will enable him or her to hand on any acquired character—that new characteristics can only arise as mutations; on another, that an unusual environment can influence the germ cells and secure a new species; and, on another, that new species arise by natural selection acting on small variations. It is true that all these facts seem to have been established by different workers, but for practical, and especially for human, purposes, it is better to distinguish (1) between species and races, (2) between evolution and breeding, (3) between nature and nurture. Our greatest biologists are quarrelling over what constitutes a species, and how one species may be transformed into another, but the plainest of plain men can understand what is meant by a good race of animals or men, and that it is more likely to be secured by choosing the best individuals to breed. It is also easy to realize that good "nature" is made the most of by good "nurture." For the purposes of this book the laws of heredity are more useful as guides than the History of Education. If Mr. Jewett had adopted these distinctions and made them clear, he would not, perhaps, have put out a single word of his book, but he would have made the logical position more comfortable, and, therefore, perhaps have found readers more easy to be convinced. As it stands, they will learn from him many interesting facts and much useful dogma, but the second is not based firmly on the first. One extraordinary, and, it is to be hoped, rare, diabolical practice is mentioned in the book—viz. that of saloon-keepers, who are alleged to supply to boys in school a special form of whisky bottle in order to create in them young the taste for it, and so keep up trade profits. With all its strange standards and bizarre practices, surely America is not quite so evil as to allow this. If so, she must believe in the survival of the fittest with a vengeance, and Mr. Jewett's nurlural counsels are not only very much needed, but also somewhat in danger of being wasted over there. The supplement contains advice and information about special matters not considered suitable for indiscriminate reading.

"The Health Series of Physiology and Hygiene."—(1) *Health Habits*; (2) *Health and Cleanliness*. By O'Shea and Kellogg. (3s. net each. Macmillan.)

Highly entertaining and thoroughly sound textbooks of hygiene for school use are found in these the first two volumes of a series of four. The pictures are stimulating even to the point of almost withdrawing the reader's attention from the text, and are certain to arouse interest in the problems they present. The first volume deals with personal hygiene, the second with questions affecting the home and the community. They are described as intended for use in the elementary school, but, owing to their somewhat high price and the distinct American bias in their descriptions and problems, they would in England be used in the elementary school only by the teacher. To him they would be invaluable aids in planning and giving a course of school lessons. It is, however, distinctly unfortunate that the pupils cannot all in that case share the benefit of the illustrations. Perhaps these could be published separately, either as wall sheets or in the form of a small handbook.

PLAYS FOR CHILDREN.

Twelve Plays with Music for Children. By Miss Mary Annette Campbell. (4s. 6d. net. Simpkin, Marshall.)

Now that more time for play and play acting is granted in the school curriculum, a book such as this will be found most helpful to teachers of young children. It is not intended to take the place of free dramatization, but rather to help that very desirable form of expression by suggesting drama to the more undramatic members of the school community. This selection of plays will also prove a boon to all who arrange young people's entertainments, and it can be strongly recommended to such. The dialogue is direct and to the point; the music is bright, and well within the capacity of children; while the illustrations and suggestions for costume and apparatus, contributed by Miss Woods, will be most helpful to the amateur stage manager. Where all are good it is difficult to pick out one particular play, and another might make a different choice; but now that summer is before us "A Country Fair" is more topical than the others, and would be extremely suitable for acting at open-air fêtes. The char-

acters are historical; the jester, minstrel, mountebank, and other old friends are all there; without them no old English fair would have been complete; it also gives opportunity for including as many or as few children as may be desired in the morris and country dances, which are an important feature of the fair. There is also a Christmas play, and the "Nursery 'At Home'" will appeal to children who enjoy pretending; and what child does not!

PUBLICATIONS RECEIVED.

EDUCATION.

Education in Play. By Joseph Lee. Macmillan, 6s. 6d. net.
Methods of Teaching in High Schools. By Samuel Chester Parker. Ginn, 6s. net.

CLASSICS.

The Scholia on the Aves of Aristophanes. With an Introduction on the Origin, Development, Transmission, and Extant Sources of the Old Greek Commentary on his Comedies. Collected and edited by John Williams White. Ginn, 14s. 6d.

Latin Selections: illustrating Public Life in the Roman Commonwealth in the time of Cicero. By Albert A. Howard. Ginn, 4s. 6d.

In Caesarem Gulielmum Oratio. By Douglas Simmonds. Hefter, 2d.
Proceedings of the Classical Association, January 1915. Vol. XII. Murray, 2s. 6d. net.

A Book of Latin Verse. Collected by H. W. Garrod. Clarendon Press, 3s. 6d.

Rivingtons' Graded First Latin Books. Book IV. 1s.

FRENCH.

Causeries en France. Conversation Book with Grammatical Notes. By E. E. Patou. Heath, 1s. 6d.

Passages for Translation into French. Senior Course. Selected by A. F. Florian. Rivingtons, 2s.

Causeries du Lundi: Franklin et Chesterfield. Par Sainte-Beuve. Edited by A. Wilson-Green. Cambridge University Press, 2s. 6d.

La Maison aux Panouceaux. Par Lady Frazer. Avec des Exercices et un Lexique par A. Wilson-Green. Cambridge University Press, 2s. 6d.

GERMAN.

German Reader for Beginners. Based on Fairy Tales. Edited, with Questions, Exercises, and Vocabulary, by Martin H. Haertel. Ginn, 3s.

Für kleine Leute. By Anna T. Gronow. Ginn, 3s.

ENGLISH.

English Composition. By George Guest. Book I, 4d.; Book II, 5d.; Book III, 6d.; Book IV, 6d. Bell.

The Girlhood of Famous Women. By F. J. Snell. Harrap, 1s.

Chambers's Supplementary Readers.—An English Schoolgirl in Moscow. 1s.

Here and There Stories: Junior. (1) By Land and Sea, 3d.; (2) Heroes of Then and Now, 3d.; (3) Teachers of Then and Now, 3d. Macmillan.

The World's Pocket Classics.—Imaginary Conversations. By Walter Savage Landor. A selection. Milford, 1s.

Mother-tongue and Other-tongue. A Study in Bilingual Teaching. By James G. Williams. Jarvis & Foster, 1s. net.

Outlines of Composition and Rhetoric. By John Franklin Genung and Charles Lane Hanson. Ginn, 4s. 6d.

Aesop's Fables: a Version for Young Readers. By J. H. Stickney. Illustrated. Ginn, 2s.

The Arabian Nights Entertainment: Told for Young People. By Martha A. L. Lane. Illustrated. Ginn, 2s. 6d.

Heath's Shakespeare.—The Winter's Tale. Edited by H. B. Charlton. Harrap, 1s. 6d.

Tales and Legends of Scotland. Retold by Dorothy King. Harrap, 6d.

HISTORY.

The Secret of the Raj. By Basil Mathews. Council for Missionary Education, 1s. 6d.

Chambers's Periodic Histories.—Book IV: Britain in Modern Times. 1s. 9d.

Frederick the Great and the Seven Years' War. By Ronald Acott Hall. Allen, 4s. 6d. net.

Our Country's Industrial History. By William J. Claxton. Harrap, 1s. 6d.

Heroes and Heroic Deeds of the Great War. By Donald A. Mackenzie. Blackie.

The Pupils' Classbook of English History.—Book III: The Stuarts. Macmillan, 6d.

GEOGRAPHY.

Educative Geography: a Notebook for Teachers. By John L. Haddon. Bacon, 1s. net.
 Bacon's New War Map of South-Central Europe. Paper, 6d.; cloth, 1s.
 Bartholomew's War Map of Italy and the Balkans. 1s. net.

MATHEMATICS.

Problems about War: for Classes in Arithmetic. By David Eugene Smith. The Carnegie Endowment for International Peace.

SCIENCE.

Aims and Ideals in School Science. By Joseph Reilly. Browne & Nolan, 1s. 6d. net.
 Lessons and Experiments on Scientific Hygiene and Temperance for Elementary-School Children. By Helen Coomber. Macmillan, 1s. net.
 Numerical Examples in Physics. By H. Sydney Jones. Bell, 3s. 6d.
 First Course in Chemistry. By William McPherson and William Edwards Henderson. Ginn, 5s. 6d.
 Annual Report of the Smithsonian Institution for 1913. Washington: Government Printing Office.
 The Investigation of Mind in Animals. By E. M. Smith. Cambridge University Press, 3s. net.

RELIGION.

The Eternal Saviour-Judge. By James Langton Clarke. Murray, 1s. net.
 Geographic Influences in Old Testament Masterpieces. By Laura H. Wild. Ginn, 4s. 6d.

MUSIC.

A Short History of Russian Music. By Arthur Pougin. Translated by Lawrence Haward. Chatto & Windus, 5s. net.
 Novello's Music Manuals.—Physical Exercises in the Infant School, 4s.

UNCLASSIFIED.

National Union of Teachers. Annual Report for 1915. 2s. 6d.
 The Carnegie Foundation for the Advancement of Teaching. Ninth Annual Report.
 Board of Education. (1) Syllabus for the Preliminary Examination. 1d. (2) Statistics of Recognized Intending Teachers. 4d.

MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17907. (E. G. HOGG, M.A.)—Prove that

$$\iint px^2 dS = a^2V, \quad \iint py^2 dS = b^2V, \quad \iint pz^2 dS = c^2V,$$

when the integrals are taken over the surface of the ellipsoid

$$x^2/a^2 + y^2/b^2 + z^2/c^2 = 1,$$

p is the central perpendicular on the tangent plane at x, y, z , and V is the volume of the ellipsoid.

Solutions (I) by W. J. MARTYN, M.A.; (II) by E. R. HAMILTON, B.Sc., and others.

(I) Let $\iint px^2 dS = A, \quad \iint py^2 dS = B, \quad \iint pz^2 dS = C.$

Then

$$\begin{aligned} \frac{A}{a^2} + \frac{B}{b^2} &= \iint p \left(\frac{x^2}{a^2} + \frac{y^2}{b^2} \right) dS \\ &= \iint p \left(1 - \frac{z^2}{c^2} \right) dS \\ &= \iint p dS - \iint \frac{pz^2 dS}{c^2} \\ &= 3V - \iint z dx dy \\ &= 3V - V = 2V. \end{aligned}$$

Similarly we obtain $B/b^2 + C/c^2 = 2V$ and $C/c^2 + A/a^2 = 2V.$

Hence $A/a^2 = B/b^2 = C/c^2 = V.$

(II) The direction cosines of the normal to dS are

$$l = px/a^2, \quad m = py/b^2, \quad n = pz/c^2;$$

therefore

$$\iint px^2 dS = \iint a^2 xl dS.$$

But ldS = projection of dS on plane of $yz.$

Hence $xl dS$ = an element of volume of ellipsoid; therefore

$$\iint px^2 dS = a^2V.$$

Similarly for the two other integrals.

The following Solution is by the PROPOSER:—

Consider the integral equation

$$\iint (lu + mv + nw) dS = \iiint \left(\frac{du}{dx} + \frac{dv}{dy} + \frac{dw}{dz} \right) dV,$$

in which the first integral is taken over the surface of the ellipsoid and the second through its volume, u, v, w being with their first derivatives finite, continuous, single-valued functions of the variables $x, y, z.$ *

The direction-cosines of the normal to the ellipsoid at x, y, z being $px/a^2, py/b^2, pz/c^2,$ the above equation becomes

$$\iint p \left(\frac{ux}{a^2} + \frac{vy}{b^2} + \frac{wz}{c^2} \right) dS = \iiint \left(\frac{du}{dx} + \frac{dv}{dy} + \frac{dw}{dz} \right) dV.$$

Let $u = a^2x, v = b^2y, w = c^2z,$ then

$$\iint p (x^2 + y^2 + z^2) dS = \Sigma (a^2) V \dots\dots\dots (i).$$

Let $u = a^4x, v = b^4y, w = c^4z,$ then

$$\iint p (a^2x^2 + b^2y^2 + c^2z^2) dS = \Sigma (a^4) V \dots\dots\dots (ii).$$

We also have $\iint p dS = \iint p \left(\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} \right) dS = 3V \dots\dots\dots (iii).$

Let $\alpha = \iint px^2 dS, \quad \beta = \iint py^2 dS, \quad \gamma = \iint pz^2 dS.$

Hence $\alpha + \beta + \gamma = \Sigma (a^2) V,$
 $a^2\alpha + b^2\beta + c^2\gamma = \Sigma (a^4) V,$
 $a/a^2 + \beta/b^2 + \gamma/c^2 = 3V.$

* See Williamson's *Integral Calculus*, p, 332, 4th edition.

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A TEXTBOOK

OF

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A copy of this Textbook will be sent complimentary and post free to any Teacher who states name of School to which attached, upon application in writing to

HORLICK'S MALTED MILK CO.,
 Slough, Bucks.

It may be seen by inspection that the above system of equations is satisfied by $\alpha = a^2V$, $\beta = b^2V$, $\gamma = c^2V$.

17998. (Prof. J. C. SWAMINARAYAN, M.A.)—Without using the properties of orthogonal projection of areas, show that the area of a triangle in space whose vertices are $(x_1y_1z_1)$, $(x_2y_2z_2)$, $(x_3y_3z_3)$ is equal to $\frac{1}{2} \left\{ \begin{vmatrix} y_1 & z_1 & 1 \\ y_2 & z_2 & 1 \\ y_3 & z_3 & 1 \end{vmatrix}^2 + \begin{vmatrix} z_1 & x_1 & 1 \\ z_2 & x_2 & 1 \\ z_3 & x_3 & 1 \end{vmatrix}^2 + \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}^2 \right\}^{\frac{1}{2}}$.

Solution by Professor R. SRINIVASAN, M.A.

Let the points be A, B, C.
The equation to BC is $(x-x_2)/(x_3-x_2) = (y-y_2)/(y_3-y_2) = (z-z_2)/(z_3-z_2)$, which may be written in the form $(x-x_2)/l = (y-y_2)/m = (z-z_2)/n$, where $l = (x_3-x_2)/BC$, $m = (y_3-y_2)/BC$, $n = (z_3-z_2)/BC$.

The perpendicular d from A to BC is given by $d^2 = \Sigma \{ (y_1-y_2)n - (z_1-z_2)m \}^2$ (vide § 24, J. T. Bell's *Solid Geometry*); therefore $d^2 = \Sigma \{ (y_1-y_2)(z_3-z_2) - (z_1-z_2)(y_3-y_2) \}^2 / BC^2$
 $= \Sigma \{ y_1(z_3-z_2) + y_2(z_3-z_2) + y_3(z_3-z_2) \}^2 / BC^2$
 $= \Sigma \begin{vmatrix} y_1 & z_1 & 1 \\ y_2 & z_2 & 1 \\ y_3 & z_3 & 1 \end{vmatrix}^2 / BC^2$

therefore the area of the triangle ABC $= \frac{1}{2} BC \cdot d = \frac{1}{2} \left\{ \Sigma \begin{vmatrix} y_1 & z_1 & 1 \\ y_2 & z_2 & 1 \\ y_3 & z_3 & 1 \end{vmatrix}^2 \right\}^{\frac{1}{2}}$.

17974 & 18001. (17974.) (J. HAMMOND, M.A.)—Referring to Question 17799, let $\Psi(n, x, y)$ denote the sum of terms of the form $P(2n-p)$, where p is an odd prime, and ranges from the next prime above x to y , or the next prime below it, according as y is or is not a prime. With this notation the formula in Question 17799 may be written $\Psi(n, 0, n) = \{P(n)\}^2 + \Psi(n, n, 2n)$. Prove that, when $a+b=2n$,

$$\Psi(n, 0, a) = P(a)P(b) + \Psi(n, b, 2n).$$

(18001.) From the sequence 1, 2, 3 ... $(m-1)$ select any different numbers at will (as many as you please), and let $N(x)$ denote the number of these which do not exceed x . Prove that if a is not greater than $\frac{1}{2}m$ and $b = m-a$, $N(m-a_1) + N(m-a_2) + \dots = N(a)N(b) + N(m-\beta_1) + N(m-\beta_2) + \dots$, where a_1, a_2, \dots , are all the selected numbers which do not exceed a , and β_1, β_2, \dots , all those which are greater than b .

Solution by the PROPOSER.

Let $(x) = 1$ or 0 , according as x is or is not one of the selected numbers.

Then $N(x) = (1) + (2) + (3) + \dots + (x)$, and when k ranges from 1 to a , $(k)[N(b) + (b+1) + (b+2) + \dots + (m-k)] = N(m-k)$ or 0 according as k is, or is not, one of the selected numbers.

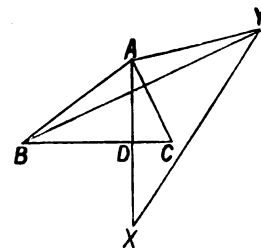
Hence
$$\begin{aligned} & N(m-a_1) + N(m-a_2) + \dots \\ &= (1)[N(b) + (b+1) + (b+2) + \dots + (m-1)] \\ &+ (2)[N(b) + (b+1) + (b+2) + \dots + (m-2)] \\ &+ \dots \\ &+ (a-1)[N(b) + (b+1)] \\ &+ (a)N(b) \\ &= N(a)N(b) + (b+1)[(1) + (2) + \dots + (a-1)] \\ &+ (b+2)[(1) + (2) + \dots + (a-2)] \\ &+ \dots \\ &= N(a)N(b) + (b+1)N(m-b-1) + (b+2)N(m-b-2) + \dots \\ &= N(a)N(b) + N(m-\beta_1) + N(m-\beta_2) + \dots \end{aligned}$$
 (because $a+b=m$)

which proves the identity in question.
In 17974 the selected numbers are all the odd primes 1, 3, ..., and $m = 2n$.

17487. (R. F. DAVIS, M.A.)—If ABC be a triangle and X, Y, Z the images of its angular points in BC, CA, AB respectively, prove that the sides of XYZ are proportional to $a \cdot AN$, $b \cdot BN$, $c \cdot CN$, where N is the nine-point centre of ABC.

Solutions (I) by R. TATA, M.A.; (II) by Professor K. J. SANJANA, M.A.

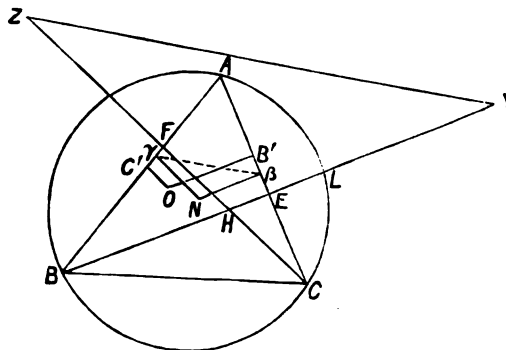
(I) From the figure,
 $AX = 2AD$
 $= 2c \sin B$,
 $AY = c$.
 $\angle XAY = \angle DAC + \angle CA Y$
 $= 90^\circ - C + A$.



Therefore $XY^2 = AX^2 + AY^2 - 2AX \cdot AY \cos XAY$.
Therefore $XY^2/c^2 = 4 \sin^2 B + 1 - 4 \sin B \sin(C-A)$
 $= 1 + 4 \sin B \{ \sin(C+A) - \sin(C-A) \}$
 $= 1 + 8 \sin A \sin B \cos C$
 $= 4CN^2/R^2$, by a well known property.

Therefore $XY = (2/R) \cdot c \cdot CN$.
Similarly for YZ and ZX.

(II) Let H be the orthocentre, O the circum-centre, and N the nine-point centre; then N is the mid-point of HO. E, β , β' , $C'\gamma$, and F are all feet of perpendiculars from H, N, and O on AC and AB.



Now $HE = EL$ and $BE = EY$;
therefore $HY = HE + EY = HE + BE = 2HE + 2OB' = 4N\beta$.
Similarly $HZ = 4N\gamma$.
Again, $\angle \beta N\gamma = \angle YHZ$;
therefore the triangles YHZ and $\beta N\gamma$ are similar; therefore $YZ = 4\beta\gamma$.
But the points A, β , N, γ are concyclic, and AN is the diameter; therefore $\beta\gamma = NA \sin A$.
Therefore $YZ = 4NA \sin A = (4NA \cdot a) 2R$,
i.e., YZ is proportional to $NA \cdot a$.
So ZX and XY are proportional to $NA \cdot b$ and $NA \cdot c$ respectively.

17977. (Prof. J. E. A. STEGGALL, M.A.)—If $(a+c)/(1-ac) = 2kb/(1-b^2)$, $(b+d)/(1-bd) = 2kc/(1-c^2)$, and $4k^2bd + (1-b^2)(1-d^2) = 0$, then $4k^2ac + (1-a^2)(1-c^2) = 0$, also.

Solutions by W. F. BEARD, M.A., F. H. PEACHELL, M.A., and others.

Let $a = \tan \alpha$, &c.
Then we have $\tan 2\beta = 1/\kappa \tan(\alpha + \gamma)$ (i),
 $\tan(\beta + \delta) = \kappa \tan 2\gamma$ (ii),
 $\kappa^2 \tan 2\beta \tan 2\delta = -1$ (iii),
from (i) and (iii), $\tan 2\delta = -1/\kappa \cot(\alpha + \gamma)$,
and from (ii), $\tan(2\beta + 2\delta) = 2\kappa \tan 2\gamma / (1 - \kappa^2 \tan^2 2\gamma)$.
Hence $\frac{1/\kappa \tan(\alpha + \gamma) - 1/\kappa \cot(\alpha + \gamma)}{1 + 1/\kappa^2} = \frac{2\kappa \tan 2\gamma}{1 - \kappa^2 \tan^2 2\gamma}$;
therefore $(\kappa^2 + 1) \tan 2\gamma \tan(2\alpha + 2\gamma) = \kappa^2 \tan^2 2\gamma - 1$;
therefore $\kappa^2 \tan 2\gamma [\tan(2\alpha + 2\gamma) - \tan 2\gamma] = -[1 + \tan 2\gamma \tan(2\alpha + 2\gamma)]$;
therefore $\kappa^2 \tan 2\alpha \tan 2\gamma = -1$,
or $4\kappa^2 ac + (1-a^2)(1-c^2) = 0$.

17942. (Prof. E. J. NANSON.)—Two triangles PQR, P'Q'R' are polar to a conic S, and five of the vertices lie on a conic S'. Show that the locus of the sixth vertex is a conic S'', and find the condition that S'' may coincide with S'.

Solution by MAURICE A. GIBLETT, B.Sc. Lond.

Let the vertices P, Q, R, P', Q', R' lie on a conic S'. Then, since P, Q, R lie on a conic S', their polars Q'R', R'P', P'Q' touch a conic S'', the polar reciprocal of S' for S. Hence triangle P'Q'R' is such that its sides touch a fixed conic S'', while two of its vertices move on a conic S'. Hence, by a well known theorem, the locus of R' is a conic S''. We also know that if one triangle is inscribed in S' and circumscribed to S'', then an infinite number of such triangles exist. If, therefore, S' and its reciprocal for S are such that a triangle can be inscribed in one and circumscribed to the other, then the locus S'' will coincide with S'.

17996. (Professor R. SRINIVASAN, M.A.)—Show that

$$\int_0^{2\pi} \frac{\theta^r \cos r\theta}{1-2m \cos \theta + m^2} d\theta = \frac{\pi (\log m)^{4r}}{1-m^2} m^r.$$

Solution by C. M. ROSS, M.A.

We know that
$$\int_0^\pi \frac{\cos r\theta d\theta}{1-2m \cos \theta + m^2} = \frac{\pi m^r}{1-m^2} \dots\dots\dots (A).$$

The expression under the integral sign can be easily expanded as a series, and thence the integral evaluated by term-by-term integration, r is an integer and m lies between 0 and 1.

Differentiating (A), with respect to r, 4t times, we have

$$\int_0^\pi \frac{\theta^{4t} \cos r\theta d\theta}{1-2m \cos \theta + m^2} = \frac{\pi (\log m)^{4t}}{1-m^2} m^r,$$

and this is the result we have to prove.

18000. (B. HOWARTH.)—(a) If p be any integer greater than unity, then 111 ... to p terms cannot be a factor of a power of p. (b) Hence (or independently) prove that the square of 111 ... to p terms cannot be a factor of 111 ... to p^n terms, n being any positive integer whatever.

Solution by Lieut.-Col. ALLAN CUNNINGHAM, R.E.

(a) Let P = 111 ... 1 [p units in scale of radix r].

Then
$$P = \frac{r^p - 1}{r - 1} = mp + 1, \text{ always, unless } p = r - 1.$$

This shows at once that P cannot be a factor of p^n, unless possibly when p = r - 1. A few trials of this case will show that the only example is given by r = 3, p = 2, which give

$$P = 11 \text{ (in scale of } r = 3) = (3^2 - 1) \div (3 - 1) = 4,$$

which is a factor of p^3 = 2^3 = 8.

(b) Let ξ be the Haupt exponent of r modulo P, i.e., the least exponent giving (r^ξ - 1) ÷ (r - 1) ≡ 0 (mod P). Then (r^{pP} + 1) - (r - 1) ≡ 0 (mod P^2).

Now let N = 111 ... 1 [p^n units] = (r^{p^n} - 1) ÷ (r - 1).

Here, if N contains P^2, this involves

$$p^n = \xi P \text{ or } = 0 \pmod{\xi P}.$$

But, by the preceding theorem (a), p^n ≠ 0 (mod P).

Hence N cannot contain P^2.

Remarks by the PROPOSER.

I can prove (a) only when p is prime.

Assuming that (a) is true (and Colonel Cunningham's exceptions do not apply to scale ten implied in question), my proof of (b) proceeds as follows:—

(b) Assume that $\binom{p^n}{1}$ is a factor of p^{n-1} .

Then
$$\binom{p^n}{1} \dots \dots \binom{p^{n-1}}{1} \dots \dots \dots 000 \dots 001 \text{ and } p^{n-1};$$

therefore
$$\binom{p^n}{1} \dots \dots \binom{p^{n-1}}{1} \dots \dots \dots 000 \dots 001 \dots (1) \left\{ \text{See} \right\}$$

therefore
$$\binom{p^n}{1} \dots \dots \binom{p^{n-1}}{1} \dots \dots \dots p^{n-1} \dots \dots (2) \left\{ \text{Note} \right\}$$

That is, $\binom{p^n}{1}$ is a factor of a power of p, which is impossible.

Thus $\binom{p^n}{1}$ cannot be a factor p^{n-1} .

Note.—The step from (1) to (2) follows from the following theorem:—If D, prime or composite, be a factor of $\binom{p^n}{1}$, then D is a factor of m if n be a multiple of p, p denoting the number of figures in the period of the decimal equivalent of 1/D.

18006. (W. F. BEARD, M.A.)—Prove, geometrically, that the polar with regard to a rectangular hyperbola of any point on the auxiliary circle touches the circle.

Solution by F. GLANVILLE TAYLOR, M.A., B.Sc.

Let V be the mid-point of the chord of contact QR, so that PV passes through C, and let CP meet the conjugate hyperbola in P'; also we have CY perpendicular to QR, CD conjugate to CP' (and = CP').

$$\text{Then } CA \cdot CV = CP \cdot CV = CD^2 = CP'^2.$$

If M'N' parallel to MN touches the conjugate hyperbola at P',

$$\begin{aligned} \Delta CM'N' / \Delta CMN &= CP'^2 / CV^2 = CA / CV \\ &= CA^2 / \frac{1}{2} MN \cdot CA \\ &= \Delta CM'N' / \frac{1}{2} MN \cdot CA, \end{aligned}$$

whence CY = CA, &c.

The following solution is due to the PROPOSER:—

Let T be a point on the auxiliary circle, and TQ, TQ' the tangents to the rectangular hyperbola.

Let CT meet QQ' at V and the conic at P.

Draw CK, CL perpendicular to TQ, QQ' respectively.

$$\begin{aligned} QV^2 &= CV^2 - CP^2 \\ &= CV^2 - CV \cdot CT \\ &= CV \cdot VT; \end{aligned}$$

therefore the circle CTQ touches QV; therefore

$$\angle CQL = \angle CTQ$$

in the alternate segment;

therefore the triangles CQL, CTQ are similar;

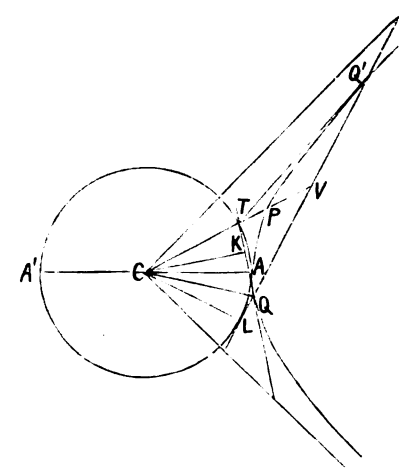
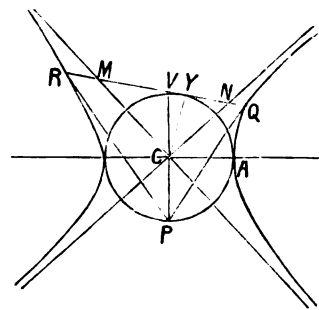
therefore
$$CL / CQ = CK / CT;$$

therefore CL · CT = CK · CQ = half the triangle formed by TQ with the asymptotes = CA^2;

but CT = CA; therefore CL = CA;

therefore QQ' touches the auxiliary circle at L.

N.B.—CL and CV being respectively perpendicular and conjugate to QQ' make equal angles with the axis, and consequently TL is bisected at right angles by the axis.



QUESTIONS FOR SOLUTION.

18050. (LEONARD C. MILLER, B.A.)—A uniform chain of length l and weight w is suspended from a small drum whose diameter is d. If the chain be wound up round the drum for two-thirds of its length, find the work done against gravity. If the diameter of the drum be so small that it may be neglected, what does the work done against gravity become in this case?

18051. (A. M. NESBITT, M.A.)—Two swindlers in partnership are playing poker. The entire party numbering seven, swindler G. calls for a new pack, which is brought in arranged in suits from ace up to king in each suit. G., who is dealer, disdains to shuffle, and F. cuts. In dealing, G. distributes the first and second rounds correctly, but gives A. the bottom card instead of the top card at the third round. He then proceeds to deal correctly till he repeats the same nefarious device at the fifth round. Prove that A., by discarding his hand and drawing five cards, will beat the six full hands, which have originally been dealt, 9 times out of 13; and show how an inspection of the first card originally dealt to him will enable him to decide whether to draw the new five cards or to "chuck it."

18052. (W. N. BAILEY.)—If

$$I_n = \int_0^\infty e^{-x^n} dx \text{ and } J_n = \int_0^{2\pi} (\cos^{2n+1} \theta + \sin^{2n+1} \theta)^{-1/n} d\theta,$$

then
$$(2I_{n+1})^{2^{n-1}} = \pi^2 K^2 J_n^2 \dots J_n^{2^{n-2}},$$
 where K is the first complete elliptic integral with modulus 1/√2, and n is any positive integer.

18053. (C. M. ROSS, M.A.)—Find the value of the multiple integral

$$\iiint \dots \int dx_1 dx_2 dx_3 \dots dx_n$$

taken over all values of $x_1, x_2, x_3, \dots, x_n$ for which

$$x_1^2 + x_2^2 + x_3^2 + \dots + x_n^2 + 2m(x_1x_2 + \dots + x_{n-1}x_n) \geq 1.$$

18054. (T. MUIR, LL.D.)—If ω, ϕ, χ, ψ stand for $a+b+c+d, a+b-c-d, a-b+c-d, a-b-c+d$, show that

$$\begin{vmatrix} a^2 & b^2 & c^2 & d^2 \\ b^2 & a^2 & d^2 & c^2 \\ c^2 & d^2 & a^2 & b^2 \\ d^2 & c^2 & b^2 & a^2 \end{vmatrix} = 2^{-5}(\omega^2 + \phi^2 + \chi^2 + \psi^2)(\omega\phi + \chi\psi)(\omega\chi + \phi\psi)(\omega\psi + \phi\chi)$$

and $\begin{vmatrix} \omega^2 & \phi^2 & \chi^2 & \psi^2 \\ \phi^2 & \omega^2 & \psi^2 & \chi^2 \\ \chi^2 & \psi^2 & \omega^2 & \phi^2 \\ \psi^2 & \chi^2 & \phi^2 & \omega^2 \end{vmatrix} = 2^{11}(a^2 + b^2 + c^2 + d^2)(ab + cd)(ac + bd)(ad + bc).$

18055. (B. HOWARTH.)—In attempting the construction of a table of the prime factors of $\overset{m}{\rightarrow}000 \dots 001$, where m ranges from 2 to 10 and p from 1 to 6, I find that—

(a)

5882353 is a factor of $\overset{m}{\rightarrow}01 (= 1010101010101),$

2906161 ,, ,, $\overset{5}{\rightarrow}001 (= 1001001001001),$

10838689 ,, ,, $\overset{7}{\rightarrow}001,$

99990001 ,, ,, $\overset{m}{\rightarrow}001,$

440334654777631 ,, ,, $\overset{9}{\rightarrow}001,$

121499449 ,, ,, $\overset{7}{\rightarrow}0001,$

99999000001 ,, ,, $\overset{9}{\rightarrow}0001,$

9999000099990001 ,, ,, $\overset{10}{\rightarrow}0001,$

999999900000001 ,, ,, $\overset{8}{\rightarrow}000001,$

99999999000000001 ,, ,, $\overset{9}{\rightarrow}000001,$

10099989899000101 ,, ,, $\overset{10}{\rightarrow}000001.$

Are any numbers under (a) not prime? If so, give their factors. Are there any known factors of

$$\overset{6}{\rightarrow}00001 (= 100001000010000100001)?$$

18056. (J. J. BARNVILLE, B.A.)—Prove that

$$x^{2n} + 2 \cdot 7^{12}x^{14} - 7^{17}x^7 + 7^{21}$$

is divisible by $x^4 + 7x^3 + 7^3.$

18057. (NORMAN ALLISTON.)—Prove that

$$\left(\frac{n-1}{n}\right)^{n-1} > \left(\frac{n}{n+1}\right)^n.$$

18058. (Professor R. SRINIVASAN, M.A.)—If $x+y+z = xyz$, show that $\mathfrak{z}z[\sqrt{(1+x^2)}-1][\sqrt{(1+y^2)}-1] = xyz.$

18059. (C. E. YOUNGMAN, M.A.)—A circle C, a parabola P, and a rectangular hyperbola H, are so arranged that H goes through the points where the common tangents of P and C touch C. Prove that C then inverts the centre of H into the focus of P, and H reciprocates the centre of C into the directrix of P.

18060. (Professor K. J. SANJANA, M.A.)—If m_1, m_2, m_3 be the slopes of three tangents of the parabola $y^2 = 4ax$, prove that the circle about the triangle formed by them touches the axis when $m_1 + m_2 + m_3 = m_1m_2m_3$ and its diameter is then of length

$$a(m_2m_3 + m_3m_1 + m_1m_2 - 1)/m_1m_2m_3;$$

and that this circle touches the latus rectum when

$$m_2m_3 + m_3m_1 + m_1m_2 = 1,$$

and its diameter is then of length $a(m_1 + m_2 + m_3)/m_1m_2m_3.$

[Suggested by Mr. Nesbitt's Question 17963.]

18061. (DAVID GREEN.)—Two conics have double contact at fixed points A, B. C and D are harmonic conjugates with respect to A and B. From C a tangent is drawn to one of the conics and from D a tangent is drawn to either conic. Then P, the point of intersection of these tangents, has for its locus another conic having double contact with the two at A, B. The join of the points of contact of these tangents envelopes another such conic.

18062. (W. F. BEARD, M.A.)—Equilateral triangles are inscribed in a circle. Prove that (i) the directrices of all conics

circumscribing these triangles, and having a fixed point on the circle as focus, pass through the centre of the circle; (ii) the conics have double contact with a fixed circle.

18063. (R. F. DAVIS, M.A.)—ABC is a triangle, and I its incentre. From F, the middle point of the arc BAC of the circum-circle, FI is drawn to intersect the circum-circle again in U. Prove that UI is a mean proportional to UB, UC and bisects the angle between them.

18034. (E. G. HOGG, M.A.)—If the centre of the Brocard circle of the triangle ABC lies on BC, and if Ω_1, Ω_2 be the Brocard points, then $A\Omega_1 \sim A\Omega_2 = (b-c) \tan \omega$, where ω is the Brocard angle.

18065. (Communicated by the late Prof. COCHEZ.)—Construire un triangle circonscrit l'angle A, la distance des centres des cercles inscrit et ex-inscrit dans l'angle A et la surface.

18066. ("CONTRIBUTOR.")—A variable straight line meets two fixed straight lines meeting at O in points B and C. If OB and OC subtend equal angles at a fixed point S, show that BC passes through a fixed point T such that TSO is a right angle.

18067. (T. LAKSHMANA.)—Through two fixed points to draw a pair of parallels to meet a given circle, so that they cut off a chord of given length.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS)

11956. (Professor SYLVESTER, F.R.S.)—If x, y, z, \dots are positive integers, such that $x+2y+3z+\dots = n$, where n is any given integer greater than 2; prove that the number of times that $1-x+xy-xyz+\dots$ exceeds zero is greater than the total number of times that it is equal to or less than zero.

12014. (A. E. THOMAS, M.A.)—If $x_1 + y_1 + z_1 = x_2 + y_2 + z_2 = (y_1z_1 - x_1x_2)/(y_1 + z_1) = (y_2z_2 - x_2x_3)/(y_2 + z_2) = x_1x_2x_3/y_1z_1 = x_2x_3x_4/y_2z_2$, show that $x_1^2x_4^2(x_1^2x_2^2 + x_3^2x_4^2) = x_1^2x_3^2(x_1^2x_4^2 + x_2^2x_3^2)$, and enunciate the corresponding theorems for the cases where there are $2n$ or $2n+1$ sets of quantities x_1, y_1, z_1, \dots

12111. (R. A. ROBERTS, M.A.)—If u be a quadratic and r a binary cubic, show (1) that if the skew invariant M vanishes, $u^3 + Kv^2 = 0$ will represent six points in involution; (2) if $u^3 + Kv^2$ has a square factor, K is determined by the equation

$$K^3D^2 + 2K^2(DR + 3I\Delta R - 8I^3) + K(R^2 + 6I\Delta R - 3I^2\Delta^2 + D\Delta^3) + \Delta^3R = 0;$$

(3) if $u^3 + Kv^2$ can have a cube factor, $D\Delta^2 - 4\Delta I^2 - 4IR = 0$, the notation being that used in Art. 198 of Salmon's *Higher Algebra*.

12120. (Professor GENESE, M.A.)—A bar LM glides along a straight groove ALMB, and carries pulleys at L and M; two strings fastened to a heavy particle, P, pass over L, M, and have their other ends fixed to pegs at A, B. Prove that (1) if the whole be in a vertical plane, P will describe a central conic; also (2) if LM be made to move with uniform velocity, the apparatus illustrates Newton's Scholium to Prop. VIII.

12144. (C. LEUDESORF, M.A.) Prove that $\frac{1}{1+x} + \frac{x}{1+x^2} + \frac{x^2}{1+x^3} + \dots$ ad inf. $= \frac{1+x^2}{1-x^2} - X\left(\frac{1+x^4}{1-x^4}\right) + X^3\left(\frac{1+x^6}{1-x^6}\right) - X^5\left(\frac{1+x^8}{1-x^8}\right) + \dots$ ad inf.

13455. (Rev. J. CULLEN, B.A.)—A uniform circular board of mass m and radius a , whose centre is fixed, lies on a smooth horizontal plane. A man, whose mass is m' , starts from the centre and returns to the same point after describing a loop of the lemniscate $r^2 = a^2 \cos 2\theta$ (the node being at the centre). Find the angle through which the board has turned.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Road, West Kensington, W.

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SYLLABUS.

I. (Sept. 30.) *The so-called New Education.*—The characteristic modern note: no real novelties: method cycles from Plato onward: professional conservatism: quickened consciences of present-day teachers: danger of falling behind the times: each generation demands its own educational presentation: impossibility of eliminating theory: *via media* between fads and tradition: the doctrinaire and the empiric: the pedagogic type of mind: means of keeping in touch with new developments: canons of educational criticism.

II. (Oct. 7.) *Certain New Movements on their Trial.*—Heuristic Method has now reached its limits: Montessorianism a disturbing influence not merely at infants' stage: Mr. McMunn's development: general revolt against "bookishness" merely a revival of the old "realist" controversy: "one child one desk" principle: Superintendent Wirt's protest: the Gary scheme: tendency to lengthen school hours and eliminate school holidays: spread of specialism among teachers: teaching by relays: the open-air school: the school journey: the "big brother" attitude: the Renaissance of Play.

III. (Oct. 14.) *Experiment in School Work.*—Every teacher must experiment while learning his business: modern educators are systematizing experiment: desire to put education on a scientific footing: two main kinds of educational experiment: dangers of the "brass instrument" methods: the attraction and the danger of statistical and quantitative methods: correlation formulæ and their application: intelligence tests of Binet and others: the Meumann School: the conservation of the interests of the pupil: the literature of experimental education.

IV. (Oct. 21.) *The Class.*—Origin of class teaching: nature of the class as an educational organon: element of compromise: contrast between class teaching and private coaching: "sympathy of numbers": the psychology of the class as part of general collective psychology: disintegration and reintegration: teaching the class through the individual and the individual through the class: basis of classification of school pupils: the class a homogeneous crowd: size of class in relation to the work of teaching: reaction against class teaching: the probable future of the class.

V. (Oct. 28.) *Class Control.*—Excessive importance attached to mere control: basis of teacher's authority: "the nature of things": discipline and its various meanings: power of control as innate: personality of the teacher: fabled power of the eye: different ideals of class control: "talking" in class: possibility of teaching on the control maintained by another: the old "discipline master": class leaders and their manipulation: the Honour System: indirect aids in maintaining control.

VI. (Nov. 4.) *The Pupil's Point of View.*—Textbooks on Method tend to treat everything from the teacher's point of view: modern demand for more consideration of the pupil's rights: excessive demands for freedom of the pupil: Madame Montessori's system: Count Tolstoy's anarchic school: Froebel's "a passivity, a following": these views are reconcilable: caprice *versus* freedom: self-realization *versus* self-expression: subjective limitations of freedom increase with the age of the pupil: corresponding regulation of school control: from educand to educator.

VII. (Nov. 11.) *Abnormal Pupils.*—Ninety per cent. of pupils may be regarded as normal: the exceptionally dull are probably slightly more numerous than the exceptionally brilliant: nature of dullness: its relativity to age and subject of study: the temporary dunce and the precocious pupil: the permanent dunce: the all-round dunce: scale of dullness: the "defective" point: problem of the segregation of dull pupils: the treatment of the exceptionally gifted pupils: slow, omnibus, and express classes in school.

VIII. (Nov. 18.) *The Teacher as Knowledge-monger.*—Popular view of the teacher's work: teacher's own view: comparison with the Greek Sophists: communication of knowledge always an essential part of teacher's work: knowledge for its own sake, and knowledge as discipline: current controversy: technical meanings of *information* and *instruction*: present reaction in favour of importance of knowledge of subject matter: difference between *knowing* and *knowing how to*: temporary and permanent knowledge: the case for cram.

IX. (Nov. 25.) *The Teacher's Tools.*—Textbooks and books of reference: the school library: use and abuse of the blackboard: special appeal to visual pupils: kind of writing suited for the blackboard: coloured chalks and turbid media: the optics of the blackboard: eye-strain and how to avoid it: mechanical aids to blackboard drawing: the optical lantern: graphic illustrations, temporary and permanent: models and their manipulation: maps and globes: the use of the pointer: the supply and care of general apparatus: advantages and disadvantages of home-made apparatus.

X. (Dec. 2.) *Written Work.*—Need for written work as a means of training in expression: progress from transcription to independent essay-writing: three stages—reports, criticisms, creation: difference between having to say something and having something to say: difficulty in giving sufficient practice in writing: excessive demand on teacher's time for "corrections": the pupil's responsibility and the class teacher's: schemes of conventional signs for correction: advantage of throwing on the pupil the burden of writing-in corrections.

XI. (Dec. 9.) *The Teacher's Manipulation of Vocabulary.*—Meaning of vocabulary: connexion between words and thinking: mental content and vocabulary: extent of vocabulary of young children, illiterate people, and educated people: methods of increasing deliberately the vocabulary of pupils: dynamic and static vocabularies: vocabularies of great writers: use of the dictionary and of lists of words in learning a foreign language: the three vocabularies we all possess in our mother tongue: manipulation of these by the teacher.

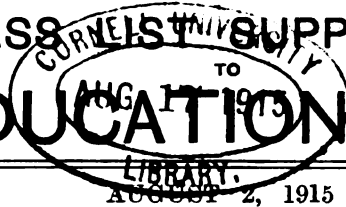
XII. (Dec. 16.) *The Teacher's Relation to Adults.*—Popular notion of the teacher as a sprat among minnows: need for intercourse with equals and superiors: implication of the phrase *in loco parentis*: true relation to parents: "foster parent" view: conflicting influences of fathers and mothers on school attitude of children: teacher must moderate between them: teacher's relation to officials: the official mind and how to manipulate it: the teacher's many masters: need to study adult psychology: legitimate and illegitimate external restrictions of the teacher's freedom of action in school.

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The list of successful candidates at the Colonial Centres will be published in the October number of "The Educational Times."

[Throughout the following Lists, bracketing of names implies equality.]

PRIZES.

SENIOR.

General Proficiency.

1. Kerr, W. P. St. Joseph's College, Dumfries.
(Jabster Prize.)
2. Chudley, A. W. T. Mount Radford School, Exeter.
(Pinches Prize.)
3. French, Miss F. E. University School, Rochester.
(Hodgson Prize.)
4. [Not awarded.]

English Subjects.

1. Farrell, R. J. Newtown School, Waterford.
2. Dixon, Miss M. Friends' School, Wigton.

Mathematics.

1. Chudley, A. W. T. Mount Radford School, Exeter.
2. Hutchinson, M. The Grammar School, Thorne.

Classics.

1. Silversides, A. Hawkesyard College, Rugeley.
2. Tidd, G. M. Private tuition.

Taylor-Jones Prize for Scripture History.

- French, Miss F. E. University School, Rochester.

Eve Silver Medal for Proficiency in German. [Not awarded.]

Miss Mears Prize for Domestic Economy.

- Dixon, Miss M. Friends' School, Wigton.

JUNIOR.

General Proficiency.

1. Triay, S. P. Christian Brothers' College, Gibraltar.
2. Weeger, R. Marist Brothers' College, Grove Ferry.
3. Vasilescu, G. E. St. Aloysius' College, Highgate.
4. Bartlett, E. H. Portsmouth Boys' Secondary School.

PRELIMINARY.

General Proficiency.

1. Raingeval, M. Marist Brothers' College, Grove Ferry.
2. Noel, R. Marist Brothers' College, Grove Ferry.
3. Hall, T. B. Osborne High School, West Hartlepool.
4. Toohy, W. M. St. Joseph's Academy, Kennington Road, S.E.

The following is a list of the Candidates who obtained the FIRST and SECOND PLACES in each Subject on SENIOR PAPERS. (Only those who obtained Distinction are included.)

<p><i>Scripture History.</i></p> <ol style="list-style-type: none"> 1. Clark, Miss M. L. Private tuition. 2. French, Miss F. E. University School, Rochester. <p><i>English Language.</i></p> <ol style="list-style-type: none"> 1. Clark, Miss M. L. Private tuition. 2. Goldsmid, Miss G.F.B. Private tuition. <p><i>English History.</i></p> <ol style="list-style-type: none"> 1. { Clark, Miss M. L. Private tuition. { Dixon, Miss M. Friends' School, Wigton. <p><i>Geography.</i></p> <ol style="list-style-type: none"> 1. Farrell, R. J. Newtown School, Waterford. 2. Hill, Miss A. Private tuition. <p><i>Arithmetic.</i></p> <ol style="list-style-type: none"> 1. { Follett, A. J. Priory College, Hornsey. { Gurney, H. F. Private tuition. { Kyle, Miss N. The Academy, Ballymena. <p><i>Algebra.</i></p> <ol style="list-style-type: none"> 1. Hutchinson, M. The Grammar School, Thorne. 2. Cullinan, D. St. Joseph's College, Dumfries. <p><i>Geometry.</i></p> <ol style="list-style-type: none"> 1. Cullinan, D. St. Joseph's College, Dumfries. 2. Seal, E. A. Letchworth School. <p><i>Trigonometry.</i></p> <ol style="list-style-type: none"> 1. Fidler, W. J. The Grammar School, Thorne. 2. Kyle, Miss N. The Academy, Ballymena. <p><i>Mechanics.</i></p> <ol style="list-style-type: none"> 1. Pawe. Private tuition. 	<p><i>Book-keeping.</i></p> <ol style="list-style-type: none"> 1. Storey, J. St. Joseph's College, Dumfries. 2. { Ennitt, G. J. St. Joseph's College, Dumfries. { Kerr, W. P. St. Joseph's College, Dumfries. <p><i>Mensuration.</i></p> <ol style="list-style-type: none"> 1. Cullinan, D. St. Joseph's College, Dumfries. 2. Fidler, W. J. The Grammar School, Thorne. <p><i>French.</i></p> <ol style="list-style-type: none"> 1. Leclercq, E. C. St. Joseph's College, Dumfries. 2. Barst, M. L. Private tuition. <p><i>German.</i></p> <ol style="list-style-type: none"> 1. Clark, Miss M. L. Private tuition. 2. { Kyle, Miss N. The Academy, Ballymena. { McDowell, Miss S. The Academy, Ballymena. <p><i>Spanish.</i></p> <ol style="list-style-type: none"> 1. Triay, S. P. Christian Brothers' College, Gibraltar. 2. Merry del Val, R. Christian Brothers' College, Gibraltar. <p><i>Dutch.</i></p> <ol style="list-style-type: none"> 1. Maton, M. St. Joseph's Academy, Kennington Road, S.E. <p><i>Welsh.</i></p> <ol style="list-style-type: none"> 1. Owen, Miss J. A. Private tuition. <p><i>Irish.</i></p> <ol style="list-style-type: none"> 1. Wilson, D. Hawkesyard College, Rugeley. <p><i>Latin.</i></p> <ol style="list-style-type: none"> 1. Tidd, G. M. Private tuition. 2. Brocchurst, J. Hawkesyard College, Rugeley. 	<p><i>Greek.</i></p> <ol style="list-style-type: none"> 1. Silversides, A. Hawkesyard College, Rugeley. 2. Bannister, B. Hawkesyard College, Rugeley. <p><i>Hebrew.</i></p> <ol style="list-style-type: none"> 1. Barst, M. L. Private tuition. <p><i>Light and Heat.</i></p> <ol style="list-style-type: none"> 1. Seal, E. A. Letchworth School. 2. Loustalon, V. J. St. Aloysius' College, Highgate. <p><i>Magnetism and Electricity.</i></p> <ol style="list-style-type: none"> 1. Seal, E. A. Letchworth School. <p><i>Chemistry.</i></p> <ol style="list-style-type: none"> 1. Fidler, W. J. The Grammar School, Thorne. 2. Thomas, E. G. Cyfarthfa Castle Municipal Secondary School, Merthyr Tydfil. <p><i>Physiology.</i></p> <ol style="list-style-type: none"> 1. Adams, Miss D. E. M. Private tuition. 2. Goldsmid, Miss G. F. B. Private tuition. <p><i>Drawing.</i></p> <ol style="list-style-type: none"> 1. Robinson, H. A. Private tuition. 2. { Clacher, H. St. Joseph's College, Dumfries. { Hitchcock, C. G. Stafford College, Forest Hill. <p><i>Shorthand.</i></p> <ol style="list-style-type: none"> 1. Plant, L. Private tuition. 2. Follett, A. J. Priory College, Hornsey. <p><i>Domestic Economy.</i></p> <ol style="list-style-type: none"> 1. West, Miss G. Private tuition. 2. { Goldsmid, Miss G. F. B. Private tuition. { Webster, Miss E. Private tuition.
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CLASS LIST—BOYS.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

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al. = Algebra.	du. = Dutch.	h. = History.	ma. = Mensuration.	sh. = Shorthand.
b. = Botany.	e. = English.	he. = Hebrew.	mu. = Music.	sp. = Spanish.
bk. = Book-keeping.	f. = French.	i. = Irish.	p. = Political Economy.	ta. = Tamil.
ch. = Chemistry.	g. = Geography.	l. = Latin.	ph. = Physiology.	t. = Trigonometry.
d. = Drawing.	ge. = German.	lt. = Light and Heat.	phys. = Elementary Physics.	w. = Welsh.
	gm. = Geometry.	m. = Mechanics.	s. = Scripture.	

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St. Joseph's Coll., Dumfries
Follett, A.J. *s.g.a.sh.* Priory Coll., Hornsey
Fidler, W.J. *a.t.ms.ch.*
The Gram. S., Thorne
Hutchinson, M. *a.al.* The Gram.S., Thorne
Seal, E.A. *a.gm.l.it.ma.* Letchworth School
Weber, V.J. *g.a.d.*
St. Joseph's Coll., Dumfries
Farrell, R.J. *g.* Newtown S., Waterford
Barat, M.L. *f.gc.hc.* Private tuition
Harte, L.P. *f.* St. Joseph's Coll., Dumfries
McMenemy, J.J. *f.*
St. Joseph's Coll., Dumfries
Tidd, G.M. *a.t.l.* Private tuition

Davies, T.T. Tutorial S., Newquay, Cardigan
Storey, J. *a.bk.* St. Joseph's Coll., Dumfries
Bannister, B. *gr.*
Hawkesyard Coll., Rugeley
Silversides, A. *l.gr.*
Hawkesyard Coll., Rugeley
Moyle, M. *a.gm.* The High S., Brentwood
Thomas, J.E. *g.a.* Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Carlin, F.R. St. Aloysius' Coll., Highgate
Williams, J.R. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Wells, J.
St. Joseph's Acad., Kennington Rd., S.E.
Wilson, D. *i.* Hawkesyard Coll., Rugeley
Hitchcock, C.G. *a.d.*
Stafford Coll., Forest Hill
Watkins, G. *a.d.* Steyne S., Worthing
Bodey, L.C. *f.l.* Private tuition
Gurney, H.F. *a.* Private tuition
Rees, J.P. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Jeiter, F.J. St. Joseph's Coll., Dumfries
Sherry, J.A. Church Institute S., Bolton
Bennett, F.C. Gram. S., Ongar
Prier, J. St. Joseph's Coll., Dumfries
Wells, E.R. Private tuition
Roberts, F.
Christian Brothers' Coll., Gibraltar

Wilson, L.T. *a.* Richmond Hill S.
Kelly, L.
St. Joseph's Acad., Kennington Rd., S.E.
Stephens, G.W. Private tuition
Evans, I. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Dixon, J. *s.a.* Private tuition
Choon Private tuition
Lewis, D.G. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Barnard, A.G. St. Aloysius' Coll., Highgate
Hopkins, R.W. *g.* University S., Rochester
Jones, D.E. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Walmley, J.A. St. Joseph's Coll., Dumfries
Williams, G.L. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Halliday, A.H.B. Newtown S., Waterford
Thorburn, J. Friends' S., Wigton
Gaffyne, H.A.S. Richmond Hill S.
Grant, R.S. Elgin H., Shepherd's Bush
Jones, T.E. Gram. S., Pencader
Lynch, W.R. Salesian S., Farnborough
de Vine, W.G. Private tuition
Hall, C.T. Gram. S., Taplow
Craggs, A. Private tuition
Hodgson, J.B. Friends' S., Wigton
Pranich, S. Private tuition
Thomas, T.W. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Miller, H.B. Richmond Hill S.

Plant, L. *e.a.al.f.sh.* Private tuition
Malzer, A.C. *e.a.al.*
St. Aloysius' Coll., Highgate
Budd, O.H. *h.g.al.f.*
Portsmouth Boys' Sec. S.
Stoddart, E. *g.a.al.*
Portsmouth Boys' Sec. S.
Bryne, C. *e.a.al.* Salesian S., Farnborough
Spalton, D.E. *a.al.ms.*
Yorkshire Society's S., S.E.
Smith, H.S. *g.a.al.d.*
Portsmouth Boys' Sec. S.
Dunlop, I.W. *al.* Salesian S., Farnborough
Jervis, F.C. *al.* Portsmouth Boys' Sec. S.
Brigham, H. *e.al.*
Yorkshire Society's S., S.E.
Lawton, E.R. *f.* Portsmouth Boys' Sec. S.
Cuigniez, A. *a.ms.f.*
St. Aloysius' Coll., Highgate
Reeves, G.B. *al.gm.ms.d.*
Tankerton Coll., Whitstable
Goldstein, S. *a.al.* Argyle H., Sunderland
Steele, E.C. *a.al.ms.* Bentham Gram. S.
Beale, A.T. Portsmouth Boys' Sec. S.
McNair, J.S. *s.* University S., Southport
Gordon, F. *al.ms.* Salesian S., Farnborough
Davidson, J.P. *a.al.sp.*
Christian Brothers' Coll., Gibraltar
Harris, E.J. *s.al.phys.*
Mount Radford S., Exeter
Brogdon, J.S. *s.* Friends' S., Wigton
Langler, G.E. *e.al.* Gram.S., Newton Abbot
Thompson, B.O.N. *e.al.*
Yorkshire Society's S., S.E.

SENIOR.

Pass Division.

Merry del Val, R. *sp.*
Christian Brothers' Coll., Gibraltar
Leclercq, E.C. *f.* St. Joseph's Coll., Dumfries
Triay, H.G. *sp.*
Christian Brothers' Coll., Gibraltar
Loustalon, V.J. *it.*
St. Aloysius' Coll., Highgate
Pawe, m. Private tuition
Simmons, L.J.
St. Aloysius' Coll., Highgate
Wilson, A.J. St. Joseph's Coll., Dumfries
North, J. *s.g.* The Academy, Wakefield
Tildesley, K.P. Wolverhampton Gram. S.
Thomas, R.G. *ch.* Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Kemp, R.H. Private tuition
Phillips, F.A. Salesian S., Farnborough
Wilkinson, F. Gram. S., Eccles
Evans, D.H. *a.* Gram. S. Pencader
O'Connor, H.J.
St. Joseph's Acad., Kennington Rd., S.E.
Ponce, A. *sp.*
Christian Brothers' Coll., Gibraltar
Broclehurst, J.J. Hawkesyard Coll., Rugeley
McAllister, F. St. Joseph's Coll., Dumfries
Gonzalez, H.J. *sp.*
Christian Brothers' Coll., Gibraltar
Greenhalgh, G. Gram. S., Eccles

Entwisle, H. Gram. S., Eccles
Hair, W. *d.* Newtown S., Waterford
Rees, E.J. King's S., Worcester
Thomas, C.I. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Martin, T. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Thomas, W.F. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Perkins, A. Devonport High S.
Hilton, V.G. Hawkesyard Coll., Rugeley
Huggard, K. Newtown S., Waterford
Ivens, H.D. St. Aloysius' Coll., Highgate
Tucker, W.L. Letchworth School
Hyde, W.T. Private tuition
Gobey, L.F. *s.* Private tuition
Turner, G.S. *d.* St. Joseph's Coll., Dumfries
Poock, S.G. *a.* Private tuition
Jones, D.E.
Tutorial S., Newquay, Cardigan
Michalsky, A.V. *s.* Private tuition
Humphreys, R. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Thomas, C.E. *g.*
Higher Standard S., Mountain Ash
Deja, P. Private tuition
Griffiths, B. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Higgins, M.J. Private tuition

JUNIOR.

Honours Division.

Triay, S.P. *s.a.al.sp.*
Christian Brothers' Coll., Gibraltar
Cullinan, D. *a.al.gm.ms.f.*
St. Joseph's Coll., Dumfries
Weeger, R. *s.e.a.a.al.bk.ms.f.*
Marist Brothers' Coll., Grove Ferry
Vasilescu, G.E. *a.al.sh.*
St. Aloysius' Coll., Highgate
Gaggero, C. *a.al.sp.d.*
Christian Brothers' Coll., Gibraltar
Bartlett, E.H. *h.g.a.al.gm.f.*
Portsmouth Boys' Sec. S.
Suso, P. *s.g.al.bk.ms.f.*
Marist Brothers' Coll., Grove Ferry
Higgins, M.P. *e.a.al.f.l.*
Salesian S., Farnborough
Fellows, D.W.L. *e.a.al.it.ch.*
Portsmouth Boys' Sec. S.

Munro, R. *a.al.d.*
St. Joseph's Coll., Dumfries
Smith, G.D. *e.a.al.f.*
Huddersfield Technical Coll.
Oltman, J.F. *a.al.f.*
Newcastle Modern S., Newcastle-on-Tyne
Dean, R.J. *a.al.* Portsmouth Boys' Sec. S.
Jacob, J.G. *ms.* Newtown S., Waterford
Attias, J.
Christian Brothers' Coll., Gibraltar
Bulmer, E. *e.a.f.*
Newcastle Modern S., Newcastle-on-Tyne
Verano, A.E.
Christian Brothers' Coll., Gibraltar
Yeung, O.F. *e.al.gr.* Private tuition
Ashley, W.E. *s.f.* Mount Radford S., Exeter
Bull, T.C.R. Portsmouth Boys' Sec. S.
Trafford, P.G. *g.a.f.*
De Aston Gram. S., Market Rasen
Anderson, H.S. *g.* Ealing Gram. S.
Williamson, T.W. *ch.* Friends' S., Wigton
Craggs, A.L. *a.al.* Private tuition
Freshney, C.E.N. *a.al.ch.*
Orient Coll., Skegness
Sander, A. *a.* Salesian S., Farnborough

BOYS, JUNIOR, HONOURS—Continued.

Corry, P.H. al. Gram. S., Ongar
Hassall, W.H. a.ms. Chadamoore National S., Cannock
Fearn, L.N. f. Edgbaston Acad., Birmingham
Dearden, A.V. a. Private tuition
Maton, M. f.du. St. Joseph's Acad., Kennington Rd., S.E.
Bass, A. f. Southport College
Broadbridge, M.C. St. Aloysius' Coll., Highgate
Townsend, L.W.H. al. Private tuition
Norriah, R.E. Private tuition
Reid, R.J.S. ms. Bentham Gram. S.
Walton, C. al. Gram. S., Eccles
Neilthorpe, H.E.C. Portsmouth Boys' Sec. S.
Warne, C.W. al. Wilson Coll., Stamford Hill
Armitage, S. d. Gram. S., Batley
De Aguiar, J. St. Aloysius' Coll., Highgate
Jacobs, H.P. Grace Ramaden's Endowed Gram. S., Eiland
Cullen, H.A. St. Aloysius' Coll., Highgate
Leenacra, R.E.A. f. Clark's Coll. Prep. S., Uxbridge Rd.
Povedano, J.R. Christian Brothers' Coll., Gibraltar
White, K.C. ch. Newtown S., Waterford
Challinor, B.A. St. Joseph's Coll., Dumfries
Longman, R. a. al. St. Olave's Gram. S., Tower Bridge, S.E.
Craggs, E.F. al. f. Newcastle Modern S., Newcastle-on-Tyne
Emmett, H. a.ms. Private tuition
Faithi, J.T. e. Friends' S., Wigton
Holloway, S.S. Thanet H., Hounslow
Durrant, F.B. al. University S., Rochester
Gray, H.J. h.f. Hawkesyard Coll., Rugeley
Llewellyn, G. f. Private tuition
Cooke, W.A. a. Orient Coll., Skegness
Foley, V.T. St. Aloysius' Coll., Highgate
O'Flaherty, H.R. Richmond Hill S.
Glendinning, J.G. Epsom College
Barkby, A. ch. University S., Southport
Hall, R.B. Argyle H., Sunderland
Peirce, G.M. a. Richmond Hill S.
Hadfield, J. s.a.f. Private tuition
Kirk, D.A. f. St. Joseph's Coll., Dumfries
Theerman, P. al. St. Joseph's Coll., Dumfries
Cristol, H.S. a.al. Private tuition
Davies, E.R. Tutorial S., Newquay, Cardigan
Humphreys, C.J. Mill St. Higher Elem. S., Pontypridd
Hunter, E. al. f. St. Joseph's Coll., Dumfries
Seferian, M.H. Gram. S., Chorlton-cum-Hardy

JUNIOR. Pass Division.

*Terndrup, L. f. St. Joseph's Coll., Dumfries
Clay, H. al. Yorkshire Society's S., S.E.
Jackson, J.B. a.al. Private tuition
O'Brien, E. f. St. Joseph's Coll., Dumfries
O'Flynn, J.L.C. e.f. Private tuition
Sullivan, G.W. University S., Rochester
Bennett, R.P. Gram. S., Ongar
Fyle, A.E. a.g.m.d. Private tuition
Mena, L.J. Christian Brothers' Coll., Gibraltar
Morgan, W.J. f. Emlyn Gram. S., Newcastle Emlyn
Dunn, E. St. Joseph's Coll., Dumfries
Burrows, A. a.al. Ealing Gram. S.
Gann, J.H. Private tuition
Handy, G.R. a. Bentham Gram. S.
Huxley, F.B. a. Boys' Private S., Wem
Lewis, T.H. a. Higher Standard S., Mountain Ash
Razaifmaheta, H. f. Newtown S., Waterford
Still, R.H. al. University S., Rochester
Haggarty, R. al. St. Joseph's Coll., Dumfries
Quigley, W.J. al. Salesian S., Farnborough

Rampling, E.H. g.al. Private tuition
Tackaberry, T. al. bk. Salesian S., Battersea
*Imossi, G.F. sp. Christian Brothers' Coll., Gibraltar
Kay, T.J. a.al. Hawkesyard Coll., Rugeley
Mock, E.H. Mount Radford S., Exeter
Nicholls, T.E. Private tuition
Jacques, S.F. bk. Private tuition
Nixon, F. al. St. Aloysius' Coll., Highgate
Aldred, C.N. a.al. Gram. S., Eccles
Cazes, D.L. sp. Christian Brothers' Coll., Gibraltar
Hughes, W.D. Private tuition
*McLaughlan, W. St. Joseph's Coll., Dumfries
Wray, J.S. Gram. S., Eccles
Burke, A.J. al. Hawkesyard Coll., Rugeley
Farrell, L. St. Joseph's Coll., Dumfries
Robinson, H.A. d. Private tuition
Gulhard, A. a.f.d. St. Joseph's Coll., Dumfries
Gunn, F.A. a.al.d. Private tuition
Jones, J. Gram. S., Pencader
Lavarello, A.V. d. Christian Brothers' Coll., Gibraltar
Bell, W. a. Private tuition
Berry, J. St. Joseph's Coll., Dumfries
Browne, C.V.R. St. Aloysius' Coll., Highgate
Davison, W.G. a.al.gm. County Secondary S., Crewe
Hurst, T. St. Joseph's Coll., Dumfries
Moodey, G.E. Alexander H., Broadstairs
Shepherd, G.W. St. Joseph's Acad., Kennington Rd., S.E.
Marshall, E.W. a.ch. Private tuition
Nugent, T. St. Joseph's Coll., Dumfries
Flewitt, E.L. Private tuition
Harbord, C.D. Mount Radford S., Exeter
Hope, E.A. sp. Christian Brothers' Coll., Gibraltar
Molloy, M.A. al. Salesian S., Farnborough
Skillcorn, F.W. a. Ramsey Gram. S.
Baker, E.A. a.al. Leicester Municipal Tech. S.
Hanglin, R. Christian Brothers' Coll., Gibraltar
Mulholland, J.E. St. Joseph's Coll., Dumfries
O'Reilly, H. St. Joseph's Coll., Dumfries
Sandoe, C.F. Allhallows S., Honiton
Thursfield, H.a. Private tuition
Hards, K.C. al. Private tuition
Hopkinson, T.A. Salesian S., Farnborough
Pick, T.C.E. al. d. Scorton Gram. S.
Carruthers, W.A. Argyle H., Sunderland
Hopkins, H. a.al.gm.ms. Private tuition
Tims, E.T. al. Portsmouth Boys' Sec. S.
Carden, D.L. f. Hawkesyard Coll., Rugeley
Delaney, K. Salesian S., Battersea
Vause, H. al. f. Municipal Sec. S., Bolton
Cheesman, W.A. Private tuition
Lacey, F.S. The Coopers' Company's S., Bow
Phillips, C. a. Mill St. Higher Elem. S., Pontypridd
Bailey, L.J. Stafford Coll., Forest Hill
Chown, F.J. d. St. Paul's S., W. Kensington
Heath, C. f. Central High S., Leeds
Kent, H.S. f. Newcastle Modern S., Newcastle-on-Tyne
Raven, A.G. f. Broadgate S., Nottingham
Taylor, E. ms. Bentham Gram. S.
Williams, F.H. a.ms. Private tuition
Cox, A.H. Taunton H., Brighton
Dimoline, G.E. f. Dean Close S., Cheltenham
Francis, W.R. Tutorial S., Newquay, Cardigan
Gibson, G.P. al. f. Private tuition
Holden, T.H. Longwood Gram. S., Huddersfield
Mulrooney, T. St. Joseph's Coll., Dumfries
Ravensdale, A.G. a.al.ms. Private tuition
Thomas, T. Private tuition
*Hislop, J.A. Private tuition
McBride, C. St. Aloysius' Coll., Highgate
Peirson, F. Scorton Gram. S.
Powell, J.H. Private tuition
Hill, E.J.C. Mount Radford S., Exeter
Lawrence, H.F. Gram. S., Taplow
*Phillips, J. Private tuition
Brown, W. Private tuition
Clacher, H. d. St. Joseph's Coll., Dumfries
Mellor, J.A. d. Partown Gram. S., Huddersfield
Stone, T.E.H. Mount Radford S., Exeter
Thomas, I.G. Epsom College

Andrews, G. al. Salesian S., Farnborough
Burke, A. St. Joseph's Coll., Dumfries
Lanfear, C.E. Ealing Gram. S.
Willan, C.E. h. Heaton Moor College
Garnham, E.J. a. Wilson Coll., Stamford Hill
Simmons, B.F. St. Aloysius' Coll., Highgate
Squire, A.D. al. f. Newcastle Modern S., Newcastle-on-Tyne
Woolwich, H. Private tuition
Champlon, F. Scorton Gram. S.
Fairlie, A.L. Private tuition
Jones, E.T. h.d. Tutorial S., Newquay, Cardigan
*Rathbone, D.R. Ferndale Municipal Sec. S.
Robertson, D.E.C. Deacon's S., Peterborough
Bobby, S.C. Private tuition
Burke, F.W. The Gram. S., Southport
Cumming, A.J. Private tuition
Ferrie, T.H. Gram. S., Eccles
Blair, D.S. St. Joseph's Coll., Dumfries
Firth, T. a. Longwood Gram. S., Huddersfield
*Paulson, J.C.H. Private tuition
Taylor, R.J.W. Mount Radford S., Exeter
Williams, H.M. Stafford Coll., Forest Hill
Haworth, C. f. Private tuition
Nicol, R. al. St. Joseph's Coll., Dumfries
Silver, R.A. d. St. Peter's (Eaton Sq.) Choir S., Eccleston St. E., S.W.
Sykes, J. al. Longwood Gram. S., Huddersfield
Alberman, A. Private tuition
Allen, J.T. f. Private tuition
Atkins, W.A. a. Ealing Gram. S.
Bayley, W. f. St. Joseph's Acad., Kennington Rd., S.E.
Jones, D.H. Tutorial S., Newquay, Cardigan
Lyle, J.A. Gram. S., Eccles
Lyons, I. al. Private tuition
Rodley, E.G. St. Joseph's Acad., Kennington Rd., S.E.
Barrit, J. a. Private tuition
*Gowlett, W.R. Gram. S., Ongar
Milward, J. f. Salesian S., Battersea
Boobyer, V.H. Broadgate S., Nottingham
Bruce, R. Private tuition
Fathi, J.H. s.h. Friends' S., Wigton
Reddy, S. Salesian S., Farnborough
Tickle, R. a. Boys' Private S., Wem
Bryars, J.F. Private tuition
Farrell, J. Hawkesyard Coll., Rugeley
Jewson, W.S. Broadgate S., Nottingham
Todd, E.B. Ealing Gram. S.
Weiss, G.F. a.ms. Private tuition
Miller, E. Leeds Central School of Commerce
Ormsland, R.W. gm. Private tuition
Pearson, J.T. ch. Private tuition
Conlon, W. St. Joseph's Coll., Dumfries
Edwards, A.G. e. Dunstable School
*Etheredge, E.O. Gram. S., Taplow
Haggis, F.C. Private tuition
Pilling, T. a.phys. Private tuition
Sidney, A. de l'f. Private tuition
Slater, H.L. al. f. Private tuition
Bulthez, A. f. St. Joseph's Acad., Kennington Rd., S.E.
Johnson, R.F. Private tuition
McMenemy, T.J. St. Joseph's Coll., Dumfries
Rayner, F.E. Stafford Coll., Forest Hill
*Revill, W.J. Hawkesyard Coll., Rugeley
Smith, C. al. Secondary S., Todmorden
Young, T.D.A.W. Private tuition
Bird, C.A. Private tuition
Cockell, D.H. Private tuition
Delany, J. Salesian S., Farnborough
Fraser, F.M. Private tuition
Jones, W.M. Brighton H., Bristol
Kane, J. al. St. Joseph's Coll., Dumfries
*Hine, J.C.L. Gram. S., Chorlton-cum-Hardy
*Lamb, A.W. Private tuition
Richardson, C.A. Private tuition
Scott, R.C. Private tuition
*Spamer, L.F. ge. Private tuition
Allen, R.B. Scorton Gram. S.
Harris, S.R. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Newnam, C.C. Stafford Coll., Forest Hill
Bruce, P.A. d. St. Aloysius' Coll., Highgate
*Driscoll, D.J. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Heptinstall, R. Boy's High S., Barnsley
Hicks, C.M. Private tuition
Jones, M. Higher Standard S., Mountain Ash

Davies, J.M. Private tuition
Field, C.T. Gram. S., Taplow
Jogg, H.S. Private tuition
*Jones, R.T. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Kinnison, E.J. Central High S., Leeds
Peters, F.B. Private tuition
Stoner, C.S.T.B. Private tuition
Bishop, H. Private tuition
Bradburn, A.G. ch.d. Private tuition
Murray, B.S. Osborne High S., W. Hartlepool
Reid, J. Private tuition
Standing, J. Private tuition
Hyatt, A.L. Private tuition
Palmer, W. Salesian S., Battersea
Zapatero, M.J. St. Joseph's Coll., Dumfries
Foley, J. Private tuition
*Hawkins, R.H. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Jukes, H. Monkton H., Cardiff
Orr, K.E.R. Friends' S., Wigton
Bowen, G.W. Taunton School
Brooks, T.H.P. Mount Radford S., Exeter
Brown, C. St. Peter's (Eaton Sq.)
Choir S., Eccleston St. E., S.W.
Cooper, L. St. Aloysius' Coll., Highgate
*Davies, F.W. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
*Evans, D.B. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Jones, E.S. Private tuition
Quirk, D.E. Private tuition
Rees, I. Private tuition
Strickson, T.H. University S., Rochester
Ashton, A.L. Richmond Hill S.
Bane, T. Salesian S., Battersea
Hawkeswood, S.C. Private tuition
Rafford, D.K. Richmond Hill S.
*Smith, J.S. Cavendish S., Matlock
Bramley, P.E. Municipal Sec. S., Bolton
Bromley, J. Private tuition
Green, R.P. West Cliff S., Preston
Hunter, J.H. Private tuition
Hair, J. s. Newtown S., Waterford
Taylor, J.A. St. Aloysius' Coll., Highgate
Baines, C.E. Private tuition
*Jones, B. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Simpson, W.L. Cathedral S., Ripon
di Colonna y de Vere, B. Dudley H., Lee
*Jenkins, T.J. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
Parmiter, R. Salesian S., Battersea
Shackleton, A.V. Private tuition
Stones, E.P. Private tuition
Davies, S.T. Municipal Sec. S., Canton, Cardiff
Merryweather, S. Salesian S., Battersea
Pagella, E. Queen's Coll., Southampton
Partridge, W.J. a. Private tuition
Reynolds, T.G. Newtown S., Waterford
Welling, T. St. Joseph's Acad., Kennington Rd., S.E.
Winks, F. Private tuition
Bennett, A.M. Private tuition
Bowen Jones, E. Old College S., Carmarthen
Raine, R.H. Ascham H., Harrogate
Williams, N.J. Private tuition
Ball, J.E. Gram. S., Taplow
Hardwick, C. Elmfield Coll., York
Penley, R.J.B. Private tuition
Unger, K.R. St. Paul's S., West Kensington
Bannigan, J. St. Joseph's Coll., Dumfries
Foulkes, E.T. Private tuition
Houseman, R.S. Glida Park Coll.
*Martin, J.S. Cyfarthfa Castle
Municipal Sec. S., Merthyr Tydfil
*Pinks, A. Clark's Coll., Cardiff
Rhodes, J. Private tuition
Trenowden, F.J. Private tuition
Davies, H.E. Elmhurst S., Kingston-on-Thames
Harman, R.A.D. Taunton H., Brighton
Stevens, F.A. Salesian S., Farnborough
Thompson, W.C. Central High S., Leeds
Thomson, M.H. Taunton School
Way, R.H. Ealing Gram. S.
Barber, L. Arglye H., Sunderland
*Davies, D.P. Tutorial S., Newquay, Cardigan
*Enock, J.R. Gram. S., Pencader
Martin, C. Gram. S., Taplow
Norton, R.L. Brighton College
Peard, R.G. Buckingham Place Acad., Portsmouth
Smith, E.L. Private tuition

BOYS, JUNIOR, PASS—Continued.

Walker, F.A. Private tuition
 Wood, A. McC. Newcastle Modern S., Newcastle-on-Tyne
 Brindle, F. a. Private tuition
 Casely, E. Gram. S., Whitchurch
 Jones, O.H. Private tuition
 Julliard, C. Salesian S., Battersea
 Burnard, J. Taunton School
 Higgins, H. St. Joseph's Coll., Dumfries
 McConnell, J. St. Joseph's Coll., Dumfries
 Richardson, C.A. Private tuition
 Imossi, J.J. Christian Brothers' Coll., Gibraltar
 Rowlett, R. Leicester Municipal Tech. S.
 May, N.C. f. Private tuition
 Dent, T. e. Private tuition
 Higgins, G. Stroud Technical S.
 Hudson, H.C. Taunton School
 Richards, W.H. Private tuition
 Ackroyd, C.A. Private tuition
 Evans, C.C. Balham Gram. S.
 Jones, N.M. Rocklyn, Rockleaze, Bristol
 O'Connor, J.M. Private tuition
 Riley, H.M. Fartown Gram. S., Huddersfield
 Taylor, A.E. Private tuition
 Baker, J.J. Gram. S., Ongar
 Blackledge, R. Salesian S., Battersea
 Brebner, T.F. Private tuition
 Carnegie, A. Private tuition
 Coward, G. Private tuition
 Fowell, R.H. Private tuition
 Richardson, A. Burnley Municipal Tech. S.
 Davies, E.C. Tutorial S., Newquay, Cardigan
 Evans, C.G. 15 Grove Rd., Bridgend
 Featherstone, J.W. University S., Rochester
 Godden, L.J. Private tuition
 Greenway, C.H. W.R. Edgbaston Acad., Birmingham
 Leigh, H.T. Private tuition
 Munro, D. Private tuition
 Pedroso, O.F. Private tuition
 Piersenè, F.A. Private tuition
 Slater, W.E. Private tuition
 Stockton, A. Salesian S., Battersea
 Twine, W.J. Private tuition
 Bolton, H. Private tuition
 Box, K. J. Private tuition
 Cooper, R. Salesian S., Battersea
 Dunn, J.L. Private tuition
 McGartland, W. St. Joseph's Coll., Dumfries
 Barton, M.K.K. Private tuition
 Briault, D.L. Peterborough Lodge S., Hampstead
 Catlow, M. Private tuition
 Davies, W. Tutorial S., Newquay, Cardigan
 Keenlyside, A.W. Friends S., Wigton
 Carter, W.G. Private tuition
 Churchill, T.D. Private tuition
 Marley, L. Salesian S., Battersea
 Morrissey, J. St. Joseph's Coll., Dumfries
 Robertson, A.F. Private tuition
 Darfield, S. Private tuition
 Hainsseln, T.H. Gram. S., Taplow
 Jones, O. Private tuition
 Thompson, E. Grosvenor Coll., Carlisle
 Austen, E.A. Private tuition
 Campbell, P. Salesian S., Battersea
 Caunter, W.B. Taunton H., Brighton
 Fawthrop, L. Private tuition
 Kennedy, H.P. Private tuition
 Notton, C.G. Private tuition
 Taylor, H.P. Private tuition
 Wilson, A. Salesian S., Battersea
 Berry, J.G. Fartown Gram. S., Huddersfield
 Deffery, E.J. Christian Brothers' Coll., Gibraltar
 Reynolds, R. Salesian S., Farnborough
 Sapsford, S.J. Kirkmanshulme Gram. S., Longsight
 Carter, J.P. Private tuition
 Doig, J.P. Private tuition
 Elder, W.T. Turriff Higher Grade S.
 Evans, L.J. Tutorial S., Newquay, Cardigan
 Fountain, H.G.M. Private tuition
 Hudspeth, R.A. Private tuition
 Hughes, A.T. Taunton School
 Owen, J. Private tuition

Burke, H. Private tuition
 Cavigan, S.G. Private tuition
 Cousins, A.J. Private tuition
 Cox, T. Private tuition
 Simpson, J.A. Private tuition
 Taylor, F.L. Private tuition
 Harper, E.A. Private tuition
 Mist, C.F. Private tuition
 Carter, F. Salesian S., Battersea
 Hill, H.L. Private tuition
 Jona, A.H. Private tuition
 Jones, R.D. Private tuition
 Watson, S. University S., Southport
 Williams, E. Private tuition
 Cargill, C.C. Private tuition
 Cottle, E.C. Private tuition
 Kennerley, G.J. West Cliff S., Preston
 Taft, J. Private tuition
 Billings, W. Private tuition
 Moore, R. Salesian S., Farnborough
 Williams, A.L. Private tuition
 Bulger, A.G. Northern Polytechnic Inst., Holloway Rd., N.
 Blackledge, A. Private tuition
 Deacon, A.E. Private tuition
 Forster, K.L. Newcastle Modern S., Newcastle-on-Tyne
 Kaps, E. Taunton H., Brighton
 Davies, B.E. Private tuition
 Jones, A.V. Private tuition
 Williams, T.J. Cyfarlifa Castle Municipal Sec. S., Merthyr Tydfil
 Carmichael, James Scorton Gram. S.
 Raingeval, M. e.g.a.l.f. Marist Brothers' Coll., Grove Ferry
 Noel, R. e.a.f. Marist Brothers' Coll., Grove Ferry
 Millien, L. g.a.l.f. Marist Brothers' Coll., Grove Ferry
 Carranza, J.A. a.d. St. Aloysius' Coll., Highgate
 Mansuy, J. a.f.d. Marist Brothers' Coll., Grove Ferry
 de T'Serclaes, J. a.l.f. Marist Brothers' Coll., Grove Ferry
 Echevin, M. e.a.l.g.m.f.d. St. Joseph's Coll., W. Norwood
 Brannan, F. bk.d. St. Joseph's Coll., Dumfries
 Hall, T.B. e.a.l. Osborne High S., W. Hartlepool
 Rodgers, F.J. a.g.m. Newcastle Modern S., Newcastle-on-Tyne
 Hawen, F. bk. St. Aloysius' Coll., Highgate
 Matchin, A.W. e.a.l. Clark's Coll., Brixton S., Brixton Hill
 Fautrad, P. al. Marist Brothers' Coll., Grove Ferry
 O'Sullivan, P. al.g.m. Salesian S., Farnborough
 Vandamme, P. a.l.f. Marist Brothers' Coll., Grove Ferry
 Silva, L.J. f.d. St. Aloysius' Coll., Highgate
 Toohy, W.M. e.a. St. Joseph's Acad., Kennington Rd., S.E.
 Ducoulombier, A.V. a.l.f.d. St. Joseph's Coll., W. Norwood
 Baker, P. bk. St. Aloysius' Coll., Highgate
 Goetzbeur, R. e.a.f. Marist Brothers' Coll., Grove Ferry
 Cooper, A. s.a.al. St. Joseph's Acad., Kennington Rd., S.E.
 Coyle, F.J. a.a.l.g.m.f. Hawkesyard Coll., Rugeley
 Hiddleston, J. e.a.l.f.d. St. Joseph's Coll., Dumfries
 Suso, A. a.f. Marist Brothers' Coll., Grove Ferry
 Young, L.W. g.a. Clark's Coll., Brixton S., Brixton Hill

Gigli, R. al. St. Aloysius' Coll., Highgate
 King Shaw, J. St. Aloysius' Coll., Highgate
 Price, P.E. e.a.g.m. Tutorial S., Newquay, Cardigan
 Elliott, B. e.a.al.f.l. Newcastle Modern S., Newcastle-on-Tyne
 Mackintosh, J. e.f.d. St. Joseph's Coll., Dumfries
 Uhlhorn, H.F. e.a. St. Aloysius' Coll., Highgate
 Carles, F.M. f. St. Aloysius' Coll., Highgate
 Rickaby, A. g.a.f.d. St. Joseph's Coll., Dumfries
 Westcott, J.F. e.a.al.g.m. St. Aloysius' Coll., Highgate
 Goult, S. a.al.l. Salesian S., Farnborough
 Fearn, H.G. a.al. St. Joseph's Acad., Kennington Rd., S.E.
 Sweetman, L.P. a. St. Mary's Prep. Coll., Dominican Conv., Wicklow
 Charles, V.L. a.al.d. St. Aloysius' Coll., Highgate
 McCabe, F. e. Salesian S., Battersea
 Wortley, C. a. Orient Coll., Skegness
 Bartlett, C.C.J. a.al.g.m. Private tuition
 Chapman, E.S. al. Gram. S., Eccles
 Giret, E. f. Marist Brothers' Coll., Grove Ferry
 Nono, J.A. al. St. Aloysius' Coll., Highgate
 Pidsley, D.R. a.al. St. Aloysius' Coll., Highgate
 Thompson, F.N. Osborne High S., W. Hartlepool
 Carew, H. e.d. St. Aloysius' Coll., Highgate
 Cooper, J.R. s. Southlands Gram. S., Littlestone-on-Sea
 Crompton, A. e. Gram. S., Eccles
 Morris, G.R. s.e.a. Stafford Coll., Forest Hill
 Davies, D.S. a. Gram. S., Pencader
 Bayley, C.T. a.al. St. Joseph's Acad., Kennington Rd., S.E.
 Jones, C.P. a.al. Hawkesyard Coll., Rugeley
 Noble, J.U. Christian Brothers' Coll., Gibraltar
 Doder, L.P. f. St. Aloysius' Coll., Highgate
 Dotto, F. Christian Brothers' Coll., Gibraltar
 Hanglin, J. Christian Brothers' Coll., Gibraltar
 Wainwright, E. Grace Ramsden's Endowed Gram. S., Eiland
 Mardon, V.G. Gram. S., Newton Abbot
 Invernizzi, C. St. Aloysius' Coll., Highgate
 Battye, W. Grace Ramsden's Endowed Gram. S., Eiland
 Cutter, H.G. Newcastle Modern S., Newcastle-on-Tyne
 Beaumont, E.S. a. Longwood Gram. S., Huddersfield
 Poles, H.G. University S., Rochester
 Pearson, F. Salesian S., Battersea
 Kerigan, A. Salesian S., Farnborough
 Stuart, A.M. St. Joseph's Coll., Dumfries
 Gomes, S.D. St. Joseph's Coll., Dumfries
 Watts, V.H. University S., Rochester
 Farrow, H.C. University S., Rochester
 Harris, S.A. Newtown S., Waterford
 Ellison, D. St. Joseph's Coll., Dumfries
 Hill, W.E. al. Boys' High S., Tettenhall Rd., Wolverhampton
 Halket, J. St. Joseph's Coll., Dumfries
 McKay, W. St. Joseph's Coll., Dumfries
 McDowall, W.D. St. Joseph's Coll., Dumfries
 Harte, P. St. Joseph's Coll., Dumfries
 Antoine, H. St. Joseph's Coll., Dumfries
 Beniso, I.J. Christian Brothers' Coll., Gibraltar
 Mahoney, W. Salesian S., Farnborough

Ewen, C. e. St. Joseph's Coll., Dumfries
 Raggio, C.J. bk. Christian Brothers' Coll., Gibraltar
 Rey, J.L. sp.d. Christian Brothers' Coll., Gibraltar
 Challen, J.G. f. Gram. S., Eccles
 Mead, D.C.T. Gram. S., Ongar
 Pratt, A.J. s.a.al. St. Joseph's Acad., Kennington Rd., S.E.
 Rudolph, H. a.al. Salesian S., Farnborough
 Buranasiri, N. Private tuition
 Doland, C. St. Aloysius' Coll., Highgate
 Isaacs, B.R. a. Argyle H., Sunderland
 O'Sullivan, J. d. St. Aloysius' Coll., Highgate
 Barclay, J.E. Gram. S., Taplow
 Boyle, G. St. Joseph's Coll., Dumfries
 Kern, E. al. Salesian S., Farnborough
 Pargeter, H.E. Southport College
 Williams, D.F. s.e.a. Stafford Coll., Forest Hill
 Crossley, P.P. g. Gram. S., Eccles
 Davies, M.C. University S., Rochester
 Dotto, I.L. a. Christian Brothers' Coll., Gibraltar
 Browett, F.W. Newtown S., Waterford
 Decker, H.P.J. s.a. St. Joseph's Acad., Kennington Rd., S.E.
 Griffith, G.R. aw. Private tuition
 Heatley, J.B. a. Boys' Private S., Wem
 Jones, H. w. Gram. S., Pencader
 Miller, E.F. Lancaster Coll., W. Norwood
 Robathan, G. St. Aloysius' Coll., Highgate
 Scally, J. St. Joseph's Coll., Dumfries
 Taylor, L. Longwood Gram. S., Huddersfield
 Coblenz, W.W.R. e.a. St. Aloysius' Coll., Highgate
 Colton, C.H. Radnor S., Redhill
 Potts, D. St. Joseph's Coll., Dumfries
 Powell, B.N. Gram. S., Taplow
 Roche, J. e.g.m. Salesian S., Farnborough
 Vereker, E.E.B. g. Gram. S., Taplow
 Whitaker, A.L. a. Southport College
 Addis, E. e. St. Joseph's Coll., Dumfries
 Meyer, E. e. Salesian S., Farnborough
 Mulcahy, J.A. St. Mary's Prep. Coll., Dominican Conv., Wicklow
 O'Meara, T. a. St. Aloysius' Coll., Highgate
 Shaw, B. al. Fartown Gram. S., Huddersfield
 Caine, P. St. Aloysius' Coll., Highgate
 Harries, D.J.I. Tutorial S., Newquay, Cardigan
 Little, A. Bethany H., Goudhurst
 Mifsud, J.E. a. Christian Brothers' Coll., Gibraltar
 Pickering, P.W. Bailey S., Durham
 Rice, C.L. Taunton School
 Burns, W. Salesian S., Farnborough
 Burrows, F.W. Orient Coll., Skegness
 Fletcher, D. St. Joseph's Coll., Dumfries
 Rentzsch, F.J.V. e.al. St. Aloysius' Coll., Highgate
 Watson, H. St. Joseph's Coll., Dumfries
 Wittrick, A. Fartown Gram. S., Huddersfield
 Baldry, I.C. a. Private tuition
 Butterfield, J.W. Bentham Gram. S.
 Clowes, E.I. Taunton H., Brighton
 Dring, W.J. a. Argyle H., Sunderland
 Fearn, C. al. St. Joseph's Acad., Kennington Rd., S.E.
 Gaggero, J. sp. Christian Brothers' Coll., Gibraltar
 Kufeke, G. St. Joseph's Coll., Dumfries
 McCulloch, R.I. Newtown S., Waterford
 Milburn, L.J. a. St. Aloysius' Coll., Highgate
 Pomeroy, F.H. al. St. Aloysius' Coll., Highgate
 Turner, R.S. Stafford Coll., Forest Hill
 De Solla, A.H. a. Gram. S., Taplow
 Lauchlan, G. St. Joseph's Coll., Dumfries
 Raymond, J.A. St. Joseph's Coll., Dumfries
 Bibb, R.F. The College, Weston-super-Mare
 Gorham, H.F. al. St. Aloysius' Coll., Highgate
 Mannix, A. St. Joseph's Coll., Dumfries
 Marshall, R.M. a. University S., Rochester
 Martin, T. St. Joseph's Coll., Dumfries
 Rowe, G.H. e. Orient Coll., Skegness
 Simpson, G. Stafford Coll., Forest Hill
 Staggall, V.A. Scorton Gram. S.
 Wells, L.C.s.e. St. Aloysius' Coll., Highgate
 Brown, W.M. e. West Cliff S., Preston
 Corner, F. St. Aloysius' Coll., Highgate
 Fittion, J. Bentham Gram. S.

PRELIMINARY.

Honours Division.

PRELIMINARY.

Pass Division.

BOYS, PRELIMINARY, PASS—Continued.

- Ide, E.G. St. Aloysius' Coll., Highgate
 Pullan, W.A.J. St. John's Coll., Brixton
 Stuart, D. Gram. S., Chorlton-cum-Hardy
 Woodhouse, J.P. a. St. Aloysius' Coll., Highgate
 Young, E.W. d. Douglas S., Cheltenham
- Dennis, S.D. Cary Coll., Westcliff-on-Sea
 Foot, E. St. J. Newtown S., Waterford
 Mazzucchi, E. St. Joseph's Coll., Dumfries
 O'Sullivan, A. a. St. Aloysius' Coll., Highgate
- Riple, E.K. Newcastle Modern S., Newcastle-on-Tyne
 Robb, T. McK. Taunton School
 Sanderson, C.N. g.d. Osborne High S., W. Hartlepool
- Aguilar, E. f. sp. Christian Brothers' Coll., Gibraltar
 Billing, J.M. s. Bentham Gram. S.
 Branford, F.T. d. Stafford Coll., Forest Hill
 Hutchinson, R. a. Newcastle Modern S., Newcastle-on-Tyne
 Mahony, D. a. St. Joseph's Acad., Kennington Rd., S.E.
- Bailey, T. Douglas S., Cheltenham
 Burt, D. Salesian S., Battersea
 Chiles, C.L.S. a. Addiscombe New Coll., Croydon
- Davies, H. a. d. Gram. S., Pencader
 Ellis, A.G. Newcastle Modern S., Newcastle-on-Tyne
 Frosall, A.A. Stafford Coll., Forest Hill
 Green, C. Gram. S., Taplow
 Horton, W. a. Salesian S., Farnborough
 Kyne, E.F.J. s. e. a. St. Aloysius' Coll., Highgate
 Lavelle, A. St. Joseph's Coll., Dumfries
 Lawlor, J.E. Newtown S., Waterford
 Naylor, E.P. Gram. S., Eccles
 O'Hanlon, P. e. St. Aloysius' Coll., Highgate
 Sims, W.A. a. Stafford Coll., Forest Hill
- Brown, J. e. Argyle H., Sunderland
 Hickling, F.C. e. Taunton School
 Jackson, W.G. a. St. Joseph's Coll., Dumfries
- Tipple, F.S. Bethany H., Goudhurst
 Tremear, A.J. Bradley High S. for Boys, Newton Abbot
- Arnould, A. f. St. Aloysius' Coll., Highgate
 Berry, E. Salesian S., Farnborough
 Carter, R.R. Longwood Gram. S., Huddersfield
 Chabanne, M. Marist Brothers' Coll., Grove Ferry
 Dickinson, J. a. St. Joseph's Coll., Dumfries
 Dunn, R. Argyle H., Sunderland
 Jones, R. a. St. Joseph's Acad., Kennington Rd., S.E.
 Matos, C. Salesian S., Battersea
 Pellett, H.M.B. Tankerton Coll., Whitstable
 Perfect, C.H.S. a. The Haughton S., York
 Politeyan, C.D. Radnor S., Redhill
 Theobald, I. St. J. Taunton School
 Wilcockson, F. St. Aloysius' Coll., Highgate
- Bowden, F.R. e. Mount Radford S., Exeter
 Bree, D.P. St. Aloysius' Coll., Highgate
 Brown, C.K. g. Priory Coll., Hornsey
 Death, C.J. St. Peter's (Eaton Sq.)
 Choir S., Eccleston St. E., S.W.
 Diacono, O. St. Joseph's Coll., Dumfries
 Durell, A.H. a. Taunton School
 Fiske, T. Richmond Hill S.
 Gregson, E.V. a. Taunton School
 Jackson, H.E. Taunton School
 LeGrand, H.J. a. St. Joseph's Acad., Kennington Rd., S.E.
 Tanner, J. s. d. St. Joseph's Acad., Kennington Rd., S.E.
 Tattersall, L.M. Scorton Gram. S.
 Toome, L.A. e. Taunton School
 Wilkins, E.M. a. Taunton School
- Edwards, C.A. Taunton School
 Evans, D.I. Tutorial S., Newquay, Cardigan
 Marshall, N. Private tuition
 Meaney, W. Salesian S., Farnborough
 Nogueira, M. St. Joseph's Coll., Dumfries
 Root, A.R.E. St. Aloysius' Coll., Highgate
- Ashon, W.H. Richmond Hill S.
 Bowen, R.W. a. Boys' Private S., Wem
 Clifton, H.B. St. Aloysius' Coll., Highgate
 DesCoux-Stevens, R.C. f. Bethany H., Goudhurst
 Edgecombe, A.R.E. Taunton School
 Gray, G.F. St. Aloysius' Coll., Highgate
 Mackintosh, E. Gram. S., Taplow
 Pearse, R.G. The College, Weston-super-Mare
 Walters, I.V. a. Taunton School
- Blenz, L.E.W. s. St. Joseph's Acad., Kennington Rd., S.E.
 Hamilton, H.B. St. Aloysius' Coll., Highgate
 Hunt, A.H. Stafford Coll., Forest Hill
 Kerr, W.H. The College, Weston-super-Mare
 Mottram, R. Gram. S., Eccles
 Sampson, D. Gram. S., Ongar
 Umschlag, J.C. St. Aloysius' Coll., Highgate
 Wood, P.R. s. a. Sea View Coll., Warrepoint
- Burke, J.W. f. St. Joseph's Coll., Dumfries
 Grant, W.I. Gram. S., Taplow
 Honess, J.E. Bethany H., Goudhurst
 Jones, I. Osborne High S., W. Hartlepool
 Northam, W.R. Priory Coll., Hornsey
 Solly, W.H. J. St. Aloysius' Coll., Highgate
 Wilkinson, F.L. Bentham Gram. S.
- Adams, C.A. St. Aloysius' Coll., Highgate
 Donnelly, J. Hawkeyard Coll., Rugeley
 Henderson, J. St. Joseph's Coll., Dumfries
 Horan, W.H. Gram. S., Eccles
 Kendon, H.J. g. Bethany H., Goudhurst
 Kirkpatrick, R.S. Gram. S., Eccles
 Magennis, J. St. Joseph's Coll., Dumfries
 Thomson, G. St. Joseph's Coll., Dumfries
 Vinson, C.C. a. Taunton School
 West, R.W. Modern S., Streatham Common
- Honess, W.T. Bethany H., Goudhurst
 Magee, E. St. Joseph's Coll., Dumfries
 Meddings, F.J. St. Aloysius' Coll., Highgate
 O'Neill, J. St. Joseph's Coll., Dumfries
 Sprinz, R.F. St. Aloysius' Coll., Highgate
 Taylor, D. Taunton H., Brighton
 Withall, F.J. St. Aloysius' Coll., Highgate
- Abbott, W.S. Douglas S., Cheltenham
 Bustinza, F. a. St. Joseph's Coll., Dumfries
 Goddard, E.C. St. Peter's (Eaton Sq.)
 Choir S., Eccleston St. E., S.W.
 Greenhalgh, T. Private tuition
 Hanson, G.E. a. Private tuition
 Hewitt, J.C. Southport College
 Holz, J. f. St. John's Coll., Brixton
 Malcolmson, C.L. Radnor S., Redhill
 Manning, H. The Haughton S., York
 Mundy, T. Taunton School
- Andrew, R. a. The Haughton S., York
 Davies, J. D. Gram. S., Eccles
 Finlayson, G.P. St. Aloysius' Coll., Highgate
 Mathieson, D.D. St. John's Coll., Brixton
 Ross, H.S. Radnor S., Redhill
- Masters, R.C.R. Ealing Gram. S.
 Wood, H.J. St. Aloysius' Coll., Highgate
- Coates, P.H. Taunton School
 Miller, E.H. s. Bethany H., Goudhurst
 Warren, A.E. St. John's Coll., Brixton
- Bregi, V. f. Hearn H., Hampstead
 Clancy, J. Salesian S., Battersea
 Joyce, J.V. Bethany H., Goudhurst
 Rees, T. Gram. S., Pencader
 Simons, F.C.J. Bethany H., Goudhurst
- Baldwin, C. St. Joseph's Coll., Dumfries
 De Rosa, E.L. St. Aloysius' Coll., Highgate
 England, C.C. Gram. S., Ongar
 Lloyd, G.R.M. Taunton School
 Press, T. St. Joseph's Coll., Dumfries
 Shearman, L. Salesian S., Battersea
 Ward, H. The College, Weston-super-Mare
- French, A.G. St. Mary's Prep. Coll.,
 Dominican Conv., Wicklow
 Garcia, L.P. Christian Brothers' Coll., Gibraltar
 Goodchild, J.S. St. Aloysius' Coll., Highgate
 Mulquin, W. Salesian S., Farnborough
 Penny, W. Bethany H., Goudhurst
 Stokes, A.T. Stafford Coll., Forest Hill
- Casey, P. St. Joseph's Coll., Dumfries
 Comer, F.R. The College, Weston-super-Mare
 Dunlop, A. Salesian S., Farnborough
 Gryce, F. St. Joseph's Coll., Dumfries
 Hunt, R.J. St. Aloysius' Coll., Highgate
 Malaik, T. a. Private tuition
 Parinar, N. a. 15 Ellerker Gardens, Richmond
 Walker, P.S. Modern S., Streatham Common
 Wells, P.O. B. St. Joseph's Acad., Kennington Rd., S.E.
- Bradley, S.A.J. a. University S., Rochester
 Duncan, G. Newcastle Modern S., Newcastle-on-Tyne
 Embleton, R.N. Scorton Gram. S.
 Hendry, J. St. Joseph's Coll., Dumfries
 Middlebrook, S.N. Taunton School
 Simpson, H.B. Scorton Gram. S.
 Smith, W.R. Gram. S., Ongar
 Wilkin, J. Scorton Gram. S.
- Caltee, H.G. The College, Weston-super-Mare
 Crowley, J.A.A. St. Aloysius' Coll., Highgate
 Fletcher, W. St. Joseph's Coll., Dumfries
 Lucas, A.L. Private tuition
 Mahony, P.P. s. St. Joseph's Acad., Kennington Rd., S.E.
 Meredith, H. Gram. S., Pencader
- Clatworthy, J.L.N. Taunton School
 Crew, A.V. Bethany H., Goudhurst
 Gane, J.E. Taunton School
 Gould, N.J. Stafford Coll., Forest Hill
 Hunt, J.M. d. Private tuition
 Jones, S.H. St. Aloysius' Coll., Highgate
 Mayes, N.C. Norbury College
- Briscombe, A.H.B. Gram. S., Taplow
 Ingham, H. The Haughton S., York
 Lewis, W.F. Gram. S., Taplow
 Scott, W.D. Taunton School
 Waudby, J.F. Taunton School
- Antoine, N. St. Joseph's Coll., Dumfries
 Carey, J.P. e. St. Joseph's Coll., Dumfries
 Head, E.F. St. Peter's (Eaton Sq.)
 Choir S., Eccleston St. E., S.W.
 Julian, J.R. Taunton School
 Parsons, C.R. The College, Weston-super-Mare
 Scholes, F.H. d. Lancaster Coll., W. Norwood
- Besley, F.W. Taunton School
 Branston, P. St. Aloysius' Coll. Highgate
 Talbot, R. Gram. S., Eccles
- Decoux, J. Marist Brothers' Coll., Grove Ferry
 Herrick, F.S. Richmond Hill S.
 Jackman, T. Bentham Gram. S.
 Jaquier, E.C. St. Aloysius' Coll., Highgate
 James, H.J. Gram. S., Pencader
 Mackintosh, C. Gram. S., Taplow
 Plowright, G. St. Joseph's Coll., Dumfries
 Richardson, E.G. Southlands Gram. S., Littlestone-on-Sea
 Still, G.A. University S., Rochester
- Edwards, E.A.S. University S., Rochester
- Bunz, R. Gram. S., Taplow
 Carmichael, John Scorton Gram. S.
 Fenerty, W. St. Joseph's Coll., Dumfries
 McDouall, P.S. Gram. S., Taplow
- Bryan, E.L. Taunton School
 Del Cuvillo, A. Christian Brothers' Coll., Gibraltar
 Hastings, W.S. Gram. S., Taplow
 Lourie, T. St. Joseph's Coll., Dumfries
 Thomson, A. St. Joseph's Coll., Dumfries
- Allen, A.E. Fairhaven Boys' S., Bristol
 Eddon, J.B.E. Scorton Gram. S.
 Heath, E.A. Alexander H., Broadstairs
 Nicolle, H.V. Addiscombe New Coll., Croydon
 Pocock, E.S. e. Clapton Coll., Clapton Common
 Robert, F.C. Taunton School
 Rourke, J.M. Hawkeyard Coll., Rugeley
 Squire, F. Newcastle Modern S., Newcastle-on-Tyne
- Brimacombe, W.J. Taunton School
 Elkington, H.G. Queen's Coll., Southampton
 Kitching, H. a. Osborne High S., W. Hartlepool
 Stone, E.A. Taunton School
- Burke, A.R. St. Joseph's Coll., Dumfries
 Ellison, J.E. 15 Hawthorne Rd., Moreton
 Helman, E. e. Hearn H., Hampstead
 Henley, W.M. Fairhaven Boys' S., Bristol
 Kidner, D.J. Taunton School
 Windsor, E. Beverley S., Barnes
- Coleman, C.A. Gram. S., Ongar
 Legge, G.A.A.S. Taunton School
 Mitchell, J.W. s. West Bridgford Higher S., Nottingham
 Murphy, E. St. Joseph's Coll., Dumfries
 Parker, A.C. Richmond Hill S.
 Rankin, G. St. Joseph's Coll., Dumfries
- Burdekin, J. Gram. S., Eccles
 Freshney, H. The Haughton S., York
 Middlehurst, V.J.G. Hawkeyard Coll., Rugeley
 Welsh, A. d. St. Joseph's Coll., Dumfries
- Bradshaw, J.H. a. Taunton School
 Hawkins, W.F. St. Aloysius' Coll., Highgate
 John, R.A.V. Bethany H., Goudhurst
 Pike, E.S. Newtown S., Waterford
- Dean, G.S. University S., Rochester
 McNamee, L. St. Joseph's Coll., Dumfries
 Thomas, C.J. Taunton School
- Adams, W.R. Taunton School
 Unwin, R.G.E. Taunton School
 Williamson, H.G. Westfield S., Birkdale
- Procter, R. Bentham Gram. S.
- Davis, A.G.C. Taunton School
 McCulloch, J.F. Newtown S., Waterford
 Peacock, G. Tutorial S., Newquay, Cardigan
- Baker, S. Leeds Central S. of Commerce
 Halliwell, H.W. Taunton School
 Harris, M.A. Newtown S., Waterford
 Wible, W.J. Southlands Gram. S., Littlestone-on-Sea
- Bryant, H.P. Taunton School
 Miller, J.G. Richmond Hill S.
- Bridgwater, W.H. Taunton School
 Kirby, J.R. Gram. S., Eccles
- Edwards, I.G. Mill St. Higher Elem. S., Pontypridd
 Mackintosh, J. Gram. S., Taplow
 Cousins, C.L. Taunton School

CLASS LIST—GIRLS.

For list of Abbreviations, see page 312.

SENIOR.

Honours Division.

French, F.E. *s.a.l.d.*
University S., Rochester
Kyle, N. *a.t.f.g.* The Academy, Ballymena

SENIOR.

Pass Division.

Goldsmid, G.F.B. *s.e.f.ph.do.*
Private tuition
Clark, M.L. *s.e.h.f.g.* Private tuition
Clark, R.L.P. *s.e.f.* Private tuition
O'Brien, M.V. St. Joseph's S., Lincoln
McDowell, S. *f.g.*
The Academy, Ballymena
Minogue, M.K. *a.* St. Joseph's S., Lincoln
Patron, M. Loreto Conv., Europa, Gibraltar
Williams, M. Central S., Carnarvon
Fayle, L.M.R. *s.* High S., Sidney Place, Cork
Dixon, M. *s.h.do.* Friends' S., Wigton
Moloney, B.A. *s.f.* St. Joseph's S., Lincoln
Adams, D.E.M. *ph.do.* Private tuition
Letellier, M. *f.* Ancey Conv., Seaford
Baile, E. *f.* Private tuition
Turner, B. *a.do.* St. Joseph's S., Lincoln
Drake, W. Burwood Coll., East Sheen
Elvidge, G.M. Finsbury Park High S.
Jones, M.A. Private tuition
Mills, C.E.L. Pengwern Coll., Cheltenham
Smith, E.H. *g.* Private tuition
Barber, M. Inglewood S., Moberley
Breen, L. *do.* St. Mary's Conv., Bruff
Round, F.E. Private tuition
O'Regan, B. *s.* St. Mary's Conv., Bruff
Doherty, F.M.J.
St. Mary's Dominican Conv., Kingstown
Hill, A. *g.* Private tuition
Richmond, M.T. The Academy, Ballymena
Hughes, E. Central S., Carnarvon
Stanley, N.I.B. Private tuition
Cooper, E.J. 112 Crwys Road, Cardiff
Thomas, E.A. Private tuition
Webster, R. *do.* Private tuition
Leonard, V.F. Friends' S., Mountmellick
Henderson, V.McK.
Cambridge H., Ballymena
Walsh, B.
St. Mary's Dominican Conv., Kingstown
Williams, E. Private tuition
Hope, E. *do.* Private tuition
Edwards, M. Pengwern Coll., Cheltenham
O'Donnell, L. St. Mary's Conv., Bruff
Jones, M.E. Private tuition
Pritchard, N. Central S., Carnarvon
Roberts, L.A. Old College S., Carmarthen
Ashton, C. Pantglas Girls' S., Aberfan
Wood, J.M. Private tuition
Devlin, M.A. Private tuition
Edwards, B. Private tuition
Phillips, W.F. Private tuition
Thomas, A. Private tuition
Benson, E.A. Private tuition
Pritchard, M.C. Private tuition
McAuliffe, C. St. Mary's Conv., Bruff
Jones, M. Private tuition

JUNIOR.

Honours Division.

Pim, F.D. *s.g.al.f.mn.*
Friends' S., Mountmellick
Bridger, D. *g.a.al.ms.mu.*
Loreto Conv., Europa, Gibraltar
Blackwood, H.M. *a.al.do.*
Crouch End High S. & Coll.
Smallbridge, E.M. *e.f.*
Friends' S., Mountmellick
Corey, E. *e.al.mu.*
Ladies' Coll., The Friars, Hereford
Hancock, E.M. *a.d.*
Crouch End High S. & Coll.
Hamilton, H. *s.* Friends' S., Mountmellick
Young, C.M. *s.*
Steyne High S. for Girls, Worthing
Gates, M. *s.* University S., Rochester
Williams, B.E. *a.al.*
Ladies' Coll., The Friars, Hereford
Davies, E.C. *s.*
Mill St. Higher Elem. S., Pontypridd
Millward, D.F.A. *h.g.do.* Private tuition
Jones, R. *ch.* Central S., Carnarvon
Gardner, R.E. *al.*
Inter. S., Stoke Rd., Gosport
Jones, M. *w.* Central S., Carnarvon
Jenkins, A.R. *s.al.ms.*
Mill St. Higher Elem. S., Pontypridd
Forde, M. Boarding S.,
Conv. of the Holy Faith, Glasnevin
Jones, E.E.H. *e.g.f.* Private tuition
Davies, M.V. *s.al.*
Mill St. Higher Elem. S., Pontypridd
Enright, A. St. Mary's Conv., Bruff
O'Grady, A. *i.* St. Mary's Conv., Bruff
Kiddell, L. *s.e.h.f.*
Tutorial S., Newquay, Cardigan
Jones, A. *g.al.*
Mill St. Higher Elem. S., Pontypridd
Carlisle, C.C. *do.* Victoria Coll., Belfast
Siger, N. *al.f.* Rutherford Coll. Girls S.,
Newcastle-on-Tyne
Tipping, H. *s.f.*
Benedictine Conv. S., Dumfries
Evans, H.G. *e.*
Tutorial S., Newquay, Cardigan
Fisher, F.M. Pengwern Coll., Cheltenham
Richards, D.M. *s.al.*
Mill St. Higher Elem. S., Pontypridd
Farrelly, M. *a.f.* Boarding S.,
Conv. of the Holy Faith, Glasnevin
Kealy, D. *a.* Conv. of the Holy Faith,
St. Dominick St., Dublin
Whiteman, E.M. *s.* University S., Rochester
Derham, L.
Sacred Heart S., Holy Faith Conv., Skerries
Jenkins, E.E.M. *f.d.* Orient Coll., Skegness
Pim, L.B. Friends' S., Mountmellick
Thomas, J. *al.ms.* Gram. S., Pencader
Allen, K.D. *s.e.* Friends' S., Wigton
Robinson, S. *g.* Friends' S., Wigton
Thomas, G.J. *al.*
Mill St. Higher Elem. S., Pontypridd

JUNIOR.

Pass Division.

Jones, E. Central S., Carnarvon
O'Kelly, M. St. Mary's Conv., Bruff
Jones, D. St. Clare's Conv. Sec. S.,
Pantassaph, Holywell
Gill, A.F. *s.f.* Friends' S., Mountmellick
Jones, R. *mu.*
Tutorial S., Newquay, Cardigan
Smith, F.M. *f.* Rutherford Coll. Girls' S.,
Newcastle-on-Tyne
Jones, E.D. *s.e.h.*
Tutorial S., Newquay, Cardigan
Armstrong, D.H. *d.* Victoria Coll., Belfast
Dowd, R. *a.* Boarding S.,
Conv. of the Holy Faith, Glasnevin
Oliver, E.M. *f.ph.*
Belle Vue Girls' Sec. S., Bradford
Sacarello, R. *s.p.mu.*
Loreto Conv., Europa, Gibraltar
Chisell, F. Inter. S., Stoke Rd., Gosport
O'Connell, M. St. Mary's Conv., Bruff
Blakeley, D.M. Batley Girls' Gram. S.
Luccock, A.F. Stapleton Hall S., Stroud Green
Nelson, K. *al.ms.*
Inter. S., Stoke Rd., Gosport
Mordecai, M.E. *al.*
Mill St. Higher Elem. S., Pontypridd
Canning, E.R. Oriol Coll. S., Lerne
Burns, E.L. *g.* Clark's Coll. Prep. S.,
Uxbridge Rd., Ealing
Douds, B. Benedictine Conv. S., Dumfries
Fielding, M.A. *f.* Private tuition
Hillier, M.A. Private tuition
Jackson, M. *do.* Friends' S., Wigton
Marsh, M.C. *f.*
High S., Wellesley Rd., Croydon
Wilkinson, M.B. *f.* Boarding S.,
Conv. of the Holy Faith, Glasnevin
Byrne, M. Holy Faith Private Day S.,
Conv. of Faith, Clarendon St., Dublin
Chapman, E.M. Private tuition
Whiteley, M.D.
West View S., Cheadle Hulme
Gould, L. *al.*
Mill St. Higher Elem. S., Pontypridd
Jones, R.M. *al.*
Mill St. Higher Elem. S., Pontypridd
Owen, J.A. *w.* Private tuition
Wysat, R. Private tuition
Young, F. Borna House, Port Eynon
Abbott, L. *do.* Central S., Carnarvon
Holloway, D.G. Thanet H. Coll., Hounslow
Johnson, D. Friends' S., Wigton
Scoresby-Jackson, M. *e.g.f.* Private tuition
Howell, B. *al.*
Mill St. Higher Elem. S., Pontypridd
Kent, D.L.
Higher Standard S., Mountain Ash
O'Donnell, A.M. Private tuition
Cornoek, A.C.
Mill St. Higher Elem. S., Pontypridd
Lynch, E.
Mill St. Higher Elem. S., Pontypridd
Needham, G.M. *ph.* Orient Coll., Skegness
Spiers, K.M. High S., Sidney Place, Cork
Barry, J. St. Mary's Conv., Bruff
Grove, E. Benedictine Conv. S., Dumfries
DeLattre, K.
Wincham Hall, Lostock Gralam
Garlick, M.H. Private tuition
Hughes, J. *f.* Private tuition
Thomas, M.M. Gram. S., Pencader

Morris, A.M. Higher Standard S., Mountain Ash
Smith, E.J. St. Clare's Conv. Sec. S.,
Pantassaph, Holywell
Soar, E.A. St. Bernard's Coll., Tulse Hill
Bowden, E. St. Mary's Dominican Conv., Kingstown
Gilsenan, A.J. *f.*
St. Mary's Dominican Conv., Kingstown
Lonsdale, N. *a.al.* Private tuition
Rodriguez, R. Loreto Conv., Europa, Gibraltar
West, G. Private tuition
Brandwood, E.M. Friends' S., Wigton
Lewis, M.E. Inglewood S., Moberley
Stead, W.C. Pengwern Coll., Cheltenham
Fox, M. Private tuition
Williams, K. Private tuition
Bryan, M.M. Pengwern Coll., Cheltenham
Stringer, E. *al.* Rutherford Coll. Girls S.,
Newcastle-on-Tyne
Carroll, K. St. Mary's Conv., Bruff
Davies, C. Private tuition
Casey, K. St. Joseph's S., Lincoln
Danino, M.L. *mu.*
Loreto Conv., Europa, Gibraltar
Pierce, A. Central S., Carnarvon
Luxton, V.L. *a.* St. Mary's Coll., Barnes
Thomas, H.M. Gram. S., Pencader
Morgan, E.S. Mill St. Higher Elem. S., Pontypridd
Morgan, G. Private tuition
Murphy, M. Our Lady Star of the Sea,
Conv. of the Holy Faith, Clontarf
Roberts, L.M. Central S., Carnarvon
Cornwell, E.M. Private tuition
James, E. Tutorial S., Newquay, Cardigan
Turner, J.M. Private tuition
Wragg, M. St. Clare's Conv. Sec. S.,
Pantassaph, Holywell
Bontet, J. *f.*
La Sagesse, Golder's Green Rd., N.W.
Dollard, K. St. Mary's Dominican Conv., Kingstown
Haggett, B.F. Mill St. Higher Elem. S., Pontypridd
Duff, E.K. Friends' S., Wigton
McGrath, J.A. St. Joseph's S., Lincoln
Stuart, E.C. St. Joseph's S., Lincoln
Cluer, P.M.V. Priory Coll., Hornsey
Davies, E.E. Intermediate S., Ystalyfera
Gilmore, M.J.P. The Academy, Ballymena
Hatte, A.L. *d.* Newtown S., Waterford
Leber, M. *f.* Minerva Coll., Leicester
Murray, E. Private tuition
Gilsenan, A.G. St. Mary's Dominican Conv., Kingstown
Morris, M. Private tuition
Tarte, M.H. St. Anne's Conv., Birmingham
Westlake, I.A. Friend's S., Long Sutton
Linn, E.S. *s.* Howells S., Llanduff, Cardiff
Rees, M.A. Private tuition
Bradbury, G. Chadsmoor National S., Cannock
Jones, E.A. Private tuition
Evans, I.E. Glenlea, Herne Bay
Milne, G.M.M. Private tuition
Marsden, L.E. Preswylfa High S., Cardiff
Molloy, E. Conv. of the Holy Faith,
St. Dominick St., Dublin
O'Byrne, M.E. Boarding S.,
Conv. of the Holy Faith, Glasnevin
Richards, H.M. *do.* Private tuition
Warbrick, M.A. Private tuition
Johnston, L. The Academy, Ballymena
Parry, M. Central S., Carnarvon

GIRLS, JUNIOR, Pass—Continued.

Brooks, F.M. High S., Sidney Place, Cork
 Cadbury, M.C. f. Private tuition
 Clowes, H.E. Private tuition
 Morgan, D.M. Mill St. Higher Elem. S., Pontypridd
 Bilbrough, M.E.C. St. Mary's Coll., Barnes
 Evans, F.A. Private tuition
 Lancaster, L. s. Benedictine Conv. S., Dumfries
 McIntyre, J. f. Benedictine Conv. S., Dumfries
 Bevan, K. do. Fairfield Sec. S., Montpellier, Bristol
 Jackson, A. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf
 Rowlands, M. Central S., Carnarvon
 Wall, M.A. Oriol Coll. S., Larne
 Walters, M.A. do. Private tuition
 Woolfenden, E. Private tuition
 John, R.H. do. Mill St. Higher Elem. S., Pontypridd
 Jones, A.J. Private tuition
 Williams, L.E. Tutorial S., Newquay, Cardigan

Abbott, R.A.C. Lyndhurst S., Erdington
 Hill, F.M. Fartown Gram. S., Huddersfield
 Martin, G.M. Private tuition
 O'Reilly, M. Holy Faith Day S., Glasnevin
 Culhane, J. St. Mary's Conv., Bruff
 Smith, E.C. Private tuition
 Tromans, L. Private tuition
 Murdoch, E. Private tuition
 Weightman, M.E. St. Mary's Coll., Barnes
 Brennan, G.M. St. Clare's Conv. Sec. S.,
 Pantasaph, Holywell
 Woodford, L.E.F. Private tuition
 Evans, B. Emllyn Gram. S., Newcastle Emllyn

Bona, E. Old College S., Carmarthen
 Evans, K. Central S., Carnarvon
 Griffith, E. do. Central S., Carnarvon
 Lund, E.F.E. Private tuition
 Protheroe, O.J. Private tuition
 Clewett, M.T. Queens Coll., Southampton
 O'Grady, H.C. St. Joseph's S., Lincoln
 Dowden, L.V. do. Clark's High S., Tufnell Park
 Jones, L. Gram. S., Pencader
 Purdon, E.G. Newtown S., Waterford
 Rees, E.R. Private tuition
 Carr, R. Central S., Carnarvon
 Clark, E.R. Newtown S., Waterford
 Lewis, M. Private tuition
 Turner, H. St. Joseph's S., Lincoln
 Kerr, M.P. Wincham Hall, Lostock Gralam

Fanning, V. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf
 Price, A.M. Pengwern Coll., Cheltenham
 O'Brien, N. St. Mary's Coll., Bruff
 Archer, E. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf

PRELIMINARY.

Pass Division.

Hiddleston, J. f. Benedictine Conv. S., Dumfries
 Spain, C. Benedictine Conv. S., Dumfries
 Jones, L.W. Central S., Carnarvon
 White, V. d. Victoria Coll., Belfast
 Graham, B. St. Mary's Conv., Bruff
 Stewart, M. Benedictine Conv. S., Dumfries
 Meeke, M. Conv. of the Holy Faith,
 St. Dominick St., Dublin

Armstrong, M. s. Benedictine Conv. S., Dumfries
 Duffey, L. s. d. St. Mary's Conv., Bruff
 Nokes, I.C. Crouch End High S. and Coll.
 O'Driscoll, A. Sacred Heart S.,
 Holy Faith Conv., Skerries
 Beeckmans, M.J. s. f. Conv. F.O.J., Chester
 Cole, E.I. g. Private tuition
 Flanagan, P. i. Sacred Heart S.,
 Holy Faith Conv., Skerries
 McKenna, J. do. Dominican Conv., Wicklow
 O'Dwyer, N. s. g. St. Mary's Conv., Bruff
 Seally, A. s. St. Mary's Dominican Conv., Kingstown

Andersen, E.E.D. Helena High S., Burgess Hill
 Dodgson, A. e. f. Bentham Gram. S.
 Shaffer, L. e. f. Minerva Coll., Leicester
 Mackay, K. s. e. Crouch End High S. & Coll.

Thomson, C. Benedictine Conv. S., Dumfries
 Thurston, M.K.P. Stapleton Hall S., Stroud Green

Freedman, E.M. f. Minerva Coll., Leicester
 Richardson, M. s. a. St. Mary's Conv., Bruff
 Cother, M. a. Loreto Conv., Europa, Gibraltar
 Evans, B.A. do. Mill St. Higher Elem. S., Pontypridd
 Owen, M.E.M. Tutorial S., Newquay, Cardigan
 Placop, M. s. e. h. g. Lowther Coll., Lytham

Dunn, D.M. Crouch End High S. and Coll.
 Lightfoot, L. Dominican Conv., Wicklow
 Rea, M.J. s. a. Victoria Coll., Belfast

Buckley, E. Holy Faith Day S., Glasnevin
 Easton, K. Loreto Conv., Europa, Gibraltar

Clarson, M. St. Mary's Conv., Bruff

Bathurst, V.E.M. do. University S., Rochester
 Blinkhorn, S.E. Holmcroft, Bromley, Kent
 Dunne, M. Dominican Conv., Wicklow
 Flynn, J. s. Benedictine Conv. S., Dumfries
 Russell, E. a. St. Mary's Conv., Bruff
 Scott, M.E.F. s. Holmcroft, Bromley, Kent
 Wheaton, K.G. Hainsault High S., Ilford

Howard, M.M. Wincham Hall, Lostock Gralam
 Shortall, M. Holy Faith Day S., Glasnevin

Joseph, K.J. g. Westcombe, Brighton
 Murphy, K. Holy Faith Day S., Glasnevin

Grier, L. Boarding S.,
 Conv. of the Holy Faith, Glasnevin
 Hewett, M.E. Holmcroft, Bromley, Kent

Carey, M. Holy Faith Private Day S.,
 Conv. of Faith, Clarendon St., Dublin
 O'Brien, D. St. Mary's Conv., Bruff
 O'Regan, M. St. Mary's Conv., Bruff
 Pagewood, F.G. Fairfield Sec. S., Montpellier, Bristol

Banks, R.A. e. Crouch End High S. & Coll.
 Jarvis, H.M. s. d. Dudley H., Stoke Newington
 Wannop, E.L. e. Richmond High S., Wallasey

Kennedy, H.V. f. Victoria Coll., Belfast
 Taylor, M.M. The Haughton S., York

Collins, B.E. Victoria Coll., Belfast
 Shelley, E. Higher Grade S., Wolverhampton

Adams, V.M. Evelyn High S., Upper Holloway
 Brereton, C. Conv. of the Holy Faith,
 Haddington Rd., Dublin
 Madigan, H. s. St. Mary's Conv., Bruff
 Reilly, A. Sacred Heart S.,
 Holy Faith Conv., Skerries

Brewer, K.M. Holmcroft, Bromley, Kent
 Cartwright, M.E. Inter S., Stoke Rd., Gosport
 Evans, T. Old College S., Carmarthen
 Griffin, S. Pengwern Coll., Cheltenham

Jones, C.W. St. John's Coll., Brixton
 Jones, F.I. Mill St. Higher Elem. S., Pontypridd
 McIntyre, M. f. Benedictine Conv. S., Dumfries
 O'Dwyer, A. s. St. Mary's Conv., Bruff
 Powell, M. Dominican Conv., Wicklow

Geary, M.M. s. St. Mary's Dominican Conv., Kingstown
 Golby, C.D. Crouch End High S. and Coll.
 Hunt, E.M. a. Mill St. Higher Elem. S., Pontypridd
 Ridley, N. s. e. f. Convent F.C.J., Chester
 Shaw, L. s. Lowther Coll., Lytham
 Wilkins, A.M. Clatford H., Southampton

Madden, E.D. Private tuition
 Marshall, E.M. Brownlow Coll., Bowes Park

Elvidge, I.D. do. Finsbury Park High S.
 Gibson, E.M. Victoria Coll., Belfast
 Ingoldby, M.R. e. Holmcroft, Bromley, Kent
 Lemass, A. Conv. of the Holy Faith,
 Haddington Rd., Dublin
 Mayne, M. Ladies' S., Newtownards
 Power, M.M. St. Anne's Conv., Birmingham

Hill, E.A. Holmcroft, Bromley, Kent
 Whelan, A. St. Mary's Dominican Conv., Kingstown

DeVile, H.D. The Heath S., Uttoxeter
 Fletcher, W.M. Westfield S., Birkdale
 Hamilton, G.E. Newtown S., Waterford
 Healy, N. Holy Faith Private Day S.,
 Conv. of Faith, Clarendon St., Dublin
 Jordan, H.W. Victoria Coll., Belfast
 Mellish, E.M. St. Mary's Coll., Barnes

Downey, F.W.R. Newtown S., Waterford
 Evans, K. Gram. S., Pencader
 Kelly, M. f. St. Mary's Dominican Conv., Kingstown
 Sherwin, R. s. Convent F.C.J., Chester
 Wilson, E.B. St. Clare's Conv. Sec. S.,
 Pantasaph, Holywell

Agnew, J.E.M. do. Oriol Coll. S., Larne
 Gilderdale, L. Girls' Coll. S., Wakefield
 Long, J. St. Mary's Dominican Conv., Kingstown
 MacDermot, M. s. Convent F.C.J., Chester
 Weller, M.M.K. Bitterne Park High S., Southampton

Bauly, E.L. e. Crouch End High S. & Coll.
 Campbell, L.M. e. Crouch End High S. and Coll.
 Monahan, M. St. Philomena's Conv.
 of the Holy Faith, Coombe, Dublin
 O'Halloran, M. f. St. Mary's Dominican Conv., Kingstown
 Pratt, J.A. Stapleton Hall S., Stroud Green
 Riordan, M.C. s. St. Mary's Conv., Bruff
 Stephenson, T. Dominican Conv., Wicklow

Addis, L. St. Clare's Conv. Sec. S.,
 Pantasaph, Holywell
 Corcoran, B. St. Mary's Conv., Bruff
 Groschke, C.M. s. Dudley H., Stoke Newington
 Morgans, T. a. n. Gram. S., Pencader
 Rutledge, M.C. Victoria Coll., Belfast

Chapman, R.O. Newtown S., Waterford
 Discombe, D. Loreto Conv., Europa, Gibraltar

Farrelly, A. Boarding S.,
 Conv. of the Holy Faith, Glasnevin
 McEnery, E. Dominican Conv., Wicklow
 Menton, M. St. Mary's Dominican Conv., Kingstown
 Mote, M.C. Mill St. Higher Elem. S., Pontypridd
 Robson, F.M.C. The Green, Southgate, N.
 Stewart, M.E. s. Oriol Coll. S., Larne
 Wallace, L. s. St. Mary's Conv., Bruff

Dalton, C. Conv. of the Holy Faith,
 Haddington Rd., Dublin
 Davidson, G.M. St. Winefride's, Wimbleton
 Davies, W.L.M. Tutorial S., Newquay, Cardigan
 Evans, B. s. Convent F.C.J., Chester
 Hunt, G.I. Westcombe, Brighton
 Lesieur, M.T. f. St. Gertrude's High S., Sidecup

Burke, D.M. Stapleton Hall S., Stroud Green
 Chapman, E.M. Saxtonholme High S., Whalley Range
 Jones, M.A. Gram. S., Pencader

Cole, F.M. The College, Totnes
 Heskeoth, M.G. Wincham Hall, Lostock Gralam

Canty, A. i. St. Mary's Conv., Bruff
 Conroy, M. e. Convent F.C.J., Chester
 Harper, M.H.M.M. Pembroke Kinder-
 garten & Training Coll., Sandymount

Devereux, B.M. St. Philomena's,
 Conv. of the Holy Faith, Coombe, Dublin
 Drake, S. St. Mary's Conv., Bruff
 Hill, E. s. Convent F.C.J., Chester
 Sage, H. Mill St. Higher Elem. S., Pontypridd
 Sudbury, M.H. Clifton H., W. Kensington Park, W.

Beckerleg, J.M. Richmond High S., Wallasey
 Byrne, F. Dominican Conv., Wicklow
 Oldcorn, D. Richmond High S., Wallasey
 Strong, C. Pengwern Coll., Cheltenham

Fenton, N. St. Mary's Conv., Bruff
 Johnson, W. Convent F.C.J., Chester
 Moore, M. Conv. of the Holy Faith,
 St. Dominick St., Dublin
 Mullins, M. St. Mary's Conv., Bruff

Murphy, R. i. Boarding S.,
 Conv. of the Holy Faith, Glasnevin
 O'ne, D.M. Dudley H., Stoke Newington
 Fletcher, J.C. f. St. Joseph's S., Lincoln

Hargreaves, H.I.O. Gram. S., Taplow
 Power, P. Conv. of the Holy Faith,
 Haddington Rd., Dublin

Kelly, M. St. Philomena's Conv. of the
 Holy Faith, Coombe, Dublin
 McIlroy, K.L. do. Victoria Coll., Belfast
 Plant, E.O. Crouch End High S. and Coll.
 Poulain, R. f. St. Gertrude's High S., Sidecup

Thomas, S.A. Pengwern Coll., Cheltenham
 Wall, N. St. Mary's Conv., Bruff

Cogan, N. Conv. of the Holy Faith,
 Haddington Rd., Dublin
 Lindsay, J. s. St. Mary's Conv., Bruff
 Walters, E. The Haughton S., York

Byrne, G. Holy Faith Private Day S.,
 Conv. of Faith, Clarendon St., Dublin
 Derré, J. f. St. Gertrude's High S., Sidecup
 Porter, M.K. Clatford H., Southampton

Smithers, W.A. St. Mary's Coll., Barnes
 Collingridge, N. Crouch End High S. and Coll.
 Hill, K.A. Oriol Coll. S., Larne
 Marrinan, N. St. Mary's Conv., Bruff

Bestwick, M. St. Catherine's Conv.,
 Newcastle-on-Tyne
 McDonald, A.M. St. Mary's Conv., Bruff
 Sheahan, M. s. St. Mary's Conv., Bruff

Canty, J. St. Mary's Conv., Bruff
 Cormack, G. Boarding S.,
 Conv. of the Holy Faith, Glasnevin
 Jackson, M. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf
 Keizer, I. Minerva Coll., Leicester
 O'Shaughnessy, J. St. Mary's Conv., Bruff
 Seales, K. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf

Barnard, R.R. Minerva Coll., Leicester
 Payne, J.E.D. Clarke's Coll. Prep. S.,
 Uxbridge Rd., Baling

Spicord, E. St. Mary's Coll., Barnes
 Moller, J.E.S. Victoria Coll., Belfast

Duel, K. Minerva Coll., Leicester
 Beck, M. Victoria Coll., Belfast
 Ronayne, M.F. Carlyle Coll., Brighton

PRELIMINARY.

Honours Division.

White, A. h. f. i. l. Sacred Heart S.,
 Holy Faith Conv., Skerries

Cowles, W.M. e. a. l. Hainsault High S., Ilford
 Purcell, M. s. a. l. St. Mary's Conv., Bruff
 McLoughlin, W. s. a. f. Dominican Conv., Wicklow

Roslington, A.C.H. a. Oriol Coll., Skegness
 Worsley, C. s. e. Lowther Coll., Lytham
 Munday, J.M. e. Crouch End High S. & Coll.
 Polden, A.S. e. h. g. Southlands Gram. S.,
 Littlestone-on-Sea
 Gronow, L. Mill St. Higher Elem. S., Pontypridd

Bond, E.E. e. Peugwern Coll., Cheltenham
 Maguire, K. a. l. h. f. Sacred Heart S.,
 Holy Faith Conv., Skerries

Moore, D. s. e. Bentham Gram. S.
 Megarry, A.E. a. Victoria Coll., Belfast

LOWER FORMS EXAMINATION.—PASS LIST, MIDSUMMER, 1915.

BOYS.

Abbott, J.	Scorton Gram. S.	Collom, F. W.	Taunton School	Guile, J. F.	Osborne High S., W. Hartlepool	McEvery, W. J.	St. Mary's Prep. Coll.,
Abderhalden, E. J. J.	St. Joseph's Coll., W. Norwood	Conway, H.	Salesian S., Battersea	Haag, V.	St. Aloysius' Coll., Highgate	Minett, C.	Dominican Conv., Wicklow
Allanson-Winn, C. R.	Margate College	Cooper, K.	Xaverian Coll., Mayfield	Haig, R. S.	Scorton Gram. S.	McGuffin, W. J.	St. John's Coll., Brixton
Allanson-Winn, R. P. J. G.	Margate College	Corbett, H. F.	Lindisfarne Coll., Westcliff-on-Sea	Hales, A. T.	University S., Rochester	McHale, J.	St. Aloysius' Coll., Highgate
Allcorn, W.	Salesian S., Battersea	Corbett, J.	Salesian S., Battersea	Hall, D. N.	Taunton School	Meacock, G. R. E.	Taunton School
Allen, A. W. L.	Gram. S., Taplow	Corcoran, T.	Salesian S., Battersea	Handley, W.	Xaverian Coll., Mayfield	Metcalf, R. W.	Richmond Hill S.
Allen, E. C.	Gram. S., Ongar	Cornelius, J. J.	University S., Rochester	Harding, W. A.	Margate College	Mills, W. T.	Lindisfarne Coll., Westcliff-on-Sea
Andoe, E.	Salesian S., Battersea	Costigan, E.	Xaverian Coll., Mayfield	Harrington, G. F.	St. Joseph's Acad., Kennington Rd., S.E.	Milner, C.	St. Aloysius' Coll., Highgate
Angell, F. E.	Beverley S., Barnes	Costigan, G.	Xaverian Coll., Mayfield	Harris, L. P.	Lindisfarne Coll., Westcliff-on-Sea	Minett, C.	Salesian S., Farnborough
Ausell, R. H.	Southlands Gram. S., Littlestone-on-Sea	Cotsen, L.	Mill St. Higher Elem. S., Pontypridd	Harris, R. N.	Taunton School	Moir, J. W.	Clark's Coll. Prep. S., Uxbridge Rd., Ealing
Appleyard, D. H.	Ascham Coll., Westcliff-on-Sea	Cottis, P. F.	Lindisfarne Coll., Westcliff-on-Sea	Haskins, B.	Gram. S., Taplow	Mole, H. R.	Taunton School
Archer, H. V.	Lindisfarne Coll., Westcliff-on-Sea	Couban, O.	Conv. of	Hawkins, J. A. P.	St. Joseph's Coll., W. Norwood	Moll, J.	St. Aloysius' Coll., Highgate
Ashley, L. W.	Lindisfarne Coll., Westcliff-on-Sea	Cox, G. G. H.	La Sainte Union des Sacrés Coeurs, Bath	Hayes, E. A.	St. Joseph's Coll., W. Norwood	Morgan, F. H.	Gram. S., Taplow
Ault, R. A.	Southport College	Crilly, D. D.	St. Joseph's Coll., W. Norwood	Head, E.	Clark's Coll., Brixton Hill	Morris, A. H.	Stafford Coll., Forest Hill
Badcock, J. C.	Lindisfarne Coll., Westcliff-on-Sea	Crocker, J. F.	St. Boniface's Coll., Plymouth	Hilton, V.	Xaverian Coll., Mayfield	Morrissey, M.	Salesian S., Battersea
Bailey, A. F.	Taunton School	Crowley, F.	Marist Bros. Coll., Grove Ferry	Hinckel, C. A.	Margate College	Moss, J. F.	Bethany H., Goudhurst
Baily, C. W. L.	Richmond Hill S.	Curtis, L. C.	St. John's Coll., Brixton	Holman, I.	Taunton School	Mulcahy, R. J.	St. Mary's Prep. Coll.,
Baker, W. J.	Taunton School	Daisley, A. E.	St. Thomas' High S., Erdington	Houlberg, E. J.	Beverley S., Barnes	Murphy, L.	Dominican Conv., Wicklow
Banks, L. L.	Hawkesyard Coll., Rugeley	Davies, A.	Salesian S., Farnborough	Howard, R.	St. Aloysius' Coll., Highgate	Murtagh, P.	Hawkesyard Coll., Rugeley
Barclay, C. M.	Argyle H., Sunderland	Davies, B.	Mill St. Higher Elem. S., Pontypridd	Howard, W. S.	St. Joseph's Coll., W. Norwood	Day S., Holy Faith Conv., Skerries	Sacred Heart Boarding
Barnes, H. F.	Streatham Gram. S.	Davies, E. W.	Taunton School	Humbert, P. C.	St. Aloysius' Coll., Highgate	Nash, S.	St. Aloysius' Coll., Highgate
Barnes, V.	Salesian S., Farnborough	Davies, G. S.	Mill St. Higher Elem. S., Pontypridd	Humphreys, D. W.	Tankerton Coll., Whitstable	Newbury, A. J.	Lindisfarne Coll., Westcliff-on-Sea
Barraclough, O.	Lindisfarne Coll., Westcliff-on-Sea	Davies, J.	Salesian S., Battersea	Ingle, R. P.	St. Aloysius' Coll., Highgate	Norris, C.	Xaverian Coll., Mayfield
Bastian, A.	St. Aloysius' Coll., Highgate	Davis, G.	Salesian S., Farnborough	Jackson, C.	Bentham Gram. S.	Norris, J. S.	Taunton School
Bates, H. A.	Royal Schools for the Deaf, Old Trafford	Day, C. H.	Lindisfarne Coll., Westcliff-on-Sea	Jackson, C. F.	Lindisfarne Coll., Westcliff-on-Sea	Northway, B.	Conv. of
Batty, T.	Salesian S., Battersea	Dearlove, K.	Conv. of	Jaffa, H. B.	Stafford Coll., Forest Hill	Northway, F.	La Sainte Union des Sacrés Coeurs, Bath
Bell, W. N.	Priory Coll., Hornsey	De Bonm, W.	La Sainte Union des Sacrés Coeurs, Bath	Jaques, F.	St. Aloysius' Coll., Highgate	Novella, C. J.	St. Boniface's Coll., Plymouth
Bembridge, J.	Orient Coll., Skegness	Deering, J. B.	St. John's Coll., Southsea	Jenkins, H. A.	St. John's Coll., Southsea	Novelli, C. A.	Marist Bros. Coll., Grove Ferry
Bennie, D. R.	Hearn H., Hampstead	Degallais, J.	Lindisfarne Coll., Westcliff-on-Sea	Jenkins, W. L.	St. John's Coll., Brixton	O'Byrne, M. J. A.	St. Mary's Prep. Coll.,
Berwick, W. R.	Streatham Gram. S.	Dennea, H. J.	St. Joseph's Coll., W. Norwood	Jenner, A. E.	Margate College	O'Donnell, D.	Dominican Conv., Wicklow
Billing, L.	Richmond Hill S.	Dignam, B. M.	East Leigh Prep. S., Sheffield	Jewell, A. M.	St. Joseph's Coll., W. Norwood	O'Dwyer, F. A.	St. Mary's Prep. Coll.,
Binks, R. G.	Scorton Gram. S.	Dignam, M.	Salesian S., Farnborough	John, G. W.	Mill St. Higher Elem. S., Pontypridd	O'Keefe, J.	Dominican Conv., Wicklow
Blacklocks, W. C.	Southlands Gram. S., Littlestone-on-Sea	Dillon, W. R.	St. Mary's Prep. Coll.,	Johnson, F.	Salesian S., Farnborough	Ortiz, J.	St. Aloysius' Coll., Highgate
Blumenstock, G. W.	Margate College	Dobbyn, G.	Dominican Conv., Wicklow	Joussau, H.	Marist Bros. Coll., Grove Ferry	Osborne, L. E. C.	Richmond Hill S.
Boithias, G.	Marist Bros. Coll., Grove Ferry	Doyle, E. R.	Streatham Gram. S.	Kanm, L.	St. Aloysius' Coll., Highgate	O'Shaughnessy, E.	Xaverian Coll., Mayfield
Bond, R. J.	Priory Coll., Hornsey	Drew, R. O.	St. John's Coll., Southsea	Kearney, J.	St. Aloysius' Coll., Highgate	O'Sullivan, H.	Hawkesyard Coll., Rugeley
Bowness, J.	St. Aloysius' Coll., Highgate	Driscoll, J.	Gram. S., Ongar	Kilmartin, P.	Salesian S., Battersea	O'Terrill, K.	Conv. of
Brabant, R.	St. Aloysius' Coll., Highgate	Duffy, C.	Xaverian Coll., Mayfield	Kinnaird, L. F.	St. John's Coll., Brixton	Oulton, J.	La Sainte Union des Sacrés Coeurs, Bath
Bradford, T.	Salesian S., Battersea	Duffy, F.	Salesian S., Farnborough	Kitchen, F.	Margate College	Parker, C. E.	Taunton School
Bradford, J. F.	Lindisfarne Coll., Westcliff-on-Sea	Dunlop, L.	Salesian S., Farnborough	Kite, J. E. A.	Lindisfarne Coll., Westcliff-on-Sea	Parker, C. R.	Taunton School
Branwhite, P. C.	Clark's Coll., Brixton Hill	Dwyer, P. C.	Salesian S., Battersea	Lackford, E. D.	St. Joseph's Coll., W. Norwood	Parker, S. V.	Margate College
Brookes, G. A. F. B.	St. Joseph's College, W. Norwood	Egan, T. S.	Salesian S., Farnborough	Laing, W. L.	Margate College	Parson, J. D.	Orient Coll., Skegness
Brown, D. H.	Lindisfarne Coll., Westcliff-on-Sea	Ellis, B.	Southlands Gram. S., Littlestone-on-Sea	Lambost, P.	St. Aloysius' Coll., Highgate	Pengilly, D. R.	Taunton School
Brown, P.	Sacred Heart Boarding & Day S., Holy Faith Conv., Skerries	Ellison, S. F.	15 Hawthorne Rd., Moreton	Langley, F.	Salesian S., Battersea	Percival, F. W.	Private tuition
Browne, V.	Salesian H., Battersea	Escritt, C. E.	Highfield S., Roundhay	Lanning, L. B.	Margate College	Perriman, R. G.	Stafford Coll., Forest Hill
Brunt, F. W.	Southlands Gram. S., Littlestone-on-Sea	Evans, F. S.	Scorton Gram. S.	Larg, R. E.	St. Joseph's Coll., W. Norwood	Peter, J.	Hawkesyard Coll., Rugeley
Bullock, A.	Nutgrove Avenue High S., Bristol	Fear, F.	The Douglas S., Cheltenham	Leggott, H. J.	Scorton Gram. S.	Pieter, M.	Marist Bros. Coll., Grove Ferry
Bunting, F. A.	St. Aloysius' Coll., Highgate	Feighan, H. W.	Lindisfarne Coll., Westcliff-on-Sea	Lemaire, L. G.	Lindisfarne Coll., Westcliff-on-Sea	Pitt, S. W.	Gram. S., Ongar
Burgess, G. A.	Margate College	Figuiera, E.	St. Aloysius' Coll., Highgate	Lestienne, V. L. F.	St. Joseph's Coll., W. Norwood	Poole, R. C. W.	Stafford Coll., Forest Hill
Burgess, G. A.	Margate College	Finegan, P.	Sacred Heart Boarding & Day S., Holy Faith Conv., Skerries	Levander, F.	St. Aloysius' Coll., Highgate	Pope, S. F.	Gram. S., Ongar
Butchart, S. G.	Argyle H., Sunderland	Finlay, L. C.	St. Joseph's Acad., Kennington Rd., S.E.	Lewes, C. J.	St. Joseph's Acad., Kennington Rd., S.E.	Potter, H.	Salesian S., Farnborough
Butler, Lloyd, G.	Salesian S., Battersea	Flatley, W.	Salesian S., Farnborough	Lewis, C. A.	Richmond Hill S.	Powell, C. B. A.	St. Mary's Prep. Coll.,
Byrne, R.	St. John's Coll., Brixton	Flower, E. T.	Richmond Hill S.	Lewis, H. J. T.	Kersal S., Manchester	Prentice, J.	Dominican Conv., Wicklow
Byrne Quinn, A.	Salesian S., Battersea	Floyd, R. H.	St. Joseph's Coll., W. Norwood	Littledale, A.	Lindisfarne Coll., Westcliff-on-Sea	Pringle, L. N.	St. Aloysius' Coll., Highgate
Cairns, E. F.	Margate College	Fruhling, S.	Salesian S., Battersea	Loftus, J.	Conv. of	Ratcliffe, N. A.	Southport College
Carey, R. A.	Southlands Gram. S., Littlestone-on-Sea	Gale, G. L. W.	Gram. S., Ongar	Lomas, A. E.	Southport College	Ratcliffe, N. A.	Stafford Coll., Forest Hill
Carney, N. F.	St. Mary's Prep. Coll.,	Gallafent, J.	St. John's Coll., Southsea	Lord, W.	Conv. of	Rees, D. J.	Mill St. Higher Elem. S., Pontypridd
Carpenter, E. A.	Taunton School	Gallagher, F.	Salesian S., Farnborough	Low, A. G.	La Sainte Union des Sacrés Coeurs, Bath	Reeve, J. A.	St. Joseph's Coll., W. Norwood
Carr, R. T. W.	St. Joseph's Coll., W. Norwood	Gammon, J. W.	St. John's Coll., Southsea	Lund, H. M.	Osborne High S., W. Hartlepool	Rice, J. A.	St. Mary's Prep. Coll.,
Carns, Y. M.	St. John's Coll., Southsea	Garnham, E.	Salesian S., Farnborough	MacDonald, J. E. S.	Taunton School	Richards, J.	St. Aloysius' Coll., Highgate
Carter, A.	Xaverian Coll., Mayfield	Gilchrist, R. S.	Taunton School	Macey, A. A.	Streatham Gram. S.	Rigby, W.	Salesian S., Farnborough
Chadewright, T.	Scorton Gram. S.	Gilsdorf, M. J.	St. Joseph's Acad., Kennington Rd., S.E.	Macfarlane, J. M.	Argyle H., Sunderland	Robinson, N. J.	St. Aloysius' Coll., Highgate
Chaderton, G. L. M.	St. Joseph's Coll., W. Norwood	Gleanny, F. B.	Lindisfarne Coll., Westcliff-on-Sea	Mackay, E. H.	Scorton Gram. S.	Rodrigues, J. J.	St. Joseph's Coll., W. Norwood
Chard, R. H.	University S., Rochester	Gorst, J.	Salesian S., Battersea	Maclean, A. D.	Eastleigh Prep. S., Sheffield	Ross, A.	Lindisfarne Coll., Westcliff-on-Sea
Chisholm, D. W.	St. John's Coll., Brixton	Gosling, C. N.	Taunton School	Malyon, J.	Lindisfarne Coll., Westcliff-on-Sea	Russell, B. E.	Gram. S., Taplow
Clark, W. S.	Osborne High S., W. Hartlepool	Granger, F. J.	St. Boniface's Coll., Plymouth	Mannox, C.	Xaverian Coll., Mayfield	Russell, T. H.	St. John's Coll., Brixton
Clayson, L.	Lindisfarne Coll., Westcliff-on-Sea	Gray, H. W. W.	Westfield S., Birkdale	Marnell, W. V.	St. Mary's Prep. Coll.,	Rutter, G. H. B.	Mill St. Higher Elem. S., Pontypridd
Cliffe, W.	Royal Schools for the Deaf, Old Trafford	Green, W.	Salesian S., Farnborough	Masson, H.	Dominican Conv., Wicklow	Ruzzak, W.	Bethany H., Goudhurst
Cloney, A. J.	St. Aloysius' Coll., Highgate	Gregory, G.	Kersal S., Manchester	May, C. W.	Xaverian Coll., Mayfield	Ryan, C. E. V.	Gram. S., Ongar
Cohen, I.	Salesian S., Battersea	Grierson, G.	Argyle H., Sunderland	May, C. W.	Sacred Heart Boarding & Day S., Holy Faith Conv., Skerries	Ryan, G. J.	Gram. S., Ongar
Coles, W. F.	Bethany H., Goudhurst	Griffiths, W.	Mill St. Higher Elem. S., Pontypridd	Mayhew, A.	Clark's Coll. Prep. S., Uxbridge Rd., Ealing	Ryan, R. E.	Salesian S., Battersea
Collingwood, A. J.	St. Joseph's Coll., W. Norwood	Grimshaw, W.	Eleman S., Battersea	McDonald, L.	Salesian S., Farnborough	Ryce, L. E.	Sacred Heart Boarding & Day S., Holy Faith Conv., Skerries
		Gudgeon, A.	Salesian S., Farnborough	McElligott, W.	Xaverian Coll., Mayfield	Ryper, A. J.	Taunton School
						Sankey, J. G.	Southport College

BOYS, LOWER FORMS—Continued.
 Saunders, P.H. St. Joseph's Acad., Kennington Rd., S.E.
 Scott, S. Xaverian Coll., Mayfield
 Seaton, W.C. Mill St. Higher Elem. S., Pontypridd
 Selby, E.N. Lindsfarne Coll., Westcliff-on-Sea
 Sims, L.C. University S., Rochester
 Sinclair, H. Salesian S., Battersea
 Slader, C.H. The Douglas S., Cheltenham
 Smith, T.B. Gram. S., Taplow
 Soares, M. St. Joseph's Coll., W. Norwood
 Solly, G. St. Aloysius' Coll., Highgate
 Spagnoletti, C.M. de la D. Stafford Coll., Forest Hill
 Sparrow, J. St. John's Coll., Southsea
 Stapley, L.F. Southlands Gram. S., Littlestone-on-Sea
 Starling, E. Salesian S., Farnborough
 Steane, H.E. Margate College
 Street, T.G. Gram. S., Taplow

Summers, G.S. St. Joseph's Coll., W. Norwood
 Susman, A.F. Kersal S., Manchester
 Sutton, L.E.N. St. John's Coll., Brixton
 Taylor, G.T. St. John's Coll., Southsea
 Taylor, H. Southport College
 Taylor, H.R. Scorton Gram. S.
 Telfer, J.S.R. Taunton School
 Thompson, R. Orient Coll., Skegness
 Timothy, N. Tutorial S., Newquay, Cardigan
 Tomkinson, D. Salesian S., Battersea
 Tozer, D. St. Aloysius' Coll., Highgate
 Treble, G.D. Southport College
 Tuck, C.G. The Douglas S., Cheltenham
 Turnbull, K. Conv. of the Holy Faith, Clontarf
 La Sainte Union des Sacres Coeurs, Bath
 Turner, C.R. McL.P. Margate College
 Turner, H.C. Taunton School
 Turner, S.P.C. Clark's Coll., Brixton Hill
 Vallarino, R. St. Joseph's Coll., W. Norwood
 Vanek, H.A.C. St. Joseph's Coll., W. Norwood
 Vann, L. Xaverian Coll., Mayfield

Villarreal, E. St. Aloysius' Coll., Highgate
 Vizer, J. St. Aloysius' Coll., Highgate
 Winwright, F.L. Lindsfarne Coll., Westcliff-on-Sea
 Walkley, H.J.S. St. John's Coll., Southsea
 Wallis, F. St. Aloysius' Coll., Highgate
 Ware, L.A. St. John's Coll., Brixton
 Warmoll, J. Sea View Coll., Warrenpoint
 Warr, E.H. Margate College
 Warriner, R.W.R. Gram. S., Taplow
 Watts, A.F. Lindsfarne Coll., Westcliff-on-Sea
 Watts, B.R. Margate College
 Watts, H.C. Lindsfarne Coll., Westcliff-on-Sea
 Weakley, J. Lindsfarne Coll., Westcliff-on-Sea
 Wells, H.F. Lindsfarne Coll., Westcliff-on-Sea
 Wenger, R. Salesian S., Battersea
 Wheeler, E. St. Aloysius' Coll., Highgate

Whelan, J. St. Mary's Prep. Coll., Dominican Conv., Wicklow
 Whicher, C. Salesian S., Battersea
 White, C. Salesian S., Battersea
 White, H.A. St. John's Coll., Southsea
 White, T.E. St. John's Coll., Southsea
 Whitlock, L.J.P. Margate College
 Whittaker, J.O. St. John's Coll., Brixton
 Wiggitt, J.H. Taunton School
 Wilkinson, C.J. Priory Coll., Hornsey
 Willett, J.F. The Douglas S., Cheltenham
 Willett, J.H. Lindsfarne Coll., Westcliff-on-Sea
 Wilson, G.N. Argyle H., Sunderland
 Wilson, J.H. Scorton Gram. S.
 Wood, L. Salesian S., Farnborough
 Wray, E.H.E. Margate College
 Wray, W. Scorton Gram. S.
 Wright, F. St. Aloysius' Coll., Highgate
 Wright, R.B. St. Boniface's Coll., Plymouth
 Young, D. Streatham Gram. S.

GIRLS.

Akam, A.E. Wincham Hall, Lostock Grlam
 Alesbury, L.J. The Friends' S., Mountmellick
 Anderson, C. Benedictine Conv. S., Dumfries
 Anderson, M. Benedictine Conv. S., Dumfries
 Bacon, W.A. The College, Goudhurst
 Baggs, J. Nutgrove Avenue High S., Bristol
 Ballard, K.M. Dudley H., Stoke Newington
 Bamber, K.C.M. Melbourne Coll., Thornton Heath
 Barany, M. Granville Coll., Southampton
 Barton, M. St. John's Coll., Brixton
 Beck, R.E.M. Ladies' Coll. S., Balmoral, Belfast
 Blackborow, E.M. Crouch End High S. & Coll.
 Blount, I. Beechholme Coll., Belper
 Bolton, M.J. St. John's Coll., Brixton
 Bowling, V.M.B. Catholic High S.,
 Conv. of the Cross, Southsea
 Boyes, D.A. Lowther Coll., Lytham
 Bradley, W. St. Mary's Dominican Conv., Kingstown
 Bridge, W.O. St. John's Coll., Brixton
 Broadley, P.F. Southlands Gram. S., Littlestone-on-Sea
 Brown, M.A. Dudley H., Stoke Newington
 Carless, B.A. Ladies' Coll., The Friars, Hereford
 Caslake, B.A. The College, Goudhurst
 Christie, M. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf
 Churchouse, E.E. Beaumaris, Bounds Green
 Clarke, I.M. Hainault High S., Ilford
 Cohen, E. Mansfield H., Cliftonville, Margate
 Conder, N.G. Pinner High School
 Conroy, M.M. St. Ursula's School, Westbury-on-Trym
 Conyngham, V.C. Sea View Coll., Warrenpoint
 Cox, H.M. Thant H., Hounslow
 Cox, M.A. Clatford H., Southampton
 Crewe, M.W. St. Anne's Conv., Birmingham
 Crofton, M. Mayville High S., Southsea
 Cross, E. Conv. F. C. J., Chester
 Crow, O.E. Clark's Coll.,
 Prep. S., Uxbridge Rd., Ealing
 Darrington, S.E. The College, Goudhurst
 Davis, N.D. St. Mary's Coll., Barnes
 Despard, C.L.F. Beauclerc H., Sunbury-on-Thames
 Discombe, E. Loreto Conv., Europa, Gibraltar
 Duffy, M. 39 Lisburn Rd., Belfast
 Duffy, M. St. Mary's Conv., Bruff
 Dyer, E.V.B. Glenthorne S. for Girls, Bristol
 Dyer, G.E. Wincham Hall, Lostock Grlam
 Edgcome, R.C.J. Private tuition
 Edwards, G.T. Wincham Hall, Lostock Grlam

Eseritt, E.A. Highfield School, Roundhay
 Evans, K. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf
 Fairbairn, J.M. St. John's Coll., Brixton
 Farrell, C. Our Lady Star of the Sea,
 Conv. of the Holy Faith, Clontarf
 Farrer, E.M. Crouch End High S. & Coll.
 Feeny, E.M. St. Anne's Conv., Birmingham
 Fleetwood, G.W. Rougemont Coll., Blackpool
 Fleming, A. St. Mary's Conv., Bruff
 Flensing, W.A.G. Inveresk, New Brighton
 Ford, G. Loreto Conv., Europa, Gibraltar
 Gallagher, M.G. Dominican Conv., Wicklow
 Gamble, D.M. Finsbury Park High S.
 Gandy, S.S. The College, Goudhurst
 Gath, V.V. Ivydene, South Shore, Blackpool
 Gay, A.M. Raleigh S., Stoke Newington
 Gezink, M.C. Southolme High S., Whalley Range
 Giuntini, M.E. St. Mary's Coll., Barnes
 Goslow, F.M. St. Mary's Coll., Barnes
 Gribble, D. The College, Goudhurst
 Grice, K. Conv. F. C. J., Chester
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EDUCATIONAL TIMES

THE

AND

JOURNAL OF THE COLLEGE OF PRECEPTORS

Vol. LXVIII No. 653

SEPTEMBER 1, 1915

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Incorporated by Royal Charter.

LECTURES FOR TEACHERS.

A Course of Twelve Lectures on Present Day Teaching, by Professor John Adams, will begin on Thursday, the 30th of September.

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For Syllabus, see page 326.

EXAMINATIONS.

Diplomas.—The Winter Examination of Teachers for the Diplomas of the College will commence on the 3rd of January, 1916.

Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in October, 1915.

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Lower Forms Examinations.—The Christmas Examination will commence on the 6th of December, 1915.

Professional Preliminary Examinations.—These Examinations are held in March and September. The Spring Examination in 1916 will commence on the 7th of March.

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The Educational Times.

CHANGE OF ADDRESS.

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THE THINGS THAT MATTER.

A YEAR ago the sudden outbreak of a European War, in which we found ourselves involved, seemed likely, by its startling unexpectedness, to produce a temporary paralysis of energy. We were all unfamiliar with the conditions of War; we pictured all the younger men in the fighting line and all the elder men engaged in providing food and in carrying out the necessary hygienic services. At that time the urgent thing to do was to continue our daily task with cheerful courage. Now we have grown accustomed to War, and, so far as concerns the outward surface of life, there is much less difference than we all supposed would be the case. It is true that there is loss of work and loss of income, increased taxation and a rise in the cost of living, anxiety and grief for relatives lost, missing, or in danger. These are inevitable. But, below the surface of our lives, still greater differences are being felt. No one who has lived through this great upheaval can be the same man he was before the War. We are face to face with realities. Many old conventions, in feeling, habit, and action, have given way. More than ever in our lives before we need to practise the simple virtues of courage and kindness.

The hardships and dangers that are undergone by our friends and relatives at the front call for a stupendous amount of courage, physical, mental, and moral; we feel

thankful pride in the heroism of our Old Boys, but to visualize and realize the horrors of war is to drive the weaker brain perilously near to madness. The hardships and sufferings that many of us at home are called upon to endure demand also, in their degree, steadfast courage and determined cheerfulness. We who stay at home may be glad that our lives are not altogether easy and comfortable. The so-called "slacker" comes in for much abuse; he may be tempted sometimes to turn on his tormenter and say: "What are you doing? Are you suffering any loss or deprivation?" Every individual among us ought to be glad to take a share, according to his powers and opportunities, in the stern task that has been set us.

Few can avoid, or wish to avoid, doing this. The War has acted as a stimulus, calling forth unsuspected depths of latent courage, good feeling, and humaneness. These feelings now aroused require an outlet for their expression. We cannot all fight nor make munitions. Teachers have acted no less patriotically than other classes. It is hard to find in our schools a young man who is capable of military service. But the men who are left in the schools, and the women teachers, are asking themselves what they shall do to express their new energy, their increased desire for devotion, resulting from the national crisis. Teachers, no less than other people, may become the slaves of routine and convention. They may forget the child in the egoism of their own personality. In the past it was easy to think that all was going well if the administration of the school worked smoothly, if the annual examination produced a reasonable proportion of certificates, if the games fixture cards were well filled, and if there were no troublesome complaints from parents. Now teachers are asking themselves what is their real work and how far they are carrying it out.

The desire for change in our educational ideals is no new thing. The last ten years have witnessed many changes in educational methods and aims introduced by teachers who are careful to keep their minds open to ideas. But the forward movement will now become

more rapid and more general. We realize the value and need for education as, perhaps, we have never done before. At the time of our national trial there is need for high educational ideals to raise the nation to a perception of right conduct. Teachers may feel that, although they may not contribute directly to carrying on the War, they are rendering the greatest national service, both in the present and still more for the future.

The things that matter in education are not always those that appear most conspicuously on the surface life of a school. Examination successes and victories in games are but showy labels; the important things are the physical, intellectual, and moral qualities that enabled those successes and victories to be won. It does not greatly matter that a teacher is a good disciplinarian; it does matter that the pupils under his charge should learn to discipline themselves. A good teacher is nothing unless we find good learners in his form. We are all beginning to realize now that we have thought too much of the teacher and too little of the child. This does not mean that the character of the teacher is unimportant—it means that the ideals have changed. The work of a teacher is not to force unwilling pupils through a certain course of study in order to attain certain examination results. The slave-driver of the past is not the ideal of the present. It is now doubted whether a child who is forced unwillingly through an uncongenial course of study gains any benefit thereby. The ideal that we are aiming at now is very different and demands very different qualities, but it is certainly not less difficult than the discredited ideal. It is this: to put the child into such conditions that all his useful activities have due opportunity of growth and development, and that he works because he wants to work and because he takes a pleasure in his work. The teacher's problem is to find the right occupations at each stage of growth to ensure the active work of the child and a full opportunity for his development. To work merely for an examination or from fear of punishment gives little or no moral result. For a long time we have talked about the importance of character, but, for the most part, we have been content to let character develop on the playing fields. The new ideal is to make the whole school-day contribute to the growth of moral character. A child learns self-control, self-discipline, attention, perseverance, and industry from pursuing a task suitable for his powers that he wants to complete for the very joy of exercising his activities and creating something. These valuable qualities are not learnt when the task is forced upon him against his will, and with punishment in the background.

The things that matter are that a child should grow up learning his own powers and capacities and consideration for the powers and capacities of others. The Conference on New Ideals in education, held last month at Stratford-on-Avon, has helped to spread the endeavour to get at the things that matter. In the words of one of the speakers, the watchwords of the new ideals are:

“Spontaneity and freedom, issuing not in self-centred lawlessness, but in disciplined devotion to the common good.”

NOTES.

THE Teachers' Registration Council now enters upon its second triennial period. It is clear that *The Register* the Register is well established, and the time of hesitation and doubt induced by the failure of the previous Register is passed for ever. Applications are coming in rapidly, and the roll contains about 12,000 names. Mr. Acland has resigned the chairmanship, and Dr. M. E. Sadler has been elected in his place. Mr. Acland possessed many special qualifications for the post, and the debt owed to him by the teaching profession is no light one. If he had a fault it was a disinclination to make public the doings of the Council. This reticence was partly responsible for the delay of many teachers in seeking enrolment. What is the Council doing? they asked, and there was no reply. No successor could be more welcome to teachers than the Vice-Chancellor of the University of Leeds, Prof. Sadler, as people like to call him still, though the professorship that he held at the University of Manchester is a thing of the past. Dr. Sadler is equally well known in primary and in secondary schools. He knows and understands all grades of education, and no one could be more successful than he will prove himself in reconciling interests that seem to conflict.

THE large national expenditure involved in maintaining our troops in war will cause an inevitable *Expenditure on Education.* economy in the sums allotted to education. We do not think the nation will care less about education than it has done in the past; the contrary will probably be the case. The nation will probably realize more completely than before the War the need for the fullest possible provision of educational opportunities, and the nation will insist upon these opportunities being used in an effective manner, and will not allow them to be frittered away in empty show. But it is quite certain that expenditure on equipment will be more closely scrutinized. Buildings previously condemned will be “made to do”; the introduction of smaller classes involving an increase of staff will be postponed. Buildings and equipment will begin to assume smaller importance in comparison with the work done by the human agent; the opening of new schools will be postponed. All these things will give a fresh lease of life to many private schools that were in danger of being overshadowed by imposing public structures. The reality of education, which is the life of the school, will take its true value; and in this respect private schools need fear no rival.

WE are all called upon to exercise economy. For

Economy. salaried teachers the problem is no easy one. Where a scale exists, which is not too common in secondary schools, the increases may continue. In other cases a rise in salary can scarcely be expected at present. Yet the cost of living in every direction is increasing. Proprietors of schools and those in charge of boarding houses are in still greater difficulties. In some cases fees are not paid "owing to the war"; in other cases a reduction in the fees is demanded, or pupils are taken away a year or two earlier than would have been the case in normal times. Boarding schools are confronted with a steady shrinking in income and a continual rise in expenses. We do not doubt that we shall adapt ourselves to the new conditions and that we shall win through, with suffering, perhaps, but with less suffering than has been imposed on the inhabitants of Louvain. "All the money that is spent," said Mr. Asquith, "on superfluous comforts or luxuries, whether in the shape of goods or in the shape of services, means the diversion of energy which can be better employed in the national interest."

Cheaper Food. UNDER the stress of necessity we shall learn to become more thrifty. In the past our very wealth has made us impatient of economies. Waste in everyday matters—food, firing, lighting, newspapers, matches, cigarettes, and tea—have become second nature to us. These things will have to change. As far as food is concerned, the waste is largely the result of ignorance: if not of the mistresses, yet of the cooks. The Board of Education have done a useful work in issuing a pamphlet, "Economy in Food: Some Suggestions for Simple and Nourishing Meals at Home," which can be purchased from Wyman & Sons, or from any other stationer for one penny. Managers of boarding schools will find therein much helpful information. The National Food Reform Association (178 St. Stephen's House, Westminster, S.W.) also issues some excellent booklets giving information about economical and nourishing foods, and their methods of preparation.

Professional Organizations. MRS. SYDNEY WEBB has compiled a monograph entitled "English Teachers and their Professional Organizations." In this original survey Mrs. Webb gives the results of a prolonged investigation into the constitution and working of professional organization among all grades of teachers in England and Wales. She describes in what way and to what extent the teaching profession, with its 250,000 members, is professionally organized. Mrs. Webb is a most patient and thorough investigator and has trained herself for this work during a long period of years. No such attempt has been previously made to put together, contrast, and analyse the history and development of teachers' efforts to become an organized profession. Chapter II, dealing with Secondary Education,

begins, as is natural, with the College of Preceptors, for that body was the first attempt at union among secondary teachers. The monograph will be published with the issues of September 25 and October 2 of the *New Statesman*.

"Do as I tell you," said Mr. Edmond Holmes, reading a paper at the Educational Ideals Conference held last month at Stratford-on-Avon, is the formula that characterizes Germany, "the only nation that has brought her scheme of education into harmony with her scheme of life." In England, he said, we apply this formula to children, who are in an artificial condition of life; but in actual life our formula is "live and let live." That is to say that in England there is no harmony between education and life. The question therefore arises, Which is the right scheme, education or life? To some extent the conditions of school life are deliberately and wisely artificial. We make them so in order that certain virtues may the more easily be developed and practised. But the divergence between school life and the wider life after the years of tutelage may easily become too great; when it does so the lessons of school life have little effect in a world of quite other conditions. Mr. Holmes's remedy is, of course, that the "do as I tell you" scheme (mechanical obedience) should yield in school as well as in the world to the formula "live and let live," which may be interpreted "Claim the exercise of your own rights and powers, moral, physical, and spiritual, while recognizing similar rights for others."

The Little Commonwealth. AT the same Conference Mr. Homer Lane gave an account of his work at the Little Commonwealth. Our readers probably know that Mr. Lane takes charge of little boys and girls who for some misdemeanour have been brought before a magistrate: children who have escaped the influence of the elementary schools and who would, but for Mr. Lane's intervention, be sent to a reformatory. The system of discipline at a reformatory is generally held to be excellent, and it is certain that many boys and girls learn in them to become self-respecting members of the community. Mr. Lane's plan is different from that carried out in the reformatories. He has no system, so he says, and he pleads for the abolition of systems. "Let us do away with system. Let us instead furnish facilities for self-expression. Let us encourage the individuality of the pupil, and not force ourselves upon him." The children in the Little Commonwealth govern themselves, make their own rules for conduct, form their own courts, and punish offenders. Mr. Lane's school, though filled with what would generally be called unpromising material, is the marvel of all visitors, and admirably expresses the new ideal in education—to help the children to become their best selves, instead of trying to make them like their teachers.

SUMMARY OF THE MONTH.

THE TEACHERS' REGISTRATION COUNCIL.

The new Council has now been formed and consists of the following members, eight of whom are newly appointed; the others have been reappointed:—

CHAIRMAN.

Michael E. Sadler, M.A., Litt.D., LL.D., C.B., Vice-Chancellor of the University of Leeds.

UNIVERSITY TEACHERS.

The Very Rev. T. B. Strong, Christ Church, Oxford.
Mr. W. Durnford, King's College, Cambridge.
Prof. F. B. Jevons, Hatfield Hall, Durham.
Dr. T. Gregory Foster, University College, London.
Prof. J. J. Findlay, Victoria University, Manchester.
Prof. Alfred Hughes, The University, Birmingham.
Sir Alfred Dale, The University, Liverpool.
Prof. B. M. Connal, The University, Leeds.
Prof. J. A. Green, The University, Sheffield.
Prof. J. Wertheimer, Merchant Venturers' Technical College, Bristol.
Principal E. H. Griffiths, University College, Cardiff.

ELEMENTARY TEACHERS.

Miss J. Wood, B.A., Municipal Secondary School, Manchester.
Miss I. Cleghorn, Council School, Heeley Bank, Sheffield.
Miss E. R. Conway, Council School, Tiber Street, Liverpool.
Mr. W. B. Steer, Secondary School, Derby.
Mr. Allen Croft, Lenton Council School, Nottingham.
Mr. A. W. Dakers, 33 Meldon Terrace, Heaton, Newcastle-on-Tyne.
Mr. G. Sharples, Municipal School, Waterloo Road, Manchester.
Mr. J. W. Iliffe, Oak Tower, Uppertorpe, Sheffield.
Miss E. F. L. Goodwin, 111 Northam Road, Southampton.
Miss E. Phillips, Gorsley, Pen-y-lan Place, Roath Park, Cardiff.
Mr. T. H. J. Underdown, 4 Greville Road, Southville, Bristol.

SECONDARY TEACHERS.

Mr. M. J. Rendall, Winchester College.
Sir John D. McClure, Mill Hill School, N.W.
Miss M. A. Douglas, Godolphin School, Salisbury.
Miss Florence Gadesden, Blackheath High School.
Mr. A. A. Somerville, Eton College, Windsor.
Miss E. S. Lees, 82 South Side, Clapham Common.
Mr. Frank Ritchie, Beechview, St. John's Road, Sevenoaks.
Dr. F. A. Sibly, Haywardsfield, Stonehouse, Glos.
Mr. W. G. Rushbrooke, St. Olave's Grammar School, Tower Bridge.
Miss M. E. Robertson, Christ's Hospital School for Girls, Hertford.
Miss L. James, Clapham High School, S.W.

SPECIALIST TEACHERS.

Mr. F. Wilkinson, Municipal Technical School, Bolton.
Mr. P. Abbott, 5 West View, Highgate Hill, N.
Mr. H. B. Carpenter, School of Art, Rochdale.
Dr. H. W. Richards, 6 Norfolk Square, Hyde Park, W.
Mr. Alfred Nixon, 7 Oak Road, Sale, Manchester.
Miss M. E. Marsden, Domestic Science Training Department, Battersea Polytechnic, S.W.
Mr. J. Tipping, 35 Lower Rushton Road, Bradford.
Mr. Guy M. Campbell, The Royal Normal College, Upper Norwood, S.E.
Mr. A. J. Story, The Mount, Stoke-on-Trent.
Miss M. M. R. Garaway, Linden Lodge, Bolingbroke Grove, Wandsworth Common, S.W.
Prof. John Adams, 23 Tanza Road, Hampstead, N.W.

A MODERN GEOGRAPHER.

War raises geography to a special eminence among the sciences (says the London Correspondent of the *Manchester Guardian*). For that reason, among others, the death a day or two ago of Prof. A. J. Herbertson, of Oxford, should not be permitted to pass without notice. In England the modern teaching of geography as an indispensable ally of political and social science is due very largely to the ability and enthusiasm

of Mr. H. J. Mackinder, who, before he became Director of the London School of Economics, and a long time before he went to the House of Commons, was exercising his notable gifts as a teacher in the School of Geography at Oxford. Dr. Herbertson, who had been trained among the Scottish geographers, succeeded him there, and under his direction the school had notable success in carrying forward geographical research and instruction as a vital part of the University and school curriculum. One need only compare a Herbertson textbook of geography with one of the old kind to realize how much has been achieved. His last important work was the editing of the large "Gazetteer of the British Empire," one of the most valuable of recent contributions by Oxford to extra-classical knowledge. He was just fifty years old. His health broke down completely in the early part of this year.

A LITTLE CRIMINAL.

A boy of fourteen, said Mr. Homer Lane at Stratford-on-Avon, now a citizen of the Little Commonwealth, had been birched fourteen times by order of the magistrates, but the birchings only made him worse. The very strength of his character led him to persevere in his career of lawlessness. When, however, he was admitted to the Little Commonwealth he found that his acts of rebellion won no applause, and he gradually sought an outlet for his energies and abilities in work and acts of service which had eventually made him one of the leaders of the community. It was the spice of danger and the desire to be regarded as a hero that were the motives for most juvenile wrongdoing. If these motives were removed wrongdoing ceased to be attractive. The citizens of the Little Commonwealth had been chosen from among the worst young criminals who could be discovered, but when they found themselves members of a self-governing community in which no rules were enforced except by the citizens themselves they developed a sense of responsibility and a power of initiative which changed their whole attitude towards society.

REGULATIONS FOR SECONDARY SCHOOLS.

In view of the national crisis, all changes in the Board of Education Regulations for Secondary Schools are postponed, and the Regulations in force for the school year 1914-15 are therefore continued for the school year 1915-16. 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 1915-16 if they continue to satisfy the Regulations in other respects.

THE NEW MINISTER OF EDUCATION.

A month ago there was no sign of any impending change in the Government, and we were all looking forward to the continued service of Mr. Pease as President of the Board of Education. But the formation of the new Coalition Ministry, which was decided upon last week, has led to the withdrawal of Mr. Pease from the Government and to the appointment of Mr. Arthur Henderson as Minister of Education. Mr. Henderson is the first representative of the Labour Party to take office. He was born in Glasgow in 1863, and served his apprenticeship as a moulder at Messrs. Robert Stephenson & Co.'s works at Newcastle-upon-Tyne. He was an official of his Trade Union, and has served as a member of the City Council of Newcastle and of the Borough Council of Darlington. For the last twelve years he has been member of Parliament for the Barnard Castle division of the County of Durham. He will bring to the Board a new and valuable experience. One of the keys to the future of England lies in education. It is certain that Mr. Henderson will be greatly interested in the improvement of the physical condition of the children attending school, and, if other claims upon his thoughts and upon the energies of the Ministry allow, he should be able to take important steps towards making attendance at continuation schools practically universal, at any rate in the urban

districts. There is another side of English education, however, with which Mr. Henderson will find himself much less familiar, and that is the working of the public schools. Possibly one result of his appointment, especially if his tenure of office continues after the War, will be that this great group of schools will be left to go their own way for a time, instead of being closely associated, by inspection and by courses of study, with the secondary day schools which provide for the sons of the less well-to-do families.—M. E. Sadler in *Indian Education* for July.

THE LATE MADAME ÖSTERBERG.

Some eighteen months ago Mme Bergman Österberg, the Principal and Founder of the well known Swedish Physical Training College at Dartford, desired to relinquish the active direction of the work of her College. In so doing she wished, in the national interest, to secure the continuation of the work which had been so successfully established and developed. With this purpose in view she generously offered, with the full approval and sympathy of her husband, Dr. Edwin Österberg, of Stockholm, to transfer her College to the Government. For reasons in no way connected with the College it was found impracticable to accept the offer, and Mme Österberg was advised to create a Trust. Almost her last act before her death was to sign the Trust deed, vesting her property in a Trust with the object of carrying on the College in the national interest on its existing lines and maintaining the traditions already established. The Trustees appointed are: Dr. Christopher Addison, M.P.; Mr. Waldorf Astor, M.P.; Sir George Newman, M.D.; The Marchioness of Salisbury; Right Hon. Lord Shaw of Dunfermline. While the ultimate control of the institution rests with the Trustees, the general management and working of the institution will be placed in the hands of an Executive Committee of ten persons representative of various official and other bodies concerned with the physical education of women.

NEW IDEALS.

The decision to hold an Educational Conference at the present time can be justified only by the hope that it may render some service, however humble, to the nation in its hour of trial. It is, however, believed that the subject of this Conference can be fittingly considered even in time of War, since the diffusion of high educational ideals is one of its methods by which the nation's life may be purified and strengthened. The last ten years have witnessed a striking advance in educational efficiency, but we appear to be only at the beginning of a movement which bids fair to revolutionize our methods of education. This movement goes deeper than any changes in organization—it foretells the advent of fresh educational ideals and of a new spirit in the schools. One aspect of the movement is associated with the name of Dr. Montessori, but it draws its inspiration from many sources, new and old. Its watchwords are "spontaneity" and "freedom," issuing, not in self-centred lawlessness, but in disciplined devotion to the common good. Its ideals have inspired many educational efforts and experiments, but, before they can exert their full influence upon the education of the country, these ideals must be given a more definite and concrete shape. To this task it is hoped that the Conference may make some contribution.—Foreword to Conference Program.

A SCARCITY OF BOOTS.

The following order has been issued by the Prussian Minister of Education: "It has recently come to my knowledge that children in a country school have been forbidden by their teacher to come to school barefooted. Such an order may, perhaps, be justified in peace time under special circumstances. In war time, and especially in the country, such an order is improper, if only because on account of the rise in prices it cannot always be easy for parents to provide their children with the necessary boots."

VIGNETTES FRANÇAISES.

By MARION CAHILL.

I.

JEANNE is seventeen. To-day she was poring over a delicate mass of lace and finest cambric, embroidered with all that wealth of lovely work that seems to come so naturally from the fingers of French girls.

"What is it, Jeanne?" I asked, as I admired the exquisite stitching. She held up the dainty little things that I could see them properly.

"They are for my babies, Mademoiselle," she said, happily. "My mother has shown me how to make them."

"For your *what*?" I echoed faintly.

"My babies, Mademoiselle—when they arrive," she answered with the utmost simplicity.

For one moment all my inherited British instincts rose and fought wildly with my acquired French sympathies. I looked at Jeanne poring lovingly over the delicate lovelinesses on the table before her. There was nothing but innocence (not to be confounded with ignorance), love, and reverence in her attitude. With a heroic effort I put aside my prejudices, and I, too, leaned over the little garments to admire.

"They are beautiful, Jeanne, and I am sure that the little babies, when they arrive, will be beautiful also."

II.

Gilette has been very depressed for the past few days. To-day I learned the reason why.

"Ah! Mademoiselle, but I am miserable. See you! My father 'e 'ave a beautiful 'orse, but a beautiful 'orse! A 'orse *pour la chasse*, oh so magnifique! And when the War broke out, the agent of the Army 'e come to my father, and 'e say: 'Alas, Monsieur! I must 'ave the so beautiful 'orse for the Army—our Army what is so brave, so *splendide*.' And my father, he was in despair. But my brother, he is clever—of an intelligence! And 'e look at the agent and 'e say, with *une grande pitié*, 'Ah, *mon cher!* but richly you deceive yourself. You see this so beautiful 'orse, with his legs so straight, and his 'ead so noble? Take courage, *mon ami*, to support the truth. Of a *vérité*, this 'orse, 'e is nearly blind—not for 'im the battle! *Quelle horreur!* if he carried, in his blindness, one of our gallant soldiers into the ranks of the enemy! And when he run, monsieur, 'e breathe like an 'ippopotamus; but surely the noise 'e make would betray the French Army!' So the agent he went away, mademoiselle, but now the class of my brother has been called into training, and if the agent 'e go again to my father, of a surety he will get the 'orse! For, see you, mademoiselle, my father he is a man peculiar, never 'e tell a little *mensonge*. He is *un peu bigot même*, and now that my brother, so clever, goes to fight for France, there is no one to relate *ces petites histoires!*"

III.

The children have a rule which obliges them to be in the chapel every morning at seven. Before the War, many were the excuses for a little nap in the early morning, but now, all through the long, cold winter, they have been up washing at 6 o'clock in ice-cold water, with teeth chattering and hands blue with the cold. If one should happen to delay and turn over again on her warm pillow, she is quickly pounced upon by her companions.

"*Comment! quel dommage!* Thou sleepest, and the men of France are dying in the trenches. All night have they watched, that thou mightest be safe! Already, at this moment, they stand too cold to move, frozen by the vigil of the night. *Levez-vous, levez-vous!*"

This spirited call acts like a trumpet, and brings back the drowning senses into the cold, grey light of morning. With a sigh, the lazy one jumps out, and proceeds "to make a sacrifice" for France. We have no sweet slug-a-beds during the War!

IV.

"*Laissez passer la Miss!*" The school divides like a wave, and *la Miss* passes through the double row of *petites Françaises* to her place at the head of the large table in the middle of the refectory. The refectory, with its many tables and tall, slender bottles standing like sentinels on each, is more like the dining-room of a hotel than that of a school as we know it in England. To one dish only I cannot accustom myself, and that is anything flavoured with even a suspicion of garlic. On such occasions a special *plat* is prepared for *la Miss* in consideration of her nationality.

"*La Miss* is a foreigner, she like not the garlic. *Mais c'est bon! c'est bien bon!*"

I had never heard myself described as a "foreigner" before. It is true that, in a German hotel where I happened to be the only Englishwoman, I was alluded to quite openly and frankly as the *Engländerin*. But when I gazed at the other guests, German women and their autocratic, strangely possessive lords, I had accepted the title with the utmost simplicity and sincerity as a compliment. But this was different. I was indulgently, kindly, considerably dubbed a foreigner! I, who in my insular British pride, had hitherto regarded mankind as divided into two classes—the English and the others. It sounds very simple, but in reality it was an epoch.

In some subtle way they have divined that I do not greatly care to be called "*la Miss*" as though I were a star in the music-hall firmament. And now, with infinite French tact, they give me my name—they have even conquered the *h* in the middle of it! Those who know how difficult it is for the French to negotiate the aspirate will realize the depth of their good intentions.

V.

If the French have a fault it is economy. I name it as gracefully as I can, though it is possible some might give it a harsher title. I have tried in vain to account for this excessive frugality. I have thought of revolutions and wars, of excessive taxation, of a people formerly crushed by a despotic feudal system, but nothing explains adequately this inherited carefulness with regard to money. For it is inherited. I have met it in Algerians born of French parents, and those born of similar parentage in Madagascar and in Cochin-China.

On one occasion, in class, I asked the children to write down quickly what they considered to be the most necessary qualities in a woman—in order of importance. Will it be believed that seventeen out of twenty put at the head of the list—economy? All gave the same reason for their choice—that her husband might arise and call her blessed! Without doubt, economy is very necessary in the *ménage*, but qualities can have their defects.

The *femme française* loves to *marchander*—to beat down prices—it is seen in the children. But I never understood it thoroughly, in all its native simplicity, till we went to a concert, and I found Suzanne bargaining with the attendant—that, as we were so many, we should be supplied with programs on the principle of the baker's dozen!

VI.

At the end of every term we have a *concours* of music, dramatic representations, and so forth. This term we had some of the noble patriotic sentiments of Paul Déroulède. I love the patriotism of the French. Although it is emotional, and English patriotism at its best and finest lies too deep for tears, the French show the most attractive side of their nature when deeply moved. They feel intensely, and, if it is not for very long, it is because no human being could remain at such a white heat of feeling very long.

At first, before I knew them very well, I was sceptical of the intensity of their emotions—the reaction came so soon and was so violent. They would pass with the rapidity of lightning from deepest gloom to hysterical laughter. To-day they were all quivering with feeling on hearing the truly great sentiments of their most patriotic writer. Even the little ones sat with trembling limbs and eyes filled with tears; and, at the inspiring conclusion, *La France—quand même!* they sprang to their feet unable to control a demonstration of feel-

ing. I, myself, was thrilled with the peculiar electric quality of French poetry: but, to save my life, I could not have spoken—it was too real, too vivid, too lasting an impression.

In less than a minute they were all shrieking with laughter, dancing, whirling, chattering as only French girls can. But I understood. As I was taking refuge in silence, so they were taking refuge in speech.

CONFERENCE ON NEW IDEALS IN EDUCATION.

THE Montessori Conference, held at East Runton in July 1914, was so successful that the promoters resolved to hold another conference during the present year, and, in spite of the War, this decision was carried into effect by the summoning of a Conference on New Ideals in Education to meet at Stratford-on-Avon from August 14 to 21. The meetings took place under very favourable conditions. They were held in the historic schoolroom of the Stratford Grammar School, and the picturesque old town, with its literary and historical associations and beautiful surroundings, provided an almost ideal environment for the Conference. The weather was excellent throughout, and the arrangements for the accommodation of the two hundred visitors most efficient. The members of the Conference also enjoyed the advantage of seeing Mr. Benson and his Company in several of Shakespeare's plays, and of hearing Mr. Benson lecture upon "Shakespeare's Conception of Statecraft." In addition to this, Mr. Cecil Sharp's School of Folk Dancing was in session and several demonstrations were thrown open to the visitors.

But, although the Stratford Conference was the outcome of the meeting at East Runton, its discussions covered a wider field, and its new title was symbolic of an advance in the movement it represented. At East Runton the effort to promote greater freedom in the schools found its most typical representatives in Dr. Montessori's followers. Accounts of experiments on similar lines were, indeed, included in the program of the earlier conference. We were told, for instance, of the work done by the Little Commonwealth and of Dr. Yorke Trotter's methods of teaching music, but the first place was assigned to the discussions on Montessori methods. At Stratford, on the other hand, only one day out of five was definitely devoted to these methods, and the other days were occupied either by papers on the more general aspects of freedom or by reports on various distinctively English movements. It was clear that the problem of introducing freer methods of teaching and discipline into English schools had assumed a wider form and was beginning to be grasped in something like its true proportions.

This broader outlook was reflected in the composition of the Conference. There was, happily, the same large proportion of acting teachers and administrators and the same representation of schools of many different types. But the advocates of strict Montessori methods formed a much smaller part of the whole, and there were many representatives of movements of quite independent origin.

The aims of the Conference were described as follows in the preliminary notice circulated by the Committee:—

The last ten years have witnessed a striking advance in educational efficiency, but we appear to be only at the beginning of a movement which bids fair to revolutionize our methods of education. This movement goes deeper than any changes in organization; it foretells the advent of fresh educational ideals, and of a new spirit in the schools. One aspect of the movement is associated with the name of Dr. Montessori, but it draws its inspiration from many sources, new and old. Its watchwords are "spontaneity" and "freedom," issuing, not in self-centred lawlessness, but in disciplined devotion to the common good. Its ideals have inspired many educational efforts and experiments, but before they can exert their full influence upon the education of the country, these ideals must be given a more definite and concrete shape. To this task it is hoped that the Conference may make some contribution.

With these objects in view the Committee arranged that two sessions should be devoted to the consideration of the-

theoretical principles exemplified in the educational efforts of which accounts were given at the other meetings. Of these two sessions the first was spent in hearing and discussing papers by Mr. Edmond Holmes and Prof. Millicent Mackenzie. Mr. Holmes spoke on "Ideals of Life and Education, German and English," and Prof. Mackenzie on "Ideals from Abroad."

Mr. Holmes, to whom the movement owes so much, contributed a paper of rare literary charm. He urged that the ideals which inspired the educational methods of any nation ought to be in harmony with the ideals accepted in its political and social life. "A nation's scheme of education ought to be in keeping with its scheme of life, and both schemes ought to be regulated by the same dominant ideal." This was actually the case in Germany, where the adult citizen was subjected by the State to constant control and supervision, differing only in degree from that to which the child was subjected by his teacher. Germany remained faithful to the traditional school methods of dogmatic teaching and repressive discipline, and applied the same methods in the military discipline of the Army and the civil discipline enforced by the bureaucracy. The result was that Germans spoke, thought, and even felt, as they were told. Such consistency was a source of strength, but the constant pressure of autocratic authority tended to deaden moral sensibility and to diminish strength of will. That these results had actually followed was proved by the German criminal statistics, from which it appeared that crimes of violence were 120 times more numerous in Germany than in England, and crimes of shame, as the Germans called them, forty times more numerous. In contrast with the Germans, we in England held to two antagonistic ideals—one in education and the other in our national life. In education Englishmen believed in the type of training which Germany had idealized and transformed into a philosophy of life. As citizens of a free country and rulers of a great empire, they believed in the anti-German philosophy of "live and let live." But, if they really believed in this ideal of life, ought they not to train the young to live up to it? Germany had set them an example of consistency and singleness of purpose which they ought to follow, but on English, and not on German, lines.

In the second of the sessions assigned to theoretical discussions the subject was "Freedom and Discipline," and the most important paper was that contributed by Prof. Nunn. In discussing the meaning of freedom in education, Prof. Nunn described behaviour as determined by two sets of conditions—the internal and the external. Thus the act of eating was determined first by the internal condition, hunger, and secondly, by external conditions, such as the presence of the food and of a knife and fork. Mr. F. H. Bradley had told us that our actions are free because they are always partially determined by internal factors—that is, by the character and activity of our own minds. But Prof. Nunn argued that we might go a step further and include external factors among the conditions of free behaviour. Assuming that behaviour is a manifestation of the energy of the self, we might distinguish between positive and negative self-energy. Positive self-energy was shown in every form of self-assertion, negative self-energy in the attitude of assimilation—for example in imitation. It was round the rhythmic play of these two kinds of self-energy that character was built up. Now behaviour directed towards a certain end tended in the course of time to take a definite form. Thus, the act of eating was no longer a hasty snatching of food, but had acquired a more or less elaborate ritual of its own; but, by conforming to this ritual, the act gained a richer meaning, and therefore greater freedom. In this way our social behaviour, the manifestation of our gregarious instinct, was determined partly by social customs and conventions which we found existing in the world around us. These conventions were not determined from within by our own desires and purposes. They were external factors determining our behaviour, but at the same time making it more adequate and more free. The method by which we converted these external factors into elements of our own mental life was by assuming a receptive attitude.

Discipline had for its aim the throwing of the pupil into this receptive attitude, in which his negative self-energy had free play. It enabled the pupil to draw from his environment the nourishment necessary to his mental life, and, in the hands of a true teacher, it helped him to attain that expansion of soul which was the essence of true freedom.

The second day of the Conference was allotted to the Montessori Society, and in the morning papers were read by Dr. Kimmins on "Some Recent Montessori Experiments in England," and by Miss Crouch, of the New End L.C.C. Infant School, on "A Year's Experience with Home-made Apparatus in an Elementary School." The afternoon paper was by Mrs. Hutchinson, of the Catherine Street L.C.C. School, who discussed the Montessori principle in the elementary school.

Dr. Kimmins gave an account of various tests which had been carried out in the Sway National School and in elementary schools in Leeds, Nottingham, and Birmingham, with the object of ascertaining the effect of Montessori teaching upon the children's subsequent work in reading, arithmetic, and composition, and, more generally, of determining how far Montessori work formed a satisfactory preparation for learning the usual subjects of the school curriculum. The most elaborate investigations were those at Sway. Dr. Kimmins gave figures showing that the children who had had one year of Montessori training proved, on examination in reading, addition, and subtraction, to be equal to the children in Standard II, who were a year older, but had not come under Montessori influence. Children who had had two years of Montessori work obtained results in reading equivalent to those expected of normal children one and a half years older. In addition and subtraction the results, though above the average, were not so striking. Less detailed evidence pointing to similar conclusions had been obtained at Kirkstall Road School, Leeds, where the classes contained forty to sixty children. From Nottingham came a report that children from a Montessori junior school, when transferred to an ordinary senior school, showed greater mental alertness, keenness, and persistence. The tests described by Dr. Kimmins hardly warrant any general conclusion, but the results obtained are both valuable and suggestive.

Two of the speakers at the Stratford Conference had addressed the 1914 Conference at East Runton, and their papers served as an additional link between the two occasions. Mr. Homer Lane, the Superintendent of the Little Commonwealth, spoke on "Faults and Misdemeanours of Children," and Dr. Yorke Trotter considered "Music as a Factor in Education."

On the occasion of Mr. Lane's paper the chair was taken by the American Ambassador, who, speaking from personal knowledge, emphasized the extreme value of the remedial work carried on in the Little Commonwealth. Mr. Lane laid down the principle that children's faults are due to lack of freedom for self-expression. We generate conditions which lead children to do wrong by our insistence upon certain artificial modes of behaviour and our repression of their natural impulses. We imagine that by suppressing wrong activities we destroy the energy which produced them. As a matter of fact we divert that energy into channels more immoral than the first. It is this constant repression which gradually converts the child into a rebel against society. No child ever suddenly became a thief. If we would prevent wrongdoing we should remove the motive for it. It is the spice of danger which stimulates the boy to offend against law and order. Mr. Lane gave instances of the complete change of attitude which took place when a boy entered the Little Commonwealth, with its atmosphere of freedom and responsibility, and urged the need for treating the child with greater respect and for providing it with facilities for self-expression.

Dr. Yorke Trotter insisted that music should be viewed as the art by which certain feelings and emotions found their expression in musical sound and rhythmic motion. The teaching of music should therefore aim at the development of the pupil's latent power of giving such expression to his emotional nature. Technique was important, but secondary. The claim of music to a place in education rested mainly upon its efficacy in developing the spiritual side of our nature. It was

thus a powerful antidote to the great danger of modern civilization, the mechanization of life. The very striking performances of some of Dr. Trotter's pupils who were present showed that the methods of teaching based upon these views produced excellent results in practice.

It is noteworthy that the same general principles as those enunciated by Dr. Trotter have guided the reforms in the teaching of drawing in elementary schools. These reforms were the subject of a paper by Mr. Tunaley, to whose efforts, when H.M. Inspector of Drawing, the improvement made has been largely due. Mr. Tunaley gave a vivid and entertaining account of the gradual advance in methods of teaching, first the drawing from the flat copy, then the drawing "in the presence of the object," and, lastly, the drawing of the object itself. He urged that the child's hand should be trained as an instrument for recording what the child itself sees and thinks and feels. The child must be given suitable tools—for instance, coloured chalks—and be encouraged to express its own ideas. Technique was of no importance to begin with. What was wanted was expression and sincerity of expression.

Two sessions of the Conference were devoted, not to methods of school discipline and teaching, but to two important social problems, the solution of which must be achieved largely by appropriate schemes of education. At one of these sessions the question of the proper care of infants was considered. Lady Plunket, Mrs. Alys Russell, Mr. Benjamin Broadbent, and others spoke of the urgent need of placing advice and instruction at the disposal of mothers of all classes in order that the present waste of infant life may be diminished. The valuable work done by schools for mothers was explained, and it was urged that a comprehensive system of such schools ought to be established by the State, though much of the teaching and advice should be given by an army of voluntary workers.

The other social problem to which the attention of the Conference was directed was that of rural education as one means of improving the conditions of country life. The Conference was fortunate in having as the chief speaker on this subject Mr. Christopher Turnor, who has been mainly responsible for the establishment of a very successful system of rural schools in the Lindsey division of Lincolnshire. Mr. Turnor's paper gave a very suggestive survey of the whole problem, and deserves to be read by all who desire to see the life of agricultural labourers made more interesting and attractive. There are now a hundred schools in Lincolnshire in which three afternoons a week are given to gardening, poultry rearing, bee-keeping, and other rural industries to the advantage rather than to the detriment of the work in literary subjects. But Mr. Turnor urged that there was a great need for effective continuation instruction for boys and girls who were to live on the land as labourers and their wives. The agricultural colleges did not cater for this class. He suggested that "low-grade centres" should be established, where, on one half-day a week, boys, after leaving school, could be taught the principles of agriculture, and girls "agriculturalized home management." Farm lads' clubs and women's institutes ought also to be founded to help to overcome the lack of social intercourse, which was often keenly felt. The way in which a village school might become a centre of educational and intellectual life was described in a paper by Mr. Taylor, the Head Master of a school organized on the lines laid down by Mr. Turnor.

No one, I think, who was present at the Conference can have doubted that we were witnessing an early stage in the evolution of the movement destined to effect something like a revolution in our educational methods. The Conference was emphatically not a meeting of mere faddists. A few extremists, indeed, were present, but the large majority of the members were experienced teachers and serious educational administrators.

Several of us were impressed by the ability and insight displayed not only by the appointed speakers, but by the rank and file. The readers of the chief papers, without exception, had something to say which was well worth hearing. Mr. Holmes's address was a performance of real distinction, and

in several other cases we felt that we were listening to men and women who had unusual claims on our attention. One result was that the attendance at the last meeting on Friday morning was not appreciably less than that on Monday, when the Conference opened.

But, while we believed that the Conference represented a body of intelligent opinion which was bound to make its influence felt, we were even more impressed by the strength of the unanimous conviction of all the members whom we met, that our methods of teaching and discipline ought to give far more scope for the children's spontaneity. Speaking for myself, I was struck less by the criticisms of our present practice, which were often, I think, exaggerated, than by the evidence given from so many quarters of the astonishing results which had followed the introduction of freer methods. Even after allowing for the natural tendency to lay stress upon positive achievements and to give less prominence to failures, it seemed clear that the new methods opened up possibilities of progress which would to some of us have seemed incredible unless we had had the first-hand evidence before us. The transformation of young criminals into law-abiding citizens at the Little Commonwealth, the extraordinary results attained in the teaching of music and drawing, to give a few instances only, are illustrations of what I mean. Again, we were given a kind of vision of infant schools made delightful by Montessori methods, of babies rescued from benevolent ill-treatment by affectionate, but ignorant, mothers, and of life in country villages filled with new interests centring round the village school. Much remains to be done before these ideals can be realized in our general practice, but we seemed to see the direction in which progress could be, and was being, made.

No one questioned that these new methods must be based upon a fuller knowledge of children's physical and mental needs and upon a greater respect for their personalities and their right to opportunities for developing their special gifts. There was, however, less agreement as to the means by which freedom can be achieved. There seemed to me to be two modes of thought represented at the Conference. Some speakers regarded freedom primarily as due to the absence of external interference or, at any rate, of compulsion. A boy or man was free when he could think and act in independence. Thus, Mr. Holmes spoke of German docility as a proof of their lack of freedom, and another speaker held that there could be no true discipline in a school if there was any possibility of punishment. Other authorities, on the contrary, looked at freedom from a more social and concrete point of view. They laid stress on the importance of environment. A man was free not when he was isolated, but in so far as he was able to draw from his surroundings strength and enrichment for his own mental life. Thus, Prof. Nunn spoke of the importance of the receptive attitude of mind, and others urged that freedom implies such close relations with our fellow-men as that of service. I am expressing my own opinion only when I say that this difference of principle, or perhaps of emphasis, appears to me of great importance. Each point of view, no doubt, expresses one aspect of the truth, but I believe that, if the movement as a whole adopts the extreme view of the need of independence and the absence of compulsion, it will rapidly lose its influence and usefulness. The danger in a movement like this is that it may get out of touch with the realities of school and social life, and the view of which I speak appears to me to be an illustration of this danger. I do not, however, anticipate the triumph of the extremists. The conflict of principles was not acute and the general atmosphere of the Conference was eminently sane. We may hope that, more and more, the movement towards freedom in the schools will unite with the many influences in our present system of education which tend in the same direction; that, for example, it will incorporate the valuable elements in the corporate life of our public schools and the schools organized on somewhat similar lines. If the movement grows more comprehensive and more appreciative of the past, I believe it will prove to be one of the most valuable educational efforts of our time.

H. BOMPAS SMITH.

CORRESPONDENCE.

THE EMPLOYMENT OF WOMEN.

To the Editor of "The Educational Times."

DEAR SIR,—The increased employment of women in work hitherto done by men may either enrich the country or impoverish it. Every new person who undertakes productive industry under proper conditions adds to the general wealth, since all of us are consumers, and those who do not produce are a charge upon the community. But if those who do produce are underpaid, the whole basis of national wealth becomes insecure, the very citizens who mainly create that wealth deteriorate, their labour deteriorates too, and the whole community grows poorer. In the health, the intelligence, the efficiency of its workers consists every country's real wealth, and these qualities can be maintained only by an adequate level of pay.

Now women workers, as a whole, have been in this country greatly underpaid—much worse paid than any inferiority in quantity or quality of their output would warrant. In many branches of industry the competition of these lower-paid fellow-workers has either ousted men or reduced the level of men's pay. Working women and working men have both been wronged and have both suffered, and there is now a danger that this wrong and this suffering may recur on a very large scale. This danger, which is truly a national one, can be averted only by women being paid for their work at the same rates as men. Where a woman, that is to say, is doing exactly the same work as a man, she should be paid what a man would be paid. Where—as is not infrequently the case—some process is omitted by the woman (such as cleaning or oiling machinery or carrying away printers' "formes" when "made up"), her pay should be lessened by the precise value of the omitted process, and not by a penny more. In regard to this question, all classes of citizens have a duty to perform. Employers do well to employ women: they do ill to pay them at lower rates than men. Women do well to work; they do ill to accept lower pay than men, and so compete unfairly with their brothers and husbands. Trade Unions do well in helping women to organize, in inviting them into their own ranks, and in supporting their demand for equal pay; they do ill (and, moreover, are doomed to failure) in attempting to keep women out.

Finally, every voter in the country does ill who fails to protest against the unequal payment of women in the service of the Government—that is, of the nation. The Treasury, which fixes the remuneration of such workers, and which should set a faultless example to all other paymasters, stands badly in need of economic conversion.—Yours faithfully,

CLEMENTINA BLACK, President.

HERBERT BURROWS, Vice-President.

L. WYATT PAPWORTH, Secretary and Treasurer.

Women's Industrial Council (Incorporated),
7 John Street, Adelphi, Strand, W.C.

July 30, 1915.

CURRENT EVENTS.

THE Board of Education regret to give notice that, owing to the urgent demand for office accommodation for the purposes of the War, it has become necessary to close the Reading Room of the Board of Education Library. The Board will, however, endeavour to meet the requirements of readers who have special occasion to refer to particular books contained in the Board's Library, and will provide facilities for consulting such books at their Offices. Readers are requested to write beforehand to the Librarian, indicating the books they require and the probable date of their visit.

A SOUTHPORT schoolgirl, aged thirteen years, wrote a book a little time back, and the proceeds of the sale, which have amounted to £75, have been devoted to the St. John Hospital funds for wounded soldiers at Southport. The Princess Mary has accepted a copy of the book.

AT the Manchester meeting of the British Association, from September 7 to 11, Prof. W. A. Bone, F.R.S., will take the place of Prof. H. F. Baker, F.R.S., as President of the Chemical Section, Prof. Baker being unavoidably prevented from attending the meeting.

ALFRED THOMPSON is probably the youngest recruit that has joined the new Army. He enlisted when he was fourteen, spent his fifteenth birthday in barracks at Dover, and was in the fighting line before he was fifteen and a half years of age. He is now home "on leave" with his parents at Brighton, pending his discharge from the Army as being too young.

THE Council of Bedford College for Women (University of London) have made the following appointments for the session 1915-16: Assistant-Lecturer in Latin—Miss S. M. M. Furness, Class Trip. Camb., formerly Head Mistress, Dulwich High School. Assistant Lecturer in Philosophy—Mr. W. A. Pickard-Cambridge, Fellow of Magdalen College, Oxford. Assistant Lecturer in Physics—Miss M. O. Saltmarsh, Math. and Nat. Sci. Trip. Camb. Demonstrator in Physics—Miss M. Baxter, Math. Trip. and Nat. Sci. Trip., Demonstrator in Physics, London Sch. of Med. for Women. Demonstrators in Physiology—Miss Hartwell, B.Sc., and Miss Tweedy, B.Sc. (Bedford College). Demonstrator in Geology—Miss I. Lowe, B.Sc. (Bedford College). Superintendent of Hostel—Miss J. A. Paterson, Librarian, Bedford College.

THE sixth list of Etonians on active service was published at Eton last month, the total number of names in the list being 2,558. The following interesting figures are given by Mr. E. L. Vaughan, who compiled the list: Killed in action, 288; died of wounds, 68; died from other causes, 12—368. Missing, 15; wounded and missing, 14; prisoners, 23; wounded and prisoners, 29; other wounded, including gas poisoning (2), 485—the total wounded being 528. Mentioned in dispatches, 394. A seventh list will be published at the end of October, which will also include Etonians serving in the Forces not at the Front.

SIR ARTHUR HERBERT CHURCH, of Shelsley, Kew Gardens, late Professor of Chemistry at the Royal Academy of Arts, and previously at the Royal Agricultural College, Cirencester, died on May 31, aged eighty-one years, leaving £12,267. He gives £500 to the Rector and Fellows of Lincoln College, Oxford; £100 for the purchase of apparatus and mineral specimens and his microscope, optical instruments, and mineral specimens to the Waynflete Professor of Mineralogy at Oxford; his reversionary interest in forty-three £20 shares in the London County and Westminster Bank to the Royal Society, hoping they will apply the income in the preservation or utilization of the archives of the Society.

"I CAN'T do much," said the old lady, "but I just drops in a word now and then. You see my garden's just at the back way to the tennis club. The young fellers likes to use the back way. So I sits out doing a bit o' mending, and when they comes along says, 'Hey, mister, that's not the way to the recruiting office.'"—*Manchester Guardian*.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, Ulverscroft, High Wycombe, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

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GREEK IN LONDON P

By E. R. TURNER.

THE following essay was published originally in a college magazine. It was written to ease the mind of the writer, who wanted to think out for himself how far one could honestly ask London parents to pay for their children, young or older, to learn Greek, when those children have to earn their living and when, beyond that primary necessity, they need, and ought to be given, only what will help them to live and to enjoy the life they have earned. It was written before the War, but that does not seem to make any difference. The question it raises—"What good is what I am doing to the community?"—was probably felt by many teachers and "brainworkers" before the War, but it is probably felt by ten times as many now. That is the disease (in the strict verbal sense) of the intellectual worker, and I hope there will be indulgence from fellow-sufferers for one person concerned as to the application of learning of one particular kind to practical life.

The importance or otherwise of maintaining the study of Greek would not be discussed except in an age very anxious to live. It would not be discussed so wildly, from so irreconcilable standpoints, except in an age when there is much superfluous wealth ready to be spent on anything really proved worth supporting, and much poverty that forbids parents spending money on anything that is not proved to be a productive investment as well as a luxury. But, first, many parents who themselves having learned in youth to count, talk French, and keep a ledger have become wealthy thereafter, do not always think their wealth is a consequence of their training, and desire for their children something more satisfactory than a "modern" education, that they may be able not only to earn a living, but also know how to live. And, second, many clerks and teachers, men and women, and even artisans, when they have found in their late youth about how much they can earn by knowing their job, feel that, as being tied at home by that job they cannot travel to know more of men, they might, by learning some language that utters a civilization, be more alive to their own.

A man is never at home who never goes abroad. Perhaps, too, they think, by opening their thoughts to the way some other nation has expressed its own, they may be able more loudly to claim promotion when the chance comes. If a man sticks too closely to his job, the job sticks too closely to him. He does it well, better, more unerringly every day. Why change? His master thinks so first, and after no long time himself.

But is Greek one of the vital things? Will a man be more a man for knowing it? A severer test. Does a woman who learns Greek become more alive, more interested in other people, more interesting to them? But suppose you answer No! to this latter question. Would you not also answer No! if for "learns Greek" in the question were substituted "studies philosophy" or "becomes a reformer"? With regard to both questions, what is sometimes forgotten is that Greek is a big thing, nothing less than a body of writings uttering a civilization, and that in it every man finds what he looks for. In the long run, that is.

Take the material presence of Greek life as it now remains—a Liddell and Scott Lexicon, the remains of the Acropolis at Athens, relics in the British Museum, a history of Greece, and the texts of the great authors, one epic poet, three tragic, one comic, two historians, two philosophers, and one great orator. All fitting into one good shelf. And also, it is too true, a whole library of grammars and commentaries. Put twelve boys at the age of ten through all you can give them of this, and take them out of it at twenty, and what will you have? One pedant perhaps, one lover of poetry, two democratic politicians perhaps, three conservative gentlemen certainly, one devotee of art, one dilettante philosopher, and three outrageous Philistines. That is the effect. What is the cause? Is it Greek? Possibly, but it may have been the teachers of it, or it may have been the growth that was started at home. The point is that while their minds were growing, they fed, if they fed at all, on food that contains more or less all the elements of nourishment, a vocabulary of words sweet and sonorous, strings of these with sensible meaning, stories true and false of men with blood in their veins, plays and books written at full pressure of vitality, but without hurry, for leisured men alive to all that is human, except the modern sex problem, presentment of all the things that men have in common.

It is not claimed that the Greeks knew all that is worth knowing. Omniscience had not been invented then. Nor that they knew better the way to live than we do. How could they? They lived twenty-three centuries before us, and those twenty-three centuries have been full of things, the Roman Empire, Christianity, the feudal and factory systems, steam and electricity. The Greeks, too, beside their misfortune in being born so long before us, had nothing behind them to speak of except time. A few silly stories of Babylon and Egypt, a few Phoenician traders from the blue, a few legends of the Flood and the Creation; the Greeks had no past except their own. Had there been a past, they would probably have refused to look at it. "Those of old," our pious founders, famous men, were always Greeks. They had no present either, except their own. No Greek knew a foreign language if he could help it, and, if he did, was ashamed of it. Foreigners did not exist. There were only barbarians. There was no "What can we learn from Egypt?" "our *entente cordiale* with Scythia," "our cousins in Mesopotamia." There was just Greece and frontage. They were very narrow then, very conventional, disliked eccentricity in manner, dress, or ways of living. To call a man a teetotaler or a high soprano was good debating in the assembly. You might have your face slapped in the streets of Athens.

"Why did you slap my face, sir?"

"I don't like the way you walk, sir."

"How so, sir?"

"You mince in your gait, sir. Take that, sir."

There was once a beauty of Sicyon, much adored and wooed by the young men. Hippocles of Megara was as smart as any, and a strong favourite. But father-in-law gave a party, and the wine was good. And there were parlour-tricks after-

wards. And Hippocles did a *pas seul*. First, a stately Gregorian theme, then some little ideas from Sparta, then a can-can. And, finally, he had a table in, and wedging his head thereon, he hand-wagged with his feet.

"Hippocles," said father-in-law, "you have danced yourself out of the running for my daughter's hand."

"Hippocles doesn't care," replied he.

And the lady went to another. Both Hippocles and father-in-law were Greeks.

The Greek Idea of Progress. There was none. As has been seen, the Greeks knew no past or present except their own. They knew no future at all. Their past was the soil; they had sprung from it. Their present was the city; they breathed it. The future only existed to a Greek who was in exile.

"Oh that my ship were rounding Cape Sunium, so that I might give holy Athens good morning!" The Greek orator never says: "Gentlemen, let us actively promote the glorious destiny of the Empire." He says: "Men, let us be worthy of the fathers that begat us." It was not a real Greek, only a semi-barbarian of Macedon, who wept because there were no more worlds to conquer. A Greek never had any worlds to conquer. He had only other Greeks to quarrel with. It was only when they were very tired of fighting one another that they turned their thoughts abroad, and then only to come back to the old love with greater zest.

The Athenians first impaired their Empire, one exclusively over other Greek cities, by stretching their arm to Sicily over the sea. Their arm was its strongest, nerved by ten years of war with Sparta. Both had fought bitterly, both had done and suffered damage; they had drawn to themselves in the conflict most of the lesser cities of Greece. For sheer inability to get at the other's heart they had patched a truce. But the enemy was just across the Isthmus. Athens' hands were full; she could not fold them or drop them safely. Why did she stretch them across the sea to Sicily? For love of more Empire, balked in Greece itself? Perhaps, but Sicily itself was only a Greek warren. To open a new market and secure a fine granary? That is what wise men of to-day, trained to think of trade, and knowing better than Thucydides, say. To gain fresh strength to crush the enemy at home? That was what the enemy, who had a right to his opinion, thought. From sheer infatuation of excess and pride of life? That is what Thucydides, who pretends to know his time, and was there to know it, himself an Athenian, says. Sheer infatuation and pride of life. Cruelty, said the Sicilians; insolence, said the rest of the Greeks; sinful insolence, said Fate, and began to prepare the punishment that follows, lame but unrelenting, upon it.

The pride of life, insolence, sin, punishment, every great book, poem, and play, is absorbed in it. Paris outraging the husband of Helen, Agamemnon outraging Achilles, Hector defying the Greeks, Diomed defying the gods, and Achilles defying every one. Every one insolent, all save the patient Odysseus. To all the Greek writers insolence is the mark. To Aeschylus the king, Greek or Asiatic, the queen, the prince, Prometheus, who defies Zeus. To Sophocles and Euripides the insolent king or usurper of a kingdom. To Aristophanes and Plato the insolence of the democracy and those who lead it. To the historians likewise. To Herodotus the Greek tyrant and Asiatic king, to Thucydides proud peoples and cruel factions. And lastly, sad degeneracy, to Demosthenes, the servant of the people, the Macedonian king who insolently menaces the petty liberties of Greece.

To all insolence is the mark, all save the patient Aristotle. It is almost uncanny, their absorption in the punishment of pride. What does it mean? That the world before Christ was primitive and unholy? Possibly, but Greece was the world. That the best Greeks wanted something better? But without the pride of life, where would have been their books about it? That the common Greeks were humble, loved order, and "nothing too much"? The Greeks in the mass touched nothing without overdoing it, wine, music, tragedy, satire, talk, theorizing, sport, tears. They were gluttons in pleasure, spendthrifts in emotion, windbags, panicmongers, fanatics. Most nations praise something. The Romans indifference to

bribes, the Germans refinement of soul, the English public spirit, the Greeks praised moderation. Does praise mean practice?

The Apologists of Greek. The worst friends of Greek are the graceful defenders. "Greek teaches the cult of beauty to an age devoted to the useful." Then there are the philosophical upholders. "Greek teaches the ideal of Universal Truth to an age absorbed in detail." Then the gracious patrons. "Greek gives a touch of refinement and poetry to our prosaic, practical age." But to an age when few people know quite what they want, and most people believe chiefly in progress, can Greek give anything at all? Anything at all, that is, except an example of an age when men knew what they wanted, went straight at once anyhow to get it, and never even heard of, or had a name for, progress.

The modern Reformer is ready to alter anything provided he can alter it slowly. The Greek politician so disliked altering anything that, if he was forced to, he got it over quickly, by a bloody revolution. The modern Capitalist wants wealth and a good conscience. The Greek kept slaves. The modern Imperialist keeps a small island policing half the world and impoverishing herself thereby. The Athenians taxed their subjects and adorned Athens splendidly from the proceeds. The modern Socialist, looking forward to a perfect democracy, wants government controlling everything, and controlled itself by numerical majorities, ample scope for each individual, and inspectors everywhere. The Greek philosopher, looking back to actual democracy, wanted government by the philosopher, for the philosopher, and no liberty for anyone except him. Modern thought is radical and acquiescent. Greek thought was conservative and revolutionary.

"Exactly," would say the critics of Greek, "Greek was before Darwin. We can't give up our idea of progress. We can't return to Greece." A good job too. Let us keep our idea of progress and keep Greek. As if the best way of progress were to abolish the study of everything that men have approved as good! "Yes, but life, you confess, is short. There is no time for Greek. There are things more important to average boys and girls." Life is short; true, but things permanently valuable for vital fruit are not by any means unlimited. Take beef, mutton, and pork out of London markets, and London might be driven to be vegetarian. Take Latin, Greek, and the Bible out of London classrooms, and you would be left with modern languages and science.

"So much the better!" says the reformer. "One more incubus on progress gone." Why incubus? Why the books and words in which a less fortunate, but well meaning, race have tried their best to express themselves, an incubus? "Oh, because, on your own confession, the Greek spirit is not at home in modern life." How can that be since the first-fruit of the Greek spirit is living in the present, in town, sociably, in the club, in the lounge, in the theatre, everywhere but over a book at home?

Bookishness? 'Tis no Greek fashion. The man who after his college days never opens a Greek book is living more in the Greek spirit probably than the lifelong student. And the best testimony to the supreme soundness of Greek as a juvenile study is the utter refusal of most young men who go through it to touch it again. You can't say the same of science or German. Then Greek, however well learnt, is not permanently entertaining? No. Not to most people. Only to born book-lovers, and leisured ones at that.

"Nor is it professionally or practically profitable, say to a business man or Civil Servant or doctor." No, only to teachers, professors, parsons, and other mystagogues. I see you are going to corner me. "Then Greek, after the learning time, is neither useful nor entertaining. What about the time of learning itself? Do most students enjoy it?" I think they do, unless abominably taught, though, like gentlemen, they pretend not to. "But would not French, German, history, and science be at least equally interesting and far more permanently useful?" Possibly, to some. But remember this. Boys, at any rate, are naturally very contemptuous of foreigners, and feel a certain antipathy to the very sound of a foreign tongue. "But is not Greek foreign?" Not exactly.

Greek is the common possession of all Europe. It is probably a quicker way across the Channel to go *via* Athens and Rome.

Take an exclusively modern language training for boys. What happens after? One thing that happens after is that, with the almost incredible power of the young to throw things off, three years later very little of the foreign lymph injected so assiduously remains. Those who have not followed boys from the Modern Side, from the age of fifteen to twenty-five, can have no notion of the inability of bright young men such as they, to frame a single sentence, to remember a single book, or to have any clear-cut picture from the life of France or Germany.

"Bad teaching," you say. Not necessarily. But suppose it is, and suppose there is not a law of the human mind that makes study aimed at practical use of the knowledge acquired defeat and exhaust itself as a means of education. Suppose a boy trained on up-to-date practice of French and German conversation could thereby read and talk fluently, be at home in the foreign tongue, so much at home as to seek every opportunity of travelling abroad or meeting natives here. What would you have? At the worst, a glib *poseur*; better, a smart business agent; at the best, a broad cosmopolitan. Very well, go for that type. Have it in the next generation if you can. If you can, have the nations of Europe engaged in studying, not each other perhaps, but each other's language. Now, do you think honestly that, taking English as we speak it now, you would like it to be the staple of your son's education in letters if you were a Frenchman?

It is curious, but not conclusive, that the upper class in every nation is content with schools where modern languages are left to luck, because it knows that, given intelligence, a young man can learn more of them in three months abroad than in three years at school.

"Given intelligence." Which is much as if we said, "given everything." As to intelligence, it is to be observed that the bright apprehension of ideas changes with years. At fifteen it is clear and vivid, but narrow. At thirty it is more blurred and complex, but wider far. Which is only another reason for keeping the boy of fifteen at a clear, though complete, picture in a narrow compass, like Greek, and reserving till later a study endless and indefinitely extensible like French and German. A complete civilization in miniature, with a language to match, spoken by people intensely alive and clear-sighted, but narrow in experience and sympathy, is better for a growing brain than two tongues which must suffer development with every newspaper and book that is published. Part of the great claim of Greek as a study is in what it does not give.

WHAT GREEK DOES NOT GIVE.

Greek does not give:

(a) Two sides of any question. No Greek wanted the other side of a question except, faintly, Thucydides and Aristotle; Plato least of all.

(b) Psychology. Greek shows men talking and acting, but not thinking.

(c) Idealism, in the modern sense of seeing the world as it ought to be rather than as it is. Plato's ideal "Republic" is only a protest against Greek democracy, not a fond imagination of what might be if only.

(d) Humanity. The Greeks had no word for humanity in the broad sense. They felt no kinship with foreigners, slaves, conquered enemies, or, sometimes it would seem, even women. Women would apparently have so much importance, and only so much as their good looks and wits gave them individually, and, as a virtuous woman was rather shut up, the almost utter absence of women who were both good and potent is intelligible. The Greeks were of course primitive both in this and other ways.

(e) Truth. The Greeks were great liars when anything was to be gained thereby, and, since that occurs so often, most of them by habit. Honesty where dishonesty cannot be punished is the best test—*c.g.* in treaty obligations, and the Greeks failed there. In politics a too honest man—like Aris-

tides, was regarded as a bore and, in war or peace, no trickery was immoral that succeeded. From this practical dishonesty, since the habit of telling the truth about small everyday details is probably an excellent preparation for sound theorizing on life generally, the utterances of the cleverest Greeks on God, freedom and immortality, and other things important to all men are not to be taken as true. Or, indeed, as of any special authority. Witness St. Paul at Athens. Only, I think, beside their intense cleverness, the other advantages they had for sound judgment on universal truth must not be ignored. Their respect for priests as ministers rather than as preachers, the restriction of oracular responses to practical matters, the absence of endowed Universities, the willingness of any one to discuss anything with anybody, the uncertainty as well as the intensity of their life, their leisure, their clear atmosphere and their beautiful language.

THE ALLOWANCES.

What, then, when all fair allowances are made against the market value of Greek, is its irreducible value? First, as to the allowances. Let the friends of Greek extenuate nothing. Let them be too proud to act like those stockjobbers who force the price of mining shares up while the receipts from the mine are declining. First, for endowments. The study of Greek has been supported, not necessarily promoted, by the endowed wealth of those old schools and colleges which teach Greek as part of the terms of their inheritance. Every teacher of anything is a paid advocate, but when the payment is not from would-be learners' fees, but from dead people's bequests, it creates suspicion. Then there is the allowance for snobbery. Greek is not, it is true, a secret of the clergy, but it has the colour sometimes of a secret of the leisured rich. A cynic might argue that it does not matter to the rich what their children learn, how worthless the study, or how badly they learn it, provided it is one which the poorer boys cannot afford to learn. Then there is undoubtedly a certain clerical interest in it. Most parsons, and pastors, too, though many are not scholars, would, and do, vote at every crisis for the retention of Greek. This may be a real testimony to Greek, but it prejudices it with some people. Then there is general sheer conservatism. "Greek may be whatever you will, but it is an old thing; therefore let it stay." Again a defensible attitude, but ridiculous to many people. Then, considering those actually taught Greek, one must allow for the absorbed scholar whose output is not equal to his intake, and who recommends his study only by the harmlessness of his life. But this is a small crowd. More important is the class, a grievously large one, who show neither intake nor output, and who might, with some other training, have been useful. The middle class, those who work well at Greek till the last examination and then leave it, cannot be generally convicted of lack of power or public spirit. Some of the accusers of Greek themselves are in this class.

That a Greek training is bad for business life is urged insistently, but can hardly be admitted against it until business men themselves show readiness to give graduates in classics a trial. That a rich merchant who sends his son to Eton and Oxford will not find him keen on office work is natural, but it may be because the son, never having wanted anything, does not want work either. On the other hand, a poorer student, ambitious enough to want to get at least the reputation for learning, is likely in due course also to want the reality of good pay. If the business man cannot give the good pay he must give the living wage only to boys who leave a modern school at fifteen, and not condemn the classics because they raise the student's demands.

On the other hand, if it is Greek's fatality to indispose those who have understood it to write bad English, to take short views, to do mean jobs, or, for the means of living, to lose the joy of it, then the uselessness of Greek for a business-man-to-be may suggest serious need for thought, to other than schoolmasters and professors. It is possible, though for patriotism one loathes to believe it, that unpreparedness for profit-making is not necessarily unpreparedness for life.

THE IRREDUCIBLE MARKET-VALUE.

Well, then, making all allowances against it (and it is hoped the fair ones have been made) if Greek has to be tried without favour, if it has, as it practically has in London, to stand in the open market and to ask for the money, the most solid sign of appreciation, of parents and independent students who must earn a living, if Greek is to stand as a necessity and not a luxury, what is its claim? First, it must be said that to people unable or unwilling to take long views at all, the only satisfactory education must be a trade apprenticeship, with board and keep. But, given sufficient means and intelligence, why should a boy or a girl learn Greek, or a young man or woman learn a little of it?

Because it will increase their intelligence? Perhaps, but so will exact science, for instance, and travel, and, above all, hunger. Perhaps, as far as mere cleverness goes, a street arab is as Greek as anybody. Because it will give an ear for the music of words? They may have it already, or they may get it very finely from French. Because it embodies artistic form in poetry and prose? That again they might get from French or even from Jane Austen or R. L. Stevenson. Because it states powerfully, without the Christian answer, the great questions of human destiny? But Shakespeare, too, faces fate and hears the clamour of men. What is more, his men and women are incomparably more various and struggle more gamely before they yield. Moreover, fatalism of any kind is not a good thing to take degrees in. But this applies also to German. Because Greek, which inspired the rebirth of poetry in Europe, may inspire in any individual the first birth of an interest therein? It might, but grinding drudgery in Euripides might kill it, and, in any case, the need of poetry is not strongly felt now. Witness the absence of it from the stage.

That it would teach them the beginnings and the formal perfection of drama? Yes, perhaps, or make them wonder if they can ever laugh again. That they will catch the drum-roll of the Homeric hexameter, the pomp of Aeschylean two-worded lines, and the lilt of the Aristophanic chorus (if only they were taught to read aloud instead of only translate); that they will want to tell stories like Herodotus and write war correspondence like Thucydides, try to make enormous rhythmic harangues with a beginning, a middle, and an end (thank Heaven!), and want to know the meaning of every word you use, like a child or Plato?

If Greek meant all this, the Inspector from Whitehall might say to Greek "Move on!" and benevolent warders might take the Greek student away. And the teacher of Greek might quake like a piper caught bemusing the children. But the teacher of Greek is no Pied Piper. Greek is no spell or incantation. It is only the talk of men—talk meant for each other, and not for us, satisfying them, not quite food enough for us. But living, with nothing lost by time, because they put all of themselves in talk, and a man who puts all of himself into talk is, to those who listen to him, immortal.

From even a dip into Greek if it immerses, people learn a reasonable contempt for time. They get their head thenceforward above the water, they are less slaves, more masters of experience and change. Other things can do it—a strong faith, a sturdy egoism. But all cannot be saints, all cannot be proud. Some need to look at men. And few men can be seen whole, the nearest least of all. And as for a whole tribe, race, or nation, discernible clearly, and uttering its whole soul, no such accident ever befell or can be hoped for again, except Greece. Greece is the magnificent accident, falling out at the beginning, the ace turned up by the dealer in the game of humanity. It has been played; we may forget it. We must play on without it. But it has set the trump-suit.

ARRANGEMENTS have been made to liberate, for the period of the War, Mr. W. Morgan, Professor of Automobile Engineering in the Faculty of Engineering of the University of Bristol, which is provided and maintained in the Merchant Venturers' Technical College. Mr. Morgan will be engaged in work in connexion with the production of munitions, and will resume his professorial duties at the end of the War.

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By LILIAN FAIRBROTHER RAMSEY.

If we attempt to begin with a definition our path is beset with difficulties, for since the days of jeering Pilate the question, "What is truth?" has never been satisfactorily answered. In our dealings with children we generally confine ourselves to such precepts as, "It is wicked to tell lies," only we generally tone the last word down to "stories."

The result of this negative teaching is that frequently discussions take place among the nursery folk as to how far you may approach the borderland of untruth without actually telling an out-and-out truth. Sometimes (but oftener not!) these problems are brought to some grown-up person to decide.

"Mother," said a little child, "suppose I was alone in the house with baby, and a madman came with a knife and wanted to kill baby, would it be wicked if I said you had taken him out with you?"

Another child wanted to know whether, if a burglar came and asked her where the silver was kept, she might say that she did not know.

When confronted with such problems the average grown-up person employs the method known as "putting the children off." I knew one parent who used to tell the children that certain classes of people, e.g. burglars and lunatics, have forfeited their right to the truth. In this he was following Archbishop Whateley, but it seems to me that to teach the children to be little sophists is merely to exchange one evil for another.

Frankness is incidental to childhood, as the pages of *Punch* testify, and children by nature abhor anything that is untruthful. Scarcely are they old enough to listen to a story before they begin to ask, "Is it true?" The moment they can read a book with pleasure they pursue you with the same inquiry, and are generally disappointed if you have to answer, "No."

A large number of books written for children are anything but true, either in their descriptions of life or in their portrayals of character. I have in mind two, tastefully got up and well illustrated, which have been the means of introducing discord into two homes. In one case a small girl tried to imitate the behaviour of the heroine, a minx who was as untruthful as she was popular, and made her mother thoroughly miserable in consequence. In the other case, a little girl of nine whom I knew stole half a sovereign from her governess, in imitation of a character in the book who was not found out when the story ended. Suspicion fell on others of the household, and dire might have been the consequences had not the culprit been detected, when she confessed to the scheme having been suggested to her by the book. Children are such born imitators that they really live in the adventures of the heroes of their books. Therefore the choice of books for them is the choice of character, and we ought to see that they have real heroes to imitate, and not artificial, unmoral beings. Mrs. Opie's and Miss Edgeworth's moral tales were better than some of the modern children's books, though I think that the child of to-day would not look at them. Nor would it be altogether desirable; they belong to the past. I wonder if any of my readers remembers the story of little Willie, who was sent to fetch his father's medicine, and went to play instead. On his return, he told his father a very inadequate lie, whereupon the parent, fixing his eye on the poor unfortunate child, said:

"My little Willie will see his father suffer very much for want of that medicine."

Then little Willie goes out to suffer tortures of remorse, until, as a crowning agony, a message comes that his father is dead.

The modern child's criticism of the story would be: "Well, if he had told his father the truth, it wouldn't have brought the medicine."

Not long ago I was visiting at the house of an old school friend, and on arriving at the house I found her looking very solemn. Her small daughter of four, who generally greets me with enthusiasm, was not visible, and, fearing some childish catastrophe, I asked if she were ill.

"No, dear; but I have had to send her to bed for being naughty. She told me a deliberate lie to-day."

I asked for particulars. At lunch she had gobbled down her helping of meat while her mother was out of the room, and on her return had steadfastly maintained that she had not been served.

"And she has fallen asleep without having owned up," added my friend, almost in tears. Really, if it were not so pathetic, it would be laughable.

"Has she ever told you a lie before?" I asked.

"Yes, once, about a fortnight ago. She came in from a walk in the gardens with nurse, and, all quivering with excitement, said that there had been a lovely band in the gardens, and lots of little children playing about; and when I asked nurse she said that there had been no band, only a barrel-organ playing in the road; and no other children except the little boy from next door."

Poor little London child, whose imagination had peopled the dull gardens, and made a thing of beauty of the prim walk with the conventional nurse!

"Did you send her to bed then?" I asked.

"No, but I talked seriously to her, and John said that she must be punished the next time. Neither of us remembers ever having told a lie, and it will be hard if our only child grows up untruthful."

The sequel illustrates the value of punishment in such a case. The next morning the following conversation took place:—

"Auntie! Auntie! Come and see me in my bath!" When I appeared: "I am so sorry I couldn't see you last night, Auntie. Mummie sent me to bed because I was dreadfully wicked."

"What did you do?"

"Stole a piece of meat! Wasn't it awful?"

For my part, I do not believe in the child who has never told a lie. I have so often heard of them from fond mothers, but they are never the same children that I get to know. Sometimes it means simply that a child is clever in manipulating words—the sort of cleverness I abhor in children. A child may easily steer clear of any out-and-out lie and yet be thoroughly untruthful. Lying is so very far from being the antithesis of truth that it is not condemned by all moral codes—not even in Europe. The Portuguese have a proverb—"It is better to tell a lie than the truth"—and yet in their social relationships they are some of the kindest people on earth. I have always heard the proverb used in such connexions as thanking a hostess for a pleasant afternoon when one has not enjoyed oneself in the very least. And I have heard many English people excuse lies made in such a fashion. Only the other day a small boy who had been visiting his grandmother refused to say that he had enjoyed himself, and, on his mother's protesting, he said: "I have not enjoyed myself, and I will not say I have."

"What is one to do?" asked his mother, plaintively. "Grown-up people must lie under such circumstances, but it seems wrong to teach children to."

Children possess an inexorable sense of justice and truth, and any deviation therefrom on the part of grown-ups is strongly resented by them, and very often called to order.

"The gentleman behind will pay," said a lady sitting with her children in the park when the attendant came for the money.

"Mother," said one of the tiny mites in a shocked voice. "Daddy's not a gentleman—he's an architect."

I remember a well known preacher who was our hero when we were children. Everything he did was perfect in our eyes. No games were so merry as when he was in them, and his parting words were treasured by us in a way that would have flattered him had he but known. But one day, in some game he was playing with us, he maintained, with a solemn voice, "those things that were not" until we detected the fraud, when he owned up with roars of laughter. From that day our hero was as other men. It was not that we were wanting in humour; we had uncles who teased us in exactly the same way, and we never thought any the worse of them for it, but then they had never held up to us an ideal of truth, so that we were actually betrayed, as it were, by our confidence.

Exaggeration is sometimes punished in children who hear it employed by the grown-up people around them. A parent

who is always telling a child not to exaggerate occasionally finds out with a shock that he is amusing a circle of his own with what is undoubtedly a gift—at least, we call it a gift in the successful novelist.

Two mothers were discussing their children in the train the other day.

"I always punish for two things—cruelty and deceit," said one.

The hearer wondered whether there was a punishment to fit each crime. Deceit needs such very careful handling. My experience is that punishment only makes the child more anxious not to be found out. Children need to be taught that deceit brings its own punishment, and that awful and inevitable—the penalty of being disbelieved. And what can be more terrible than that? Some people lightly distrust a child's word. They must not be surprised if the value of truth is lost sight of by that child.

A little girl came trembling downstairs one night to say that a bird was in her room.

"Nonsense!" said the aunt, who was left in charge. "You are always imagining something. Go back to bed!"

She went back, but returned later, again to protest that she could not sleep—the bird was flying round the room. She was well scolded and sent upstairs again to lie shivering and listening to the fluttering bird. A few weeks later she was taken ill with some childish complaint and was put to bed, a fire being lighted in the grate. It would not burn, however, and the chimney was explored with a broom, whereupon a dead swallow was dislodged. A heartrending cry came from the bed: "I was telling the truth, but you wouldn't believe me!"

It needs patience and knowledge to get at the workings of a child's mind sometimes. A small girl of six, walking home from church with a grown-up friend, observed: "You know Daddy is not my real father. He is only my step-father."

"Oh, no, dear! I think not," replied the friend.

The child persisted in her statement, and later on the friend repeated the conversation to the child's mother. She waited until the visitor had gone and then said: "What made you tell Mrs. Smith that Daddy was not your real father, darling?"

"Mother" (in a shocked voice), "God is my real father. Daddy is only my step-father!"

A child's associates sometimes have a lower standard of truth than is prevalent among his parents and their friends. Some servants have been known actually to advise children to tell lies to get out of scrapes.

"Your mother will never know; she believes everything you say," said one to a small girl, urging her to tell an untruth.

"Yes, because I've never cried 'Wolf,'" replied the child sturdily. "And I'm not going to begin now!"

How many children nowadays read and love "Aesop's Fables"! There is nothing like them for driving home certain moral truths. I have heard people condemn them because they put speech into the mouths of dumb animals. These are the same people who would banish fairy tales from the nursery and schoolroom on the ground that they teach children to be untruthful. I have never heard them suggest cutting out of the Bible such passages as:

"The trees went forth on a time to anoint a king over them: and they said unto the olive tree, Reign thou over us."

But I think that few people will agree with that eminent educationist who said that when a child asks with regard to a fairy tale, "Is it true?" one should answer unhesitatingly, "Yes." He seems to me to have forgotten that it takes two to speak the truth: one to speak and the other to hear.

Convention seems to demand the telling of lies to small children in the matter of Father Christmas; for example, when they ask:

"Does he really bring the presents down the chimney?" Mother?

And then there is the vexed question of the origin of life. The time-honoured legends of the gooseberry-bush and the doctor's black bag have been handed down for generations, and I suppose it depends largely on the child as to what effect these taradiddles have on the character when the truth comes out sooner or later.

Children need protection sometimes from the curiosity of their elders. The public opinion of their world is all in favour of one who tells a lie, or prevaricates, in order to shield another from punishment.

"My children always tell me everything," has been said to me by dozens of mothers. And I have invariably marvelled at their lack of imagination, for it is true, even of a child, that

Not even the tenderest heart, and next our own,
Knows half the reasons why we smile or sigh.

How should it be otherwise, since language is so inadequate to express all our thoughts, even when we have a mastery over it? and for a little child, who possesses a limited vocabulary that averages at seven years old only about two hundred words, to be able to tell its mother everything would indeed be an achievement. Most of them express themselves more like the old woman:

I want—I want—I don't know what I want.

Such mothers never seem to recognize that their children are born persons, with individualities of their own. They have no right to demand to be told everything by them; but happy are the mothers who obtain the confidence of their little ones without any of the cross-questioning that is the bane of so many children's lives.

The child's tendencies towards truth or the reverse are formed in the nursery; and because of the harm that untruthful people do in the world it behoves us to see that we do not mar that keenness of perception that I believe exists in nearly all children for truth and righteousness. Life is teaching them daily by means of their surroundings, and these make more impression on them than all the moral maxims of Marcus Aurelius, were they spoken with the eloquence of Demosthenes. How much does the average person remember of the numerous "talkings to" that he received as a child? But I feel pretty certain that he remembers the pattern of the nursery wall-paper! The only speeches he is likely to recall are those that were unjust!

Boys flying kites haul in their white-winged birds;
You can't do that way when you're flying words.

How many of us would recall hasty speeches made to the little ones if only we could!

Compositions written by children so seldom express what they really think, but rather what they would like the reader to think that they think, that there would not be much to be learnt from the following, written by a child of twelve, if it were not for what lies between the lines:—

The sin of telling a lie is bad enough without making it worse by telling it in a way that is half a truth. If you do wrong it is so much nobler to speak the truth, and it makes you feel so relieved to know that you have owned up and are not keeping anything back. Children should be taught always to speak the truth from the time they first learn to speak, then as they grow up it comes easier to them, and they should do their best to help others not to drift into wicked ways. A person who has committed a sin should not let another suffer in his place, as it is only fair and just for each to bear the trouble and grief that he has brought upon himself; but if a person is accused of committing a sin who is really all the time innocent, and some one else knows that person to be innocent, it is their place to speak out and not let *her* [note the change of pronoun!] suffer for what she has not done. It is never too late to turn over a new leaf; even those who have committed sin all their life can change and be a different person. No one should ever give up hope by thinking they have gone too far to improve, but they should blot out the past, and live for what is to come. To live a good and useful life we should act towards others as we would like them to act towards us.

CHAIR OF ENGLISH LITERATURE AT EDINBURGH UNIVERSITY.—On the recommendation of the Secretary for Scotland, the King has approved the appointment of Prof. Herbert J. C. Grierson, M.A., LL.D., Professor of English Literature in the University of Aberdeen, to the Chair of Rhetoric and English Literature in the University of Edinburgh, to be vacated by Prof. Saintsbury on September 30.

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WAR SERVICE FOR WOMEN.*

WHEN, nearly three months ago, the first call for women came from a Government Department, the feeling of many was one of relief that at last the State had shown some way in which women who rebelled against forced inaction in a time of national need could show their willingness to do public service. If at first the direct answer seemed smaller than some of us had hoped, this was due probably (1) to the large number of women already engaged in the work of breadwinning which they could not lay down, in necessary care of families and households, or in nursing and Red Cross work; and (2) to the persistent timidity of some women and the want of clear leaders, to which Mrs. Bryant alluded this morning. But whether the number were really large or small in proportion to the number of unoccupied women, it was too large to be absorbed, and at present we find that of nearly 80,000 women who registered only 1,600 have been "called up for service"—in other words, have found employment. Male recruiting would hardly flourish under similar conditions!

At the Conference between the President of the Board of Trade and representatives of women's societies, which followed closely upon the call to women to register, we were warned that the need for women's work was more prospective than actual, and this is still very largely the case. A large increase of women workers has been wanted in the clothing and ammunition trades, but this has been supplied from the General Register, on which there were 40,000 names in April, and not from the War Register. The women who have registered for War service are not, as a general rule, of the industrial classes, and are in many cases offering their services from patriotic motives. We are all anxious to know what they may do, and equally anxious to know on what conditions they may rightfully do it.

I am sure we shall all feel that the first great condition is that a woman shall so work as to be of real service to the State—e.g. that she will not accept work for which she is unfitted, either mentally or physically; that, if she is untrained and untried, she shall fit herself by such training and practice as she can obtain to make herself an efficient worker in whatever direction she feels she can serve best. Her patriotism would be shown by her refusal to take work for which she is not competent, even if it is offered to her. But at the present time a most lamentable amount of petty patronage is being exercised in the filling of temporary War-time posts in Government offices, and as a result women and girls incapable of performing properly the simplest clerical work are being appointed. In addition to instances which have come within my own notice and much other evidence, a case has been sent to me, by a London head mistress, of a girl who has just been removed from her school to begin work at the War Office at 25s. a week—a girl so dull that she has never been able to get beyond a fourth form. She has obtained her post because her father is a Civil Servant. My informant says, and my own experience bears her out: "The daughter of a Civil Servant is sure of a post, however incapable she may be." Every secondary school in London could send out a dozen girls with twice the power of the one in question, but as head mistresses cannot guarantee that their most capable pupils are the daughters of Civil Servants, the War Office and other Government Departments do not apply to schools for help in this time of national emergency. Not only do such appointments waste the nation's money, put a premium on inefficient work, and delay public business, but these incapable workers are used by those who oppose the employment of women in responsible posts in public offices as examples of the inefficiency of women, but they are detrimental to education, inasmuch as our efforts to persuade our pupils that the better the education and training, the better the prospects of good employment, are defeated by the fact thereby made patent that the Government service may be entered without either. That the main responsibility for such anti-patriotic practices rests with the Government officials who stoop to such use of patronage does not remove all responsibility from the woman who accepts it.

Next, a woman should so work as to maintain, not lower, the standard of women's wages in the various employments that the War opens to her. It is a very false patriotism indeed that makes her indifferent to the remuneration that she accepts because, perhaps, she has a good home and need not worry about either present or future support. In justice to the women who have struggled for better conditions for their fellow-women, for deliverance for the sweated industrial worker, and the underpaid clerk, she should utterly decline to accept less than the standard rate of

wages of the employment and district, and if she needs information as to what these are, she can apply to the appropriate Trade Union and obtain it. She can also join the Trade Union for the period of the War. She is doing very bad service to the State which it is her object to serve, when she puts larger profits into the pockets of employers by taking less money than working women have struggled to obtain, and thereby depressing the standard of living and injuring those who come after us. Nor, if she replaces a man, should she accept as a rule less than he has taken for work of *equal value*. If she does the latter she undercuts him, and this may lose him his job if, happily, he returns to ask for it. Great anxiety is felt in this matter by men clerks and shop assistants.

It has been objected that in some cases employers are paying women less than the men whose places they take, that they may give the balance to the man with a wife and family who has joined the Army. Where such cases exist it should at least be made perfectly clear that it is the woman worker, and not the employer, who is the benefactor, and in that way alone will the woman substitute while doing national service maintain the principle of equal pay for equal work and be just while she is generous. In the wise words of Canon Scott Holland regarding a related question: "Labour will (and should) be ready enough to serve the national need, but it must be assured that its service goes to benefit nothing less than the nation"—not merely the employer!

These are two great conditions on which women may do War service with no evil consequences when peace comes again. But a very practical question is: What are her opportunities? They are increasing from day to day, as we shall see if we watch the papers and the Labour Exchanges. I have authoritative information that there is no glut of thoroughly good clerical workers, but much need of them. We know that many women are going into banks, though here and in some Government Departments a very mischievous process of regrading work is going on, so that women are being given nothing but routine and mechanical work, every scrap of interest and responsibility being taken out and reserved for men. On the subtle and far-reaching dangers of this practice I have, unfortunately, no time to dwell, but we shall do well to watch it, and, if desirable, take what action is possible in the near future. Yet I should hesitate to counsel the refusal of such work; rather I should advise our girls and young women to go in and do it so well that even the most prejudiced of Government officials and bankers may think there is something in women after all! Some of them are complaining bitterly of the kind of girls they have had in the past. They might have been more fortunate if they had called us earlier into counsel, but if we can send them better specimens from our schools, and if our girls go to this work well prepared, take it seriously, and determine to do it to the very best of their ability, those best qualified to judge assure me that at the end of the War it will be found that the best women employees have got a footing in some banks from which they will not be dislodged, and prospects of promotion in a calling hitherto reserved for men.

In agriculture, so far, little has been done in providing opportunities for War service. About ninety women have been trained as milkers, and seventy of these are now in employment. The farmers are the great difficulty and are extraordinarily hard to move—each waits for another to begin. The chief organizer of women's labour does not recommend the employment of schoolgirls on the land in the holidays, harvesting or fruit-picking. In the first place, there are more women registered for that employment than can at present be employed; and, in the second, they have a larger number of offers from men teachers who would bring with them parties of boys, which the department would think a better proposal to accept than one involving girls, for whom housing would be more difficult. But there is no wish to discourage women from any work of this kind in which shortage of labour may later on develop.

In munition factories there appears to be little demand for educated workers. The factories in the South at least are full, and everywhere women of the working classes are preferred. Applicants are asked whether they have been accustomed to long working hours, and the suggested plan of six-hour shifts to suit such workers as our schools might provide does not seem to have been adopted anywhere. The supervision of suitable forewomen is not guaranteed. The occupation is mainly machine-minding, and the beginners' pay 10s. to 12s. weekly. I cannot myself see that the occupation is one in which our girls, or Old Girls for the most part, can do useful and suitable service. It is obvious that there is still room for a much larger introduction of women into the distributing trades, and that, as Mr. Asquith pointed out, it would be far better if women released men from such trades for service in the Forces, or in the ammunition factories, instead of

* Read at the June Conference of the Association of Head Mistresses.

entering the latter themselves; but employers vary very much in the readiness with which they release men and engage women substitutes, and the patriotism of some is sadly to seek in this matter. The other difficulty is the fear of men shop assistants that women will take less money, do the work adequately, and be retained after the War for the sake of cheapness. It is hardly necessary to say that every honourable instinct should prevent women from lending themselves to such practices as these. We shall probably see a steadily growing introduction of women into many different occupations as more and more men are drawn off, and we may hope that, when the time comes for judging the service that women have rendered in this crisis of our country's fate, it will be recorded that many women workers took up the daily necessary tasks of the nation's life and carried them on cheerfully, faithfully, adequately, ready to lay down the job when the man replaced returned to claim it, and equally determined that no action of theirs during their time of service should prejudice the abiding interests of their fellow-women.

A ledger clerk earning £2 a week joined the Army and was replaced by a girl at 17s. 6d., who did all his work. Another clerk at the same salary left two months later and was replaced by another girl at 17s. 6d., net result being that the firm, instead of paying £4 a week, paid 35s. Only one male ledger clerk is left, but he is very uneasy! but, characteristically, not because the women are shamefully underpaid for doing identical work, but because he feels his tenure and the taking back of the other men as very insecure—the firm may wish to pursue these economical tactics. These girls were supplied to the firm by a well known cramming establishment, and presumably advised to accept these conditions. But it is the same in the Civil Service—e.g. Post Office.

REVIEWS.

Citizens to Be. By M. L. V. Hughes.
(4s. 6d. net. Constable.)

This is a social study of health, wisdom, and goodness, with special reference to elementary schools. The author has acquired her knowledge at first hand, since she has served as a teacher in three schools of this type. Her view is, on the whole, hopeful, since she finds the humanist ideal already respected in the earlier years of school life, and cannot believe that it will be much longer excluded from the later years. It is well known that the greater freedom allowed by the Board of Education to the infant schools has resulted in a higher kind of efficiency in these schools as compared with the ordinary boys' and girls' elementary schools, and Miss Hughes will have the whole-hearted support of all teachers in her fight for the recognition of the newer Humanism.

A great deal of the matter of this volume is already well known to all intelligent teachers who take any interest in their professional literature; but so many teachers neglect their reading that Miss Hughes is probably justified in re-emphasizing what she confesses to be the commonplaces of education. In any case she is justified in making a strong appeal to the non-professional amateurs in education to take the present opportunity of freeing the subject from some at least of its deadening conventions. She writes as a social reformer, using education as the natural instrument with which to make progress. Her view of the nature of humanism may not be generally accepted, but it supplies a working basis for her discussion. There is a certain mystical vagueness about her treatment of idealism that recalls Mr. Holmes, but it leads to practical applications that are conspicuously absent from "What Is and What Might Be."

After dealing with adaptability and freedom and health, Miss Hughes takes up the general principles of curricula, and then proceeds to discuss their direct and indirect values. She deals sensibly, though far from exhaustively, with the thorny subject of formal training and specific education, without troubling her readers much with the technicalities of the controversy. She is most at home in her chapter on Character, Interest, and Citizenship. When she comes to Leisure, Miss Hughes faces boldly one of the most important and least considered aspects of modern elementary education. It gives food for thought when a well informed writer can

honestly maintain that the three chief resources now available for the leisure of our children are the street, the kinematograph, the public-house. She suggests that the three best alternatives now available are the park, the free library, the club. Here she might have had a more encouraging tale to tell had she read Mr. Henry Curtis's recent book dealing with play as an educational instrument. In the chapter entitled Afterwards, we find Miss Hughes dealing with the industrial system, into which the child is plunged the moment he quits school. It is interesting to note that all writers on educational reform attack a system which they always label *the* system. In this case the system is the sort of established order that exists in an industrial community. Miss Hughes's treatment gets a little out of the usual rut, since she seeks the root of the evils of the system not in economic, but in moral and psychological, conditions. Further, she is not hopeless about a satisfactory attack on the system by means of educational reform. Even now the system is being modified by industrial legislation controlling conditions of employment and by voluntary enterprise ameliorating conditions outside.

The last chapter is the least satisfactory in the book. This will surprise no one when it is mentioned that its title is Humanism and the War. These issues are too great to be dealt with in the narrow range of a single chapter. They need a book to themselves. But, inadequate as is the chapter, it maintains the tradition of the rest of the book by providing practical suggestions. Humanism in the schools is essential to the real progress of the race, and humanism can come into the schools only by way of the training colleges. Accordingly, "the desired result depends also on a Humanist development in the training colleges." This insistence upon the importance of the elementary training colleges forms a striking characteristic of the book; it permeates the whole. It is to be hoped that the Board of Education will use wisely the power that these colleges place in its hand. The other outstanding plea of the book which will make a still stronger appeal to the practical teacher, is the persistent pleading for smaller classes. Perhaps the readers of this journal may question Miss Hughes's contention, in opposition to the ordinary view, that small classes are more needed in elementary than in secondary schools. But, in any case, all will agree that an upper limit of thirty pupils in a class would ensure a startling increase in educational efficiency. We wish Miss Hughes's book could be sent to every member of every Education Authority in the country.

Why the Nations are at War: The Causes and Issues of the Great Conflict. By C. Morris and L. H. Dawson. (5s. net. Harrap.)

The title of this book would hardly suggest the French Revolution, but it is from this event—if one may use such a mild term for anything so world-shaking—that Mr. Morris and Mr. Dawson begin to trace the causes of the present War. In fact, they have written a good outline history of the nineteenth century and the years which immediately precede and follow it. Almost all outline histories give an undue amount of space to the description of military campaigns, and this one is no exception. It would have been quite possible to tell the many and varied changes of boundary which befell the countries of Europe from 1795 to 1815 without giving in such detail the actual battles and campaigns of Napoleon. And this applies in a less degree to the rest of the military history of the period.

There is another fault to which outline histories are susceptible, and that is the excessive use of adjectives. Very few nouns escape unlabelled at the hands of Messrs. Morris and Dawson, and the adjectives used are of the more obvious sort. There are one or two small errors, such as the spelling of Legnano, and the slight difference of opinion between page 11 and page 25 as to the exact date of the beginning of the war.

To return to things of more real importance—the settlement of 1815 is very well and clearly put, and also the rise of Prussia, with one qualification, that too little is made of the important part played by the Zollverein in uniting the States

of Germany. With regard to England, the balance between the importance of her actions and those of the other Powers is kept with great fairness. In a land of party politics it is impossible to expect that the same impartial attitude should be maintained towards the actions of both sides at home.

Such large questions as the growth of the British Colonies, and the modernization of China and Japan, are necessarily indicated rather than dealt with. Indeed, this is really the method of the whole book. The essential facts are selected and set out, the lines of reasoning indicated, and the reader is left to trace out and name for himself the actual causes and issues.

The article by Mr. Eden Phillpotts, reprinted from the *Daily Chronicle* (when once the brain has grown used to the reverberation of his polysyllables), gives a most excellent sketch of the present and possible future position of Germany, and forms a fitting postscript to the book. There are thirty-four pictures of events in the war, persons connected with it, &c., and a map of Europe.

A Treatise on Statics. By George M. Minchin. Vol. II: Fifth Edition, revised by H. T. Gerrans. (10s. 6d. Clarendon Press.)

A comparison of the new volume with the previous issue of the second volume of the late Prof. Minchin's well known and standard *Treatise on Statics* brings out several important facts; for, be it understood, the fresh edition stands in rather unusual relations to its predecessor. In the first place, three entire chapters which appeared in the fourth edition have been cut out, and, moreover, numerous omissions of considerable magnitude have been made from the remaining portion of the earlier text. The decision as to these radical changes was arrived at by the author in conjunction with the reviser and various delegates of the Clarendon Press, and we learn that the parts removed—namely, those devoted to "Astatic Equilibrium," to the "Analysis of Strains and Stresses," to "Electrostatics," &c., were destined under circumstances happier than those which have actually supervened to serve as the foundation of a distinct treatise. Further, the freeing of space had an interesting objective. It meant (1) making room in the present publication for a fuller discussion of spherical harmonics, a subject in which the author had of late been carrying out researches. We are led to infer that the reviser has preferred at this time to leave untouched Prof. Minchin's recent work, for the earlier text dealing with the subject appears as a reprint in the new volume. It meant (2) providing for a very large addition to the number of theorems and problems collected and proposed for solution by the student, and the increase forms a distinctive feature of the new issue. The fresh exercises are for the most part selections from the question papers set at various University of Oxford examinations. Civil Service examination papers contribute a certain proportion, whilst some have been derived from original memoirs. A point worthy of notice as excellent is the retention of their old numbers by the articles introduced from the old edition. For purposes of reference the advantage arising from this method of procedure is obvious, seeing that, where the text of the fourth edition has its counterpart in the fifth, that counterpart is a verbatim reproduction.

Killing for Sport. Essays by various writers. With a Preface by G. B. Shaw. (2s. 6d. net. Bell.)

A large proportion of the people who read take a sort of pride in never reading the prefaces of books, but in this case it is more likely that the preface will be thought the chief attraction. Not unreasonably so, for it is the most readable part—as far as style goes—of this "book with a purpose." Mr. Shaw has the secret of setting forth the weightiest arguments, and yet keeping his lightness of touch. He decides the question of killing for sport on its morals, and leaves the more practical considerations to be dealt with by the other writers who have contributed to the book. It is necessary that every point of view should be stated, because the matter should be made to demand the attention of every man and woman who has any claim to the title of "sportsman." The

economic side makes a strong appeal to many people, and a large proportion of the arguments go to prove that sport involves waste in labour, land, material, and money. One valuable suggestion is made by Mr. Edward Carpenter, that there should be preserved spaces—such as the Yellowstone Park—for wild animals of all sorts. It almost amounts to a national disgrace that there is no place of this kind on any extensive scale, in England.

The arguments used by the various writers are, on the whole, sound and irrefutable, but frequently they express their reasons in so unreasonable and intolerant a manner that they are more likely to enrage than convert. The ultimate issue, however, is the moral one, and the verdict cannot but be given against the practice of killing for sport.

GENERAL NOTICES.

ENGLISH.

English Composition. By R. S. Bate, M.A. (3s. 6d. Bell.)

This book is intended to form a complete manual of composition from the earliest stages. The first fourteen chapters contain the grammar, certain of them being indicated as suitable for a preliminary course only; the others are to be omitted on a first reading. The fifteenth chapter introduces the paragraph; then follow the essay, the complete essay, paraphrase, précis, figures of speech, prosody, the forms and diction of poetry, and the history and structure of English. The book is comprehensive in scope, containing all—or more than all—that is likely to be needed for school work. But its very comprehensiveness has apparently proved a snare to the author. In aiming at logical completeness he seems to have lost sight of the needs and the interests of the children who are to use the book. Much of the material included in the "preliminary course" is quite unsuitable for the pupils for whom it is intended. What, for example, will "the very young children" the author has in view make of this sentence: "A colour and a sound are concrete; colour and sound are abstract"? Or how are they to understand that the adjective "black" in "a black hat" both "limits" and "extends" the meaning of the word "hat," a statement which makes, in fact, the distinction implied in the use of the terms "extension" and "intension" in logic? Indeed, the fault here illustrated is not confined to the preliminary course—the whole book gives the impression of being learned, formal, and dry, and as such can hardly make the subject attractive to boys and girls. More variety, too, is needed in the exercises in composition, where the essay plays far too prominent a part. Moreover, many of the essay subjects suggested are quite unsuitable for any but advanced students.

English Medieval Literature. By C. S. Baldwin, A.M., Ph.D., Professor of Rhetoric in Columbia University. (4s. 6d. Longmans.)

In his preface the author tells us that this book "is not for scholars"; it is intended as a "students' guide" to "the widely interesting body of medieval literature now at hand." It discusses the form, character, and historical significance of epic, romance, lyric, and allegory, with frequent illustrations from English literature and frequent references to the literature of other nations. There is a chapter on Chaucer, and the book concludes with one on Popular Composition, including ballads and the beginnings of drama. The whole treatment is interesting and stimulating, especially in keeping in view throughout the essential relation between the history of a people and its literature. The book should serve admirably the purpose for which its author intended it.

Précis Writing for Schools. By C. L. Thomson, F.R.Hist.S. (1s. 6d. H. Marshall.)

This little book consists chiefly of a number of passages from standard prose authors to be used as exercises in précis writing. Its aim is to supply material of more interest and literary merit than is often used for this purpose, and, from this point of view, the passages are well chosen. In a brief introduction, Miss Thomson works out two examples of précis writing, concluding with a dozen rules for this form of composition.

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piller has been somewhat restricted in his choice of reading material, but he has also included some of the recognized models of literature. Monotone pictures are also numerous and artistic, and the books offer excellent scope to the teacher who is interested in art, and in the development of æsthetic appreciation in children.

On the Writing of English. By George Townsend Warner, M.A. (3s. 6d. net. Blackie.)

Mr. Warner's book is the most interesting, the most original, and the most stimulating manual of composition we have ever read. Others have been more exhaustive in treatment and more pedantic in language, but none has been at once so wise and so humorous. There is nothing like it in our language, and, though the price may cause some to hesitate, the value of the book to both pupil and teacher is so great that the purchaser will for ever rejoice that he was not tempted by cheaper wares. It is written so that the boy can read it for himself, and the author confesses that he has "sacrificed pedagogic decorum of instruction." It is good for us that he has done so, since he has produced a book that sparkles with wit and forbids any interrupted snatches of reading. The boy will read it with interest and profit, but the teacher will be positively refreshed in spirit, and will return to his "Essays"—for we all call them by that name, despite Mr. Warner's first sentence—with newborn hopes. It is difficult to give quotations where everything is excellent. The very titles to the chapters are fresh: "On Diving In," "On Succulent Bivalves" (a spirited attack on the use of commonplace phrases), "On Ways into the Head." The latter begins with a dialogue:—
Dominie: "When you have finished writing your essay, the next thing to do is to read it through." Scholar: "Of course! I always do." Dominie: "Aloud?" Scholar: "Er—no!" Dominie: "What has Heaven given you ears for?" Mr. Warner is probably aware that the last line of this is repeating the common mistake of ending a sentence with a preposition, since it is only in the preceding chapter that he has mentioned it, but he there forestalled criticism by adding to that type of error a foot-note which reads: "All the same, it is not very wicked." At the end of the book are three blank pages with the heading: "The Model Essay," ending with the dialogue:—Scholar: "What are all these blank pages for?" Dominie: "For the model essay, of course." Scholar: "Well, why don't you write it, then?" Dominie: "Not I, my friend.

that's your business." Scholar: "O—oh!" An appendix contains some short extracts with a few notes on the characteristics of each, and the last two are written by schoolboys and are excellent.

HISTORY.

European Entanglements since 1748. Chronologically arranged by Howard Chambers. (1s. net. Longmans.)

The "entanglements" are named and dated on the left page, and on the right page are placed some details of general interest connected with the various events. Such details are necessarily very limited, and often ineffective. Why not give a concise but sufficient explanation under each head?

The English Nation. By H. Court, B.Sc. (Econ.). Part I, *Industry and Commerce.* Part II, *Government and Wealth.* (1s. 6d. each. Relfe.)

In the First Part Mr. Court traces the growth of British industry and trade through the ages and through the world, with due regard to the progress of invention. In the Second Part he explains the mechanism and operation of the British system of government at home and in the colonies, with chapters on Education, the Army, the Navy, and Ireland; and shows how the wealth of the Empire is won and applied, with chapters on the relations of capital and labour, wages, and taxation. The volumes will be useful either in class or for general reading. Each volume has a number of illustrations.

GEOGRAPHY.

Highroads of Geography. Book VI. (2s. Nelson.)

Nearly four hundred pages of bold text, with a wealth of illustration. There are few books that have struck us as being so suitable for the top standards of elementary schools. Part I deals with general and industrial facts of the British Isles; Part II consists of regional surveys of well chosen districts in the same area. The splendid coloured reproductions of paintings by famous artists are of considerable permanent value.

"The Atlas Geographies."—Preparatory: *British Empire beyond the Seas.* By Thos. Franklin, E. D. Griffiths, and E. R. Shearmur. (Limp cloth, 7d.; cloth boards, with index, 10d. Johnston.)

These are on the same lines and as carefully prepared as the other books in the series, and are really excellent value for the prices charged.

"Junior Regional Geography."—*The Three Southern Continents*. By J. B. Reynolds, B.A. (1s. 4d. Black.)

Miss Reynolds's books always deserve attention, as she so well appreciates the standpoint of the teacher, and this volume is no exception. It is the seventh book of this series and is uniform with the others. The illustrations are numerous and assist the text, which is interesting throughout. Many exercises are given, and are suitable for the middle forms of secondary schools.

An Introduction to General Geography. By Alec A. Golding, B.Sc. (4s. Cambridge University Press.)

This is an expensive collection of notes containing some new points and some new presentation of old material, but, on the whole, is not particularly successful, possibly through an endeavour on the part of the author to refer to every topic that has any bearing on geographical study. There are a hundred figures, but many are very crude. The chapter on maps is good; hence it is very unfortunate that a most unsatisfactory projection has been used in the distribution maps.

Principles of Physical Geography. By G. C. Fry, M.Sc. (1s. 6d. Clive.)

This small book is a new edition of the pages dealing with physical geography in the author's "Textbook of Geography" issued seven years ago. The opportunity of extending certain sections and correcting some inaccuracies has been taken and several extra diagrams have been inserted. As it stands it is, quite frankly, a cram book for particular examination requirements, which it no doubt meets. It is not very interesting. The diagrams are fairly good, though Fig. 8a (Magnetic Declination, 1900) is sadly out of date and contains a serious misprint, while Figs. 41 and 42, which are wrongly paged, are synoptic weather charts for certain days in 1907, and might, with advantage, be replaced by the much more interesting 1914 ones.

"Cambridge Handbooks for Teachers."—*The Teaching of Geography*. By B. C. Wallis, B.Sc., F.C.P. (3s. 6d. Cambridge University Press.)

This is the first book of a new series. It is a serious piece of work produced by a teacher of repute, and, at the outset, it should be stated that the teacher of geography is advised to add it to his library. There is a wealth of hints which bear the impress of having been well tested and of being thoroughly workable—in fact, with the exception of a better method of making relief maps, it is doubtful if any distinct improvement could be suggested for any section dealing with the practice of the subject. A very thoughtful scheme of geography is divided up into descriptive, transition, systematic, and argumentative geography, and a conspectus of the whole is given. Then follow chapters dealing with Use of Apparatus, Practical Work, Test Papers and Examinations, Geography Rooms, &c. The volume is a distinctly good addition to the methodology of the subject. The criticisms likely to be raised against the book will chiefly be in connexion with the first chapter, which deals with the Scope of School Geography. Mr. Wallis is refreshingly emphatic, almost pugnacious, at times. He certainly states that his suggestions demand ideal conditions, but, unfortunately, teachers are so seldom ideal that there is the possibility that such statements as the following may be misunderstood: "The geography teacher requires the result of their (his colleagues') teaching as the bricks from which to build his superstructure; . . . if they are not supplied . . . he has, as it were, to dump these bricks down before his class." And, again, later: "The pupil must accept as a fundamental piece of information, which wiser people than he have discovered, the fact which is quoted to him." Mr. Wallis could, and does, succeed by the adoption of this principle, but it is a dangerous doctrine to preach to the inexpert. We wonder also how many anthropologists or geographers would quite agree with him when he says that "the nomad Steppe dwellers . . . are self-centred and self-sufficing, . . . and are (therefore) geographically unimportant." It may be added that on page 1 the following occurs: "The United States are almost a self-contained community." There are indications throughout the book that Mr. Wallis does not intend to stress the complexity of modern civilization, and will not emphasize the importance of other races than white (preferably British) men. Nevertheless, whether we agree or differ with regard to minor points of policy, all will welcome his book.

MATHEMATICS.

The Teaching of Algebra (including Trigonometry). (7s. 6d.) *Exercises in Algebra (including Trigonometry)*. (Part I, without Answers, 3s. 6d.; with Answers, 4s. Part II, without Answers, 6s.; with Answers, 6s. 6d.) By T. Percy Nunn, M.A., D.Sc., Professor of Education in the University of London, Vice-Principal of the L.C.C. London Day Training College. (Longmans.)

These three books together constitute a complete work of distinctive type. Their aim is to give a sound practical or working

knowledge of the subject based on sound theoretical principles, and the text, shorn of much of that purely academic material which has very little real value to the average student, is solely confined to such topics as can be turned to some profitable account. In "The Teaching of Algebra," which is essentially a guide for teachers, the author discusses from a teacher's standpoint the fundamental principles involved in the successful teaching of the subject, gives critical but interesting notes on the several sections of the work, and describes with some detail the best method of dealing with the exercises contained in the other two (or students') books. It is subdivided into two parts corresponding exactly to Parts I and II of the "Exercises." The work in Part I is suitable for students up to the age of sixteen or seventeen. A thorough preliminary course in the use of "non-directed numbers," or elementary generalized arithmetic, neatly paves the way to the wider use of "directed numbers" and leads up to the idea of a complete number scale. Other striking features are the early introduction of trigonometrical work, the use of Wallis's Law as a basis for a first glimpse into the methods of the calculus, and the development of logarithms from the idea of growth-factors and the use of the Gunter Scale. Part II, which is more of University standard, carries the algebra of Part I to a more advanced stage, introduces spherical trigonometry, complex numbers, periodic functions, the elements of the differential and integral calculus, and finishes up with the mathematics of statistics. The exercises are well chosen and, in the case of those relating to Part II, are supplemented by additional notes for the benefit of the student. The books are quite unique in their way, and teachers of mathematics should take an early opportunity of looking through them.

Plane Trigonometry. By H. S. Carslaw, Sc.D. Camb., D.Sc. Glas., Professor of Mathematics in the University of Sydney. (4s. 6d. Macmillan.)

This book has now reached its second edition. It falls into line with others of similar type by its subdivision into two distinct sections—elementary and higher. The former is of semi-practical character—that is to say, much of the purely academic matter to be found in the older textbooks is cut out and plenty of useful numerical and logarithmic work is introduced early in the course. This section will be found perfectly adapted to ordinary school purposes. The higher section contains theoretical developments and applications of the subject, which are of more use to the specialist than to the general student. A thoroughly sound book. Four-figure logarithm tables are appended. A key is published separately, price 6s. 6d. This contains full and clearly worked-out solutions of all the numerous exercises to be found in the textbook. Teachers will find it of great assistance.

THE GIRLS' SCHOOL YEARBOOK.

The Girls' School Yearbook (Public Schools). The Official Book of Reference of the Association of Head Mistresses. 1915. (3s. 6d. net. The Yearbook Press.)

This valuable book of reference is now well established and is in its tenth year of issue. It gives, with very full details, an account of every secondary girls' school that is administered by a governing body. In addition there is much essential information in regard to careers open to girls on leaving school, and in this edition have been included those openings that have arisen in consequence of the War. There is also at the end a convenient list of schools arranged by counties. A full index is provided which makes the book easy to use. So far as we have tested it the information given is accurate.

PUBLICATIONS RECEIVED.

EDUCATION.

Teaching: its Nature and Varieties. By Benjamin Dumville. Tutorial Press, 4s. 6d.
Psychology of High School Subjects. By Charles Hubbard Judd. Ginn, 6s. net.
Everyday Pedagogy. With special application to the Rural Schools. By Lillian I. Lincoln. Ginn, 4s. 6d. net.
Citizens to Be: a Social Study of Health, Wisdom, and Goodness, with special reference to Elementary Schools. By M. L. V. Hughes. Preface by J. H. Muirhead. Constable, 4s. 6d. net.

CLASSICS.

Bell's Simplified Classics.—Caesar's Belgian Campaigns. Edited, with Introduction, Notes, and Vocabulary, by S. E. Winbolt. 1s. 6d.
More Latin and English Idiom: an Object Lesson from Livy XXXIV, 1-8. By H. Darnley Naylor. Cambridge University Press, 4s. 6d. net.

- The Eclogues and Georgics of Virgil. Translated from the Latin by J. W. Mackail. New edition. Longmans, cloth, 2s. net; leather, 3s. net.
- Books of Britain and the Emperors. Book I: Julius Caesar to Agricola. The text adapted and edited, with Notes and Vocabulary, by E. C. Marchant. Bell, 1s.
- The Olynthiac Speeches of Demosthenes. By J. M. Macgregor. Cambridge University Press, 2s. 6d. net.

FRENCH.

- Mon Premier Livre de Français. By F. M. S. Batchelor. Illustrations by E. A. Pike. Price 2s. 6d.; with phonetic transcript of Chapters I-XV, 3s. 6d.; separately the phonetic transcript, 1s. 6d.—Three French Wall Pictures by E. A. Pike. Le Verger, coloured, 6s. net; La Rue, and Le Marché, uncoloured, each 3s. 6d. Oxford University Press.
- Les Français en Guerre. By Jetta S. Wolf. Illustrated. E. Arnold, 1s. 6d.
- Ma Première Visite à Paris. Par A. E. C. Oxford University Press, 1s. 6d.
- MacMunn's Sentence Builder. Enables two children to make sentences in French and English and to check their own work. Specimen apparatus for two boys sent post free for 1s. from Warren & Son, Winchester.
- Tamango. By Prosper Mérimée. Clarendon Press, 6d.
- Tamango. By Prosper Mérimée. Edited by R. R. N. Baron. Mills & Boon, 4d.
- Le Petit Vocabulaire. By A. A. Méras. Heath, 4d.

ENGLISH.

- Marlowe's Doctor Faustus, and Part I of Goethe's Faust. Translated by John Anster. Introduction by Sir A. W. Ward; Notes by C. B. Wheeler. Milford, 2s. 6d.
- Landmarks in Literary History. By C. A. Owen. Bell, 2s.
- The Arabian Nights: a selection, for the most part, from Lane's translation. Illustrated. Milford, 1s. 6d. net.
- School Poetry: for the junior division. Ralph, Holland, 4d.
- English Poetry for Young Students. Selected and edited, with Notes, by W. T. Webb. Macmillan, 1s. net.
- Then and Now Stories.—Senior: The British Empire. By John Hugh Roberts. Macmillan, 5d.
- The Harrying of the Dove. A Masque. (Standard plays for amateur performance.) G. Allen, 6d. net.
- The Story of Cotton. By Henry Howarth. McDougall, 8d.
- Francis Chantrey. Donkey Boy and Sculptor. By Harold Armitage. Illustrated. Mills & Boon, 1s.
- A Junior Graphic Grammar. By E. A. A. Varnish and J. H. Hanly. Cambridge University Press, 1s. 8d.
- First Steps in English Grammar. By Frank Ritchie. Longmans, 1s.
- English Grammar and Composition. Part I: English Grammar (with Analysis and Parsing), 1s. 6d. Part II: English Composition (including précis and paraphrase), 1s. By H. G. Smith and G. H. Ball. Mills & Boon.
- Speaking and Writing for Everyday Use: a Book of self-help for Boys and Girls. Books I and II, 3d. each; Book III, 4d.; Book IV, 5d.; Books V and VI, 6d. each. Educational Supply Association.
- Gateways to Bookland.—(1) A Wreath of Golden Blossoms, 10d.; (2) Old Time Treasures, 1s.; (3) Winged Flights into Storyland, 1s. 3d. McDougall.
- Lays of Ancient Rome. Introduction and Maps by William Edwards. Rivingtons, 1s. 6d. net.
- Milton's Paradise Lost. Book III. Edited by C. B. Wheeler. Oxford University Press, 1s. 6d.
- The Happy Readers. By H. Ada Beeny. Book I, 6d.; Book II, 7d.; Book III, 8d.; Teachers' Book, 3d. Jack.
- Hans Andersen's Fairy Tales. Edited by J. H. Stickney. Illustrated by Edna F. Hart. First Series, 2s.; Second Series, 2s. Ginn.
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- Oxford Plain Texts.—(1) Longfellow's Evangeline. Paper, 6d.; cloth, 8d. (2) Spenser's Faerie Queene. Paper, 9d.; cloth, 1s. (3) Shakespeare's King Lear. 6d. net. Clarendon Press.
- Clarendon Press Shakespeare.—(1) Julius Caesar. (2) Twelfth Night. (3) Macbeth. Edited by G. S. Gordon. 1s. net each.
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- Typical Flies: a Photographic Atlas of Diptera, including Aphan-aptora. By E. K. Pearce. Cambridge University Press, 5s. net.
- Fighting the Fly Peril: a Popular and Practical Handbook. By C. F. Plowman and W. F. Dearden. Introduction by A. E. Shipley. Fisher Unwin, 1s. net.
- The House Fly: a Slayer of Men. By F. W. Fitzsimons. Longmans, 1s. net.
- Science Progress, July 1915. Murray, 5s. net.

THE WAR.

- The German War of 1914. By J. R. D. O'Regan. Milford, 1s. 6d.
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- Love and Service of Country. By F. J. Gould. Watts, 3d.
- Marching Terms and Evolutions. By Herbert E. Naylor. Gale & Polden, 1s. 6d. net.

DIRECTORIES.

- The Girls' School Yearbook (Public Schools) 1915. The Official Book of Reference of the Association of Head Mistresses. Tenth year of issue. Yearbook Press, 3s. 6d. net.
- The London Matriculation Directory. June 1915. Clive, 1s. net.

UNCLASSIFIED.

- Alcohol: a Poem for the Times. Stockwell, 3d. net.
- Women and Bribery. By R. M. Leonard. The Bribery Prevention League, 3d.

MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

17950. (C. H. HARDINGHAM.)—The following scoring occurred in a cricket match which took place in 1903:—
Worcestershire.

A.	ct, b Rhodes	.....	0
B.	c and b Hirst	.....	3
C.	st, b Rhodes	.....	1
D.	ct, b Hirst	.....	4
E.	ct, b Rhodes	.....	11
F.	ct, b Rhodes	.....	1
G.	b Hirst	.....	1
H.	ct, b Hirst	.....	0
I.	ct, b Rhodes	.....	0
J.	b Hirst	.....	1
K.	not out	.....	0
	leg b 1, no b 1	.....	2

Hirst	{	. . . . . 1 w . 4 w . .	. . . . . 2 . 1 w w . .	. . . . . . . . . . 1 4 1 4 w
	
		. . . . . w w 1 w w	. . . . . . . . . . . . . . . . . . . . . . . . . . . .	. . . . . . . . . . . . . . . . . . . . . . . . . . . .
Rhodes	{	. w 1	. . . . . . . . . . . . . . . . . . . . . . . . . . . .	. . . . . . . . . . . . . . . . . . . . . . . . . . . .
	
	

Show that the batsmen attempted a run when D. was caught, that E. was out before F., but that G. may have survived H.

Solution by the PROPOSER, amended in consultation with Mr. A. A. BOURNE, M.A.

If the run scored as a no-ball was in fact a bye run off a no-ball the problem is insoluble.

In any case the second of the three statements—that E. must have been out before F.—is incorrect, as the first single in Rhodes' sixth over may have been a two of which one was short.

Assuming that the "no-ball" was not run as a bye, the first part—that a run was attempted when D. was caught—is thus proved.

First it is shown that there was a change of ends when, or shortly after, D. was caught; and secondly that this change cannot be due to the leg-bye.

D. must have made a four, as E. could not make all three, but D. fell to Hirst. He must then have made the first four and been out fourth, since none of Hirst's later victims went in to bat till five wickets had fallen.

Accordingly E., who went in third wicket down, made the four scored after the fall of the fourth wicket, so that there was a change of ends when, or shortly after, D. was caught.

Secondly, the leg-bye was run in one or other of the last two complete overs, for Hirst's two wickets in an over before J. went in must have been G. and H., and these two batsmen went in when the fifth and sixth wickets fell to Rhodes in the previous over. They were then in together, and so there was a change of ends after the first wicket fell in Hirst's last complete over.

Also, J. went in when the second of these two wickets fell, and is next seen making a run off Rhodes; consequently there was a change of ends after the second of the two wickets fell.

Of these two changes one must be due to the leg-bye and the other to an attempted run when H. was caught.

This shows that the batsmen tried to get a run when D. was caught.

Finally, whether G. or H. was the first to go depends on whether the batsmen did or did not attempt a run when the sixth wicket fell.

17998. (THOMAS MUIR, LL.D.)—Prove that the sum of the squares of the r -line minors formable from any array of r rows of an orthogonant is equal to the r -th power of the sum (σ) of the

squares of the elements of any single row. Illustrate by the case of the 8-line orthogonal which has $a^2 + b^2 + c^2 + \dots + h^2$ for the sum of the squares of the elements of every row.

Solution by the PROPOSER.

The sum of the squares of the r -line minors formable from any array of r rows is known to be equal to the so-called square of the array—that is to say, is equal to the result of multiplying the array row by row by itself. But as this, in the case of an orthogonal, produces an r -line determinant whose every diagonal element is σ , and every other element 0, the so-called square must be equal to σ^r .

In the special case mentioned, we find, if we take $r = 2, 3, 4$ in succession,

$$\begin{aligned} (a^2 + b^2 + \dots + h^2)^2 &= \text{sum of 28 squares,} \\ (a^2 + b^2 + \dots + h^2)^3 &= \text{,, 56 ,,} \\ (a^2 + b^2 + \dots + h^2)^4 &= \text{,, 70 ,,} \end{aligned}$$

The 28 squared determinants which arise when $r = 2$ may be separated into three groups, namely, if the rows chosen be the first two,

$$\begin{aligned} &(a^2 + b^2)^2 + 2(ad + bc)^2 + 2(ac - bd)^2 + (c^2 + d^2)^2, \\ &2 \left\{ \begin{aligned} &(af + be)^2 + (ah - bg)^2 + (cf - de)^2 + (ch + dg)^2 \\ &+ (bf - ae)^2 + (bh + ag)^2 + (df + ce)^2 + (dh - cg)^2 \end{aligned} \right\}, \\ &(e^2 + f^2)^2 + 2(eh + fg)^2 + 2(eg - fh)^2 + (g^2 + h^2)^2; \end{aligned}$$

and these are readily seen to be equal to

$$\begin{aligned} &(a^2 + b^2 + c^2 + d^2)^2, \quad 2(a^2 + b^2 + c^2 + d^2)(e^2 + f^2 + g^2 + h^2), \\ &(e^2 + f^2 + g^2 + h^2)^2, \end{aligned}$$

and therefore their sum equal to

$$(a^2 + b^2 + \dots + h^2)^3.$$

When a pair of roots other than the first pair is taken, any difference in the result consists merely in there being a different permutation of the letters.

Of the 56 squared determinants which arise when $r = 3$, the first 28 can be shown with a little more time and trouble to be equal to

$$(a^2 + b^2 + c^2 + d^2)^3 + 3(e^2 + f^2 + g^2 + h^2)(a^2 + b^2 + c^2 + d^2)^2,$$

or, say,

$$\sigma_1^3 + 3\sigma_2\sigma_1^2;$$

the second 28 are therefore equal to $\sigma_2^3 + 3\sigma_1\sigma_2^2$,

and the whole equal to $(a^2 + b^2 + \dots + h^2)^3$.

Similarly, the first 35 squared determinants in the next case are transformable into $\sigma_1^4 + 3\sigma_1^3\sigma_2 + 3\sigma_1^2\sigma_2^2 + \sigma_1\sigma_2^3$,

and therefore the remaining 35 into

$$\sigma_2^4 + 3\sigma_2^3\sigma_1 + 3\sigma_2^2\sigma_1^2 + \sigma_2\sigma_1^3,$$

and the whole into $(a^2 + b^2 + \dots + h^2)^4$.

In this case some of the subordinate results are most interesting; for example:

$$\begin{aligned} &\begin{vmatrix} a & f & g & h \\ -b & -e & -h & g \\ -c & h & -e & -f \\ -d & -g & f & -e \end{vmatrix}^2 + \begin{vmatrix} a & e & g & h \\ -b & f & -h & g \\ -c & g & -e & -f \\ -d & h & f & -e \end{vmatrix}^2 \\ &+ \begin{vmatrix} a & e & f & h \\ -b & f & -e & g \\ -c & g & h & -f \\ -d & h & -g & -e \end{vmatrix}^2 + \begin{vmatrix} a & e & f & g \\ -b & f & -e & -h \\ -c & g & h & -e \\ -d & h & -g & f \end{vmatrix}^2 \\ &= (a^2 + b^2 + c^2 + d^2)(e^2 + f^2 + g^2 + h^2)^3. \end{aligned}$$

17040. (W. N. BAILEY.)—Limaçons with a common pole are drawn to touch two fixed circles through the pole. Show that their directrices form a coaxial system.

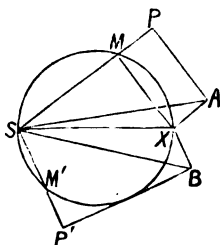
Solution by C. E. YOUNGMAN, M.A.

Let S be the pole, and SX a diameter of one of the directrices. The limaçon belonging to SX is the locus of P or P' taken on a chord SM or SM' , so that

$$MP = M'P' = \text{constant};$$

complete the rectangle $PMXA$; then PA evidently touches a circle with centre X and radius $XA = MP$;

the limaçon is therefore the pedal for S of that circle, and consequently the envelope of the circle which has diameter SA . But here two such diameters SA and SB are given; and $XA = XB$; so the locus of X is a straight line, and the projection of S on this is a point on all the directrices.



The PROPOSER solves thus:—

The locus of the centres of circles which pass through two fixed points is evidently a straight line. Reciprocate this with respect to a fixed point, and then invert with respect to the same point, and we get the given property.

17719. (Professor K. J. SANJANA, M.A.)—The normals at three points P, Q, R of a parabola meet in W and O is the orthocentre of the triangle PQR . Prove that the straight line OW is trisected by the axis and has a constant projection upon it.

Solution by I. FITZ ROY JONES and others.

Let the equation to the parabola be

$$y^2 = 4ax,$$

and let (α, β) be the co-ordinates of W .

The coordinates of P, Q, R are $(a\mu_1^2, 2a\mu_1), (a\mu_2^2, 2a\mu_2), (a\mu_3^2, 2a\mu_3)$, where μ_1, μ_2, μ_3 are the roots of

$$\beta + \mu\alpha = 2a\mu + a\mu^3,$$

so that $\Sigma\mu_1 = 0$,

$$\Sigma\mu_2\mu_3 = 2 - a/a,$$

$$\mu_1\mu_2\mu_3 = \beta/a.$$

Line through P perpendicular to RQ is

$$x(a\mu_2^2 - a\mu_3^2) + y(2a\mu_2 - 2a\mu_3) - \{a\mu_1^2(a\mu_2^2 - a\mu_3^2) + 2a\mu_1(2a\mu_2 - 2a\mu_3)\} = 0,$$

$$\text{or } ax(\mu_2^2 - \mu_3^2) + 2ay(\mu_2 - \mu_3) - a^2\mu_1\{\mu_1(\mu_2^2 - \mu_3^2) + 4(\mu_2 - \mu_3)\} = 0,$$

$$\text{or } x(\mu_2 + \mu_3) + 2y - a\mu_1(\mu_1\mu_2 + \mu_1\mu_3 + 4) = 0,$$

$$\text{or } x\mu_1 - 2y + a\mu_1(6 - a/a - \mu_2\mu_3) = 0,$$

$$\text{or } x\mu_1 - 2y + a\mu_1(6 - a/a) - \beta = 0.$$

Similarly line through Q perpendicular to PR is

$$x\mu_2 - 2y + a\mu_2(6 - a/a) - \beta = 0.$$

O is the common point of these two. We have

$$x(\mu_1 - \mu_2) + a(6 - a/a)(\mu_1 - \mu_2) = 0, \quad x = -6a + a;$$

$$2y(\mu_2 - \mu_1) = -\beta(\mu_2 - \mu_1), \quad y = -\frac{1}{2}\beta.$$

Hence O is the point $(a - 6a, -\frac{1}{2}\beta)$; hence axis trisects OW , and projection of OW on the axis $= a - (a - 6a) = 6a$, which is constant.

17511. (J. HAMMOND, M.A.)—If $\Sigma f(k/n) = F(n)$ or $\Phi(n)$, according as Σ embraces all positive integral values of k from 1 to n , or only such of them as are prime to n ; prove that $\Sigma \Phi(d) = F(n)$, which reduces to the familiar formula $\Sigma \Phi(d) = n$ in the special case of $f(k/n) = \text{const.}$

Solution by the PROPOSER.

This may easily be proved by reducing each of the fractions $1/n, 2/n, 3/n, \dots$ to its lowest terms and then rearranging the terms of $F(n)$. For example, if $n = 10$,

$$F(10) = f(\frac{1}{10}) + f(\frac{2}{10}) + f(\frac{3}{10}) + \dots + f(\frac{10}{10}),$$

$$\Phi(10) = f(\frac{1}{10}) + f(\frac{3}{10}) + f(\frac{7}{10}) + f(\frac{9}{10}),$$

$$\Phi(5) = f(\frac{1}{5}) + f(\frac{2}{5}) + f(\frac{3}{5}) + f(\frac{4}{5}),$$

$$\Phi(2) = f(\frac{1}{2}),$$

$$\Phi(1) = f(1),$$

$$F(10) = \Phi(10) + \Phi(5) + \Phi(2) + \Phi(1).$$

18008. (S. KRISHNASWAMI AIYANGAR, B.A.)—Show that

$$\frac{1}{2} + \frac{1.3}{2.4} \cdot \frac{1}{2} + \frac{1.3.5}{2.4.6} \cdot \frac{1}{3} + \dots \text{ to } \infty = 2 \log 2.$$

Solution by C. M. ROSS, M.A.

Let
$$S_x = \frac{1}{2}x + \frac{1.3}{2.4} \cdot \frac{x^2}{2} + \frac{1.3.5}{2.4.6} \cdot \frac{x^3}{9} + \dots$$

then
$$S_1 - S_0 = \text{given series} = \int_0^1 d(S_x) dx.$$

Now
$$dS_x = \frac{1}{2} + \frac{1.3}{2.4} \cdot x + \frac{1.3.5}{2.4.6} \cdot x^2 + \dots;$$

therefore
$$dS_x = \{(1-x)^{-4} - 1\}/x;$$

therefore
$$S_x = \int_0^1 \frac{1-(1-x)^4}{x(1-x)^4} dx$$

$$= 2 \int_0^{\pi/2} \frac{1-\cos \theta}{\sin^2 \theta \cos \theta} \cos \theta \sin \theta d\theta$$

$$= 2 \int_0^{\pi/2} \tan \frac{1}{2} \theta d\theta$$

$$= \left\{ -4 \log \cos \frac{1}{2} \theta \right\}_0^{\pi/2}$$

$$= 2 \log 2.$$

18031. (R. F. DAVIS, M.A.)—If $\sin \theta - \sin(\alpha - \theta) = \kappa$, prove that $\sin \theta \sin(\alpha - \theta) = (\sin^2 \alpha - \kappa^2)/2(1 + \cos \alpha)$.

Similarly, if $\tan \theta + \tan(\alpha - \theta) = \kappa$, express $\tan \theta \tan(\alpha - \theta)$ in terms of κ, α .

Solutions (I) by W. F. BEARD, M.A.; (II) by B. A. SWINDEN and J. MACMILLAN, M.A.; (III) by C. M. ROSS, M.A.

(I) (i) $\sin^2 \alpha - \kappa^2 = \sin^2 \alpha - \sin^2 \theta + 2 \sin \theta \sin(\alpha - \theta) - \sin^2(\alpha - \theta)$
 $= \sin(\alpha - \theta) [\sin(\alpha + \theta) + 2 \sin \theta \sin(\alpha - \theta) - \sin(\alpha - \theta)]$
 $= 2 \sin \theta \sin(\alpha - \theta) [1 + \cos \alpha],$

which is equivalent to the given result.

(ii) $\tan \theta + \tan(\alpha - \theta) = \kappa$
 $[\tan \theta + \tan(\alpha - \theta)]/[1 - \tan \theta \tan(\alpha - \theta)] = \tan \alpha;$

therefore $\kappa \cot \alpha = 1 - \tan \theta \tan(\alpha - \theta);$
 therefore $\tan \theta \tan(\alpha - \theta) = 1 - \kappa \cot \alpha.$

(II) $\kappa = \sin \theta - \sin(\alpha - \theta) = 2 \cos \frac{1}{2} \alpha \sin(\theta - \frac{1}{2} \alpha);$
 therefore $\sin^2(\theta - \frac{1}{2} \alpha) = \kappa^2/2(1 + \cos \alpha) \dots \dots \dots (i).$
 $2 \sin \theta \sin(\alpha - \theta) = \cos(2\theta - \alpha) - \cos \alpha$
 $= 1 - 2 \sin^2(\theta - \frac{1}{2} \alpha) - \cos \alpha$
 $= 1 - \cos \alpha - \kappa^2/(1 + \cos \alpha)$ [by (i)]
 $= (\sin^2 \alpha - \kappa^2)/(1 + \cos \alpha);$

therefore $\sin \theta \sin(\alpha - \theta) = (\sin^2 \alpha - \kappa^2)/2(1 + \cos \alpha).$

So if $\kappa = \tan \theta + \tan(\alpha - \theta)$
 $= [\sin \theta \cos(\alpha - \theta) + \cos \theta \sin(\alpha - \theta)]/\cos \theta \cos(\alpha - \theta)$
 $= \sin \alpha / [\cos \theta \cos(\alpha - \theta)] = 2 \sin \alpha / [\cos \alpha + \cos(\alpha - 2\theta)];$
 therefore $\cos(\alpha - 2\theta) = (2 \sin \alpha - \kappa \cos \alpha)/\kappa \dots \dots \dots (ii),$

and $\tan \theta \tan(\alpha - \theta) = \frac{2 \sin \theta \sin(\alpha - \theta)}{2 \cos \theta \cos(\alpha - \theta)}$
 $= \frac{\cos(\alpha - 2\theta) - \cos \alpha}{\cos(\alpha - 2\theta) + \cos \alpha}$
 $= \left\{ \frac{2 \sin \alpha - 2\kappa \cos \alpha}{\kappa} \right\} / \frac{2 \sin \alpha}{\kappa}$ [by (ii)]
 $= (\sin \alpha - \kappa \cos \alpha)/\sin \alpha.$

(III) Since $\sin \theta - \sin(\alpha - \theta) = \kappa,$
 $\sin \theta (1 + \cos \alpha) = \kappa + \sin \alpha \cos \theta;$

therefore $\sin^2 \theta (1 + \cos \alpha)^2 = \kappa^2 + 2\kappa \sin \alpha \cos \theta + \sin^2 \alpha \cos^2 \theta$
 $= \kappa^2 + 2\kappa \sin \alpha \cos \theta + \sin^2 \alpha (1 - \sin^2 \theta),$

hence $\sin^2 \theta [(1 + \cos \alpha)^2 + \sin^2 \alpha] = \kappa^2 + 2\kappa \sin \alpha \cos \theta + \sin^2 \alpha$

or $2 \sin^2 \theta (1 + \cos \alpha) = \kappa^2 + 2\kappa \sin \alpha \cos \alpha + \sin^2 \alpha,$

then $2 \sin \theta (1 + \cos \alpha) [\kappa + \sin(\alpha - \theta)] = \kappa^2 + 2\kappa \sin \alpha \cos \alpha + \sin^2 \alpha,$
 or $2(1 + \cos \alpha) \sin \theta \sin(\alpha - \theta) = \kappa^2 + 2\kappa \sin \alpha \cos \alpha + \sin^2 \alpha$
 $- 2\kappa \sin \theta (1 + \cos \alpha)$
 $= \kappa^2 + \sin^2 \alpha + 2\kappa \sin(\alpha - \theta) - 2\kappa \sin \theta$
 $= \kappa^2 + \sin^2 \alpha + 2\kappa [-\kappa]$
 $= \sin^2 \alpha - \kappa^2;$

therefore $\sin \theta \sin(\alpha - \theta) = (\sin^2 \alpha - \kappa^2)/2(1 + \cos \alpha);$

$\tan[\theta + (\alpha - \theta)] = \frac{\tan \theta + \tan(\alpha - \theta)}{1 - \tan \theta \tan(\alpha - \theta)},$

therefore $\tan \alpha [1 - \tan \theta \tan(\alpha - \theta)] = \tan \theta + \tan(\alpha - \theta)$
 $= \kappa,$

whence $\tan \alpha \tan \theta \tan(\alpha - \theta) = \tan \alpha - \kappa,$

or $\tan \theta \tan(\alpha - \theta) = (\tan \alpha - \kappa)/\tan \alpha.$

[The equation $\sin \theta - \sin(\alpha - \theta) = \kappa$ leads to a quadratic in $\sin \theta$. If one root is $\sin \theta$, the other is *a priori* $\sin(\pi + \alpha - \theta)$. —PROPOSER.]

17925. (F. G. W. BROWN, B.Sc., F.C.P.)— I_1, I_2, I_3 are the ex-centres of a triangle ABC whose semi-perimeter is s , and whose circum-, in- and cosine radii are R, r , and ρ respectively; show that, if ρ_1 is the cosine radius of the triangle $I_1 I_2 I_3$, then

$1/\rho_1 = s/2Rr - 1/\rho.$

Hence show that $r(\cot \omega_1 + 2 \cot \omega) = s,$

where ω, ω_1 are the Brocard angles of the triangles ABC, $I_1 I_2 I_3$ respectively.

Solution by Professor R. SRINIVASAN, M.A.

$\cot \omega = \Sigma \cot A, \cot \omega_1 = \Sigma \tan \frac{1}{2} A,$
 and $\rho = R \tan \omega;$ therefore $\rho_1 = 2R \tan \omega_1;$
 therefore $1/\rho + 1/\rho_1 = \left\{ \Sigma (\tan \frac{1}{2} A + 2 \cot A) \right\} / 2R$
 $= \Sigma \cot \frac{1}{2} A = 1/2R \cdot \Pi \cot \frac{1}{2} A / 2R$
 $= 1/2R \frac{\Sigma \sin A}{4 \Pi \sin \frac{1}{2} A} = 1/2R \frac{R \Sigma \sin A}{4R \Pi \sin \frac{1}{2} A}$
 $= 1/2R \cdot s/r;$

therefore $2R/\rho + 2R/\rho_1 = s/r,$
 i.e., $2 \cot \omega + \cot \omega_1 = s/r.$

The PROPOSER'S Solution is as follows:—

If r_1, r_2, r_3 are the ex-radii, a, b, c, a_1, b_1, c_1 the sides of the triangles ABC, $I_1 I_2 I_3$ respectively, then

$\rho_1 = \frac{a_1 b_1 c_1}{2 \Delta_1^2} = \frac{(r_1 + r_2)(r_2 + r_3)(r_3 + r_1) abc}{r_1 r_2 r_3 \cdot \Sigma (r_1 + r_2)^2 ab/r_1 r_2}$
 $= \frac{abc (r_1 + r_2)(r_2 + r_3)(r_3 + r_1)}{\Sigma ab r_3 (r_1 + r_2)^2}$
 $= \frac{abc \cdot 4R \cdot \Sigma r_1 r_2}{abc \cdot \Delta s \cdot \Sigma c/[(s-a)(s-b)]} = \frac{4Rr_1 r_2 r_3}{r^2 s^2 (2s^2 - abc/\rho)}$
 $= \frac{4R \Delta}{2s^2 - 4R \Delta/\rho};$

therefore $1/\rho_1 = s^2/2R \Delta - 1/\rho = s/2Rr - 1/\rho.$

Further, $\cot \omega_1 = R_1/\rho_1 = 2R [s/2Rr - 1/\rho] = s/r - 2R/\rho$
 $= s/r - 2 \cot \omega;$

therefore $r(\cot \omega_1 + 2 \cot \omega) = s.$

17858. (N. SANKARA AIYAR.)—Find the locus of points at which two sides of a given triangle subtend equal angles or supplementary ones. Hence find the co-ordinates of Fermat's point (the point at which the sides subtend the same angle).

Solution by W. N. BAILEY and MANUJANATH GHAKTAK.

If AB, AC subtend equal or supplementary angles at P, then

$\Delta APB/BP = \Delta APC/CP,$

since $\Delta APB = \frac{1}{2} AP \cdot PB \sin \angle APB, \dots$

Hence, using aricals,

$BP/CP = z/y.$

But $BP^2 = c^2 x^2 + 2ac \cos B \cdot xy + a^2 z^2.$

Therefore the locus of P is the curve

$y^2 (c^2 x^2 + 2ac \cos B \cdot xz + a^2 z^2)$
 $= z^2 (b^2 x^2 + 2ab \cos C \cdot xy + a^2 y^2),$

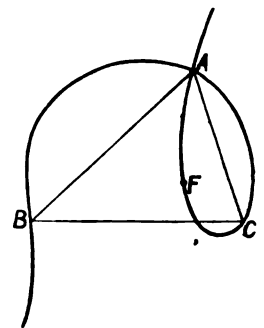
which breaks up into the line BC and the circular cubic (in trilinears)

$a(\beta^2 - \gamma^2) + 2\beta\gamma(\beta \cos B - \gamma \cos C) = 0$
 $\dots \dots (1).$

This curve passes through A, B, C; has a double point at A, the tangents there being the bisectors of the angle at A; meets BC again at the foot of the perpendicular from A; and has one, and only one, real asymptote, which is parallel to the median through A.

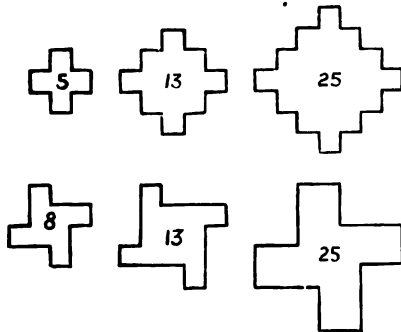
If we eliminate α between (1) and a similar equation, we obtain a quartic equation to find β/γ . The four corresponding points of intersection (besides the five points at A, B, C, allowing for double points) are Fermat's point and three points at which two sides subtend equal angles, and the third an angle supplementary to them. The equation is not an easy one to solve, and the co-ordinates of Fermat's point are very easily obtained by drawing external equilateral triangles on the sides, and joining the outside vertices of these triangles to the opposite vertices of the original triangle. These lines meet in Fermat's point. Its co-ordinates are

$\{\text{cosec}(A + 60^\circ), \text{cosec}(B + 60^\circ), \text{cosec}(C + 60^\circ)\}.$



QUESTIONS FOR SOLUTION.

18068. (JAMES BLAIRKIE, M.A.)—Cut a red cross composed of five squares into four equal parts which make a square. Show that all the following series are so cuttable:—



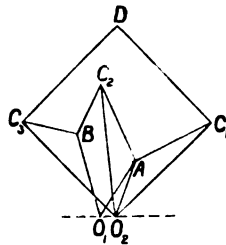
18069. (C. M. ROSS, M.A.)—Find the value of the determinant

$$\begin{vmatrix} -1 & x_2 & x_3 & x_4 & \dots & x_n \\ x_1 & -1 & x_3 & x_4 & \dots & x_n \\ x_1 & x_2 & -1 & x_4 & \dots & x_n \\ x_1 & x_2 & x_3 & -1 & \dots & x_n \\ \dots & \dots & \dots & \dots & \dots & \dots \\ x_1 & x_2 & x_3 & x_4 & \dots & -1 \end{vmatrix}$$

18070. (Col. R. L. HIPPISEY, C.B., R.E.)—The figure is a system of jointed rods,

$$C_3B = BC_2 = O_1A, \quad C_2A = AC_1 = O_1B, \\ O_2C_1 = O_2C_2 = O_2C_3 = DC_1 = DC_3,$$

O_1 and O_2 are fixed centres; show that D describes a circle with its centre on O_1O_2 .



18071. (Professor E. J. NANSON.)—Apply vectors to show that if a straight line cuts the faces of a tetrahedron $ABCD$ in the points A', B', C', D' , the middle points of AA', BB', CC', DD' are coplanar, and show that the method applies to the corresponding theorem in a space of any dimensions.

18072. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Resolve into prime factors $N = (96^n + 1)$.

18073. (B. HOWARTH.)—If D be any integer, prime or composite, such that $1/D$ gives rise to a pure circulating decimal whose period obeys the complementary law, then the period of the decimal equivalent to $1/D^n$ obeys the complementary law (n is a positive integer).

18074. (NORMAN ALLISTON.)—A number equals its logarithm to the base x . What is the maximum of x ?

18075. (C. M. ROSS, M.A.)—Solve the equations
 $x + y + z + w = a, \quad xy + zw = b, \\ xys + yzw + xzw + xyw = c, \quad xyzw = d.$

18076. (W. N. BAILEY.)—The internal bisector of the angle between the tangents from a point P to a conic passes through a fixed point A . Show that the locus of P is the cubic which passes through A , the foci of the conic, the feet of the perpendiculars from A on the axes, and the feet of the normals from A . Show also that A is a double point of the cubic, the tangents there being at right angles, and that the asymptote is parallel to the line joining A to the centre of the conic. Sketch the curve.

18077. (A. M. NESBITT, M.A.)—Give an independent proof of the theorems obtained by reciprocating Mr. Beard's theorem 17986 with respect to C .

18078. (C. E. YOUNGMAN, M.A.)—If tangents are drawn to a nodal cubic from a point on the line of inflexions, their points of contact determine, with the node, a conic which circumscribes the triangle of inflexional tangents.

18079. ("CYMRO.")—Required a purely geometrical solution to the following:—If an ellipse is described with a fixed centre to touch two given straight lines, the locus of its focus is a hyperbola.

18080. (E. R. HAMILTON, B.Sc.)—A fixed circle X touches a straight line a . Two variable circles A, B touch X and a , also touching one another at M . Find the locus of M , and the envelope of a common tangent to A and B .

18081. (R. F. DAVIS, M.A.)— ABC is a given triangle, and it is required to find a point P on the arc of the circum-circle opposite to A , such that $AB + CP = AC + BP$.

18082. (W. F. BEARD, M.A. Suggested by Question 18027.)—If the sides of a triangle reflect the opposite corners on to a straight line, the nine-point centre lies on the circum-circle.

18083. (V. V. SATYANARAYAN.)—Given a parallelogram, trisect a given straight line using only a ruler.

18084. (E. G. HOGG, M.A.)—If a triangle $A'B'C'$ is formed by the directrices of the three parabolas which touch two sides of the triangle ABC and have the third side as chord of contact, then (1) the triangle $A'B'C'$ is in perspective with the triangle ABC , (2) its centroid coincides with that of the triangle ABC , and (3) its sides are proportional to the medians of the triangle ABC .

18085. (F. G. W. BROWN, B.Sc., F.C.P.)—If R, β, ρ, l are the circum-, Brocard, cosine, and Lemoine radii respectively, and d the distance between the Brocard points of a triangle, prove that
 $d^2 = R\beta\rho.$

Show also that when R is constant, the greatest value of d is $\frac{1}{2}R$, and in this case $\beta = \rho = l/\sqrt{2}$, and the Brocard angle is $20^\circ 7'$.

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10573. (H. W. SEGAR.)—If $z = f_1(y + a_1x) + f_2(y + a_2x)$, prove that the equation $f(c).r + c.s + t = 0$ cannot have a tac-locus.

11708. (The late H. R. GREER, B.A.)—Prove that any algebraical equation connecting x and Δ (the symbol of finite difference) becomes an algebraic identity when we substitute -1 for Δ . Of what general transformation, allowable with regard to these symbols, is this a particular case?

14620. (SRISH CHANDRA GHOSH, M.A.)—A comet of very small dimension and mass M is projected to move in a parabola (parameter = $4a$) under the action of a focal attractive force ($= \mu r^2$), from a point distant R from the focus. Another particle, mass m , is then shot off from the focus at an angle θ to the principal diameter, and strikes the comet with velocity v . Investigate the subsequent motion of the comet, the coefficient of restitution being ϵ . Supposing these elements to be in C.G.S. units, and a fraction k of the energy dissipated by collision to be spent in thermal effects, calculate the heat generated.

14702. (H. A. WEBB.)—A stream of incompressible fluid is projected uniformly vertically upwards, in *vacuo*, from a pipe with a horizontal circular nozzle. Show that the diameter of the fluid at any point varies inversely as the fourth root of the depth below the horizontal plane in which it comes to rest, and that in this plane the fluid is in a state of infinite dispersion. [This seems to be the theoretical explanation of the mushroom-like appearance of the cloud of dust over an active volcano, and also of the great distance to which the products of an eruption are sometimes carried.]

14718. (Rev. Prebendary WHITWORTH, M.A.)— A has $\pounds m$ and B has $\pounds n$. They play for pound points until one of them has lost all his money. If α and β be the respective chances that A and B win any point, the expectation of the number of points played will be

$$\frac{[n\alpha^n(a^m - \beta^m) - m\beta^m(a^n - \beta^n)]}{(\alpha - \beta)(\alpha^{m+n} - \beta^{m+n})}.$$

14726. (R. CHARTRES.)—If the perimeter of a variable triangle ABC be constant, find the mean value of the maximum value of the minimum $\Sigma(FA)$, F being Fermat's point.

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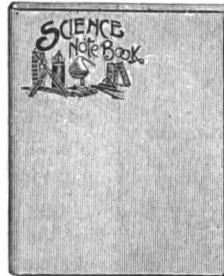
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OCTOBER 1, 1915

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For Syllabus, see page 372.

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Certificate Examinations.—The Christmas Examination for Certificates will commence on the 6th of December, 1915.

Lower Forms Examinations.—The Christmas Examination will commence on the 6th of December, 1915.

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The Educational Times.

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SCHOOLS AND MILITARY TRAINING.

SCHOOLMASTERS are, as a rule, peaceable and peace-loving men. They are no swashbucklers: the war spirit, as it is called—that is to say, the arrogant desire to provoke other people into fighting in order to prove one's own superiority—finds little encouragement in the schools. But the genuine spirit that is evoked by war has been always present both among masters and boys: the genuine war spirit, that is ready to fight and endure for a great idea. That spirit of service to the country, of willingness to give one's life for the greatest good that one knows, though it may have been dormant, was there all right, and was shown as soon as an attack was made on liberty.

The right spirit was there; this has been shown by the innumerable men and boys who have left the classroom for the battlefield. But it is here that a point of practical importance comes in. When the War broke out there was an immediate need for many hundreds of officers. This need was met from the members of the Officers' Training Corps. The spirit would have been there in any case, but in these Corps there was also the actual knowledge of military routine which enabled a boy of eighteen to become an officer with the minimum of special training. It is well for us that this trained material was at hand.

The views developed at the meeting of the British Association by the High Master of Manchester Grammar

School appeared to be in direct contradiction to those advanced by the Head Master of Rugby School; and it is probable that there are on this subject two distinct attitudes of mind that cannot be reconciled. Mr. Paton regretted the spread of military ideas among boys, and thought that a nation turned into barracks was a nation enslaved. At the same time, in justice to Mr. Paton, we must point out that no one worked harder than he, and had greater influence in forming the public schools battalions, when war broke out. Dr. David, on the other hand, was in favour of military training in secondary schools, continuing the Boy Scout training of the smaller boys. If it is impossible to reconcile entirely these two points of view, we can at least make a certain distinction.

The distinction is this: military training need not produce the war spirit, i.e. the desire to settle all international differences by warfare. To be prepared for war is not necessarily to wish for war. In the present state to which human development has attained, weakness provokes a desire to attack rather than a desire to protect. Sometimes there may be ill feeling between the occupiers of two adjoining strips of garden. If each assumes a provocative attitude combined with threats, warfare—at least, of words—naturally follows. If, on the other hand, each maintains himself in a state of physical fitness, with its resultant mental equipoise, mutual respect follows, as each knows the other can defend himself from attack. Such an attitude of preparation need not be provocative of war. Equally is it true that the war spirit can flourish without military preparation.

We are not advocating the encouragement of the war spirit, such a spirit as we believe to animate the Prussians. This war spirit in Prussia has been deliberately fed by the authorities. The military drill is a secondary consideration. The war spirit can exist without the drill, and the drill without the war spirit. We do advocate the training of every boy to bear arms when the need arises.

In times of peace and comfort, perhaps of luxury, the need for serving the country is not very apparent. The country seems so prosperous and so little in need of

service that men grow to feel that the national organization is something to help them—something out of which they may make profit. But this view is only on the surface. When the need comes the spirit of sacrifice jumps to the opportunity. Patriotism springs from the feeling that we can do something for the country we love. If the country does not need our service, the feeling of devotion weakens.

Two months before the War broke out we wrote in these columns of the need in school life of developing the sense of service to the country, and we pointed out that it is not only in the Army and Navy that one serves his country: there is something for every one to do, and no nation can remain strong where the individual does not feel that he owes his services to the State. We cannot all be soldiers, even in time of war, but we can all serve. Fighting is one form of national service. Because we train our boys in military discipline we do not teach them that fighting is the only way to help their country. If they grow up to think so it is the result not of their military training, but of the war spirit of those who lead and control them.

It is now a commonplace of pedagogy that certain occupations are right, or even necessary, at certain ages. Few, if any, will deny the value of the Boy Scouts' organization up to the age of thirteen or fourteen, and only a few will deny the value of the O.T.C. as a natural, but more formal, continuation of this training.

We would have every boy become a Scout; at a later age he should join a Cadet Corps or an Officers' Training Corps, if he is in a secondary school. If he leaves school finally at the age of fourteen or fifteen he should have military training during the next three years. This would, in our opinion, prove a far better plan than a year or two years of military training after the age of twenty.

We repeat, the Army and the Navy form but one out of many ways in which a boy can serve his country; but in the last resort every boy ought to be trained to this service. Such training does not of itself develop the war fever. England shows little sign of becoming a war-like nation; but England is prepared to fight for great ideas, and must be ready to do so. The years from fourteen to eighteen form the right period for this preparation.

NOTES.

It is clear that the Committee appointed to consider possibilities of national economy is credited with a desire to cut down the Exchequer grants to Universities. The Vice-Chancellors of the four Northern Universities have issued a powerful appeal against such a decision. They consider that, in the economic interests of the nation, it may be found expedient to increase the public grants even at the present time of financial difficulty. All expenditure must be reduced and every possible care taken against wastefulness; but to check or limit opportunities

of higher education and research is equivalent to wasting the national resources. The modern Universities are in close touch with all departments of industry and commerce. True economy means making the best use of our powers; wastefulness would result if our young men and young women were not able to get the highest skilled training that it is in the power of the country to offer them. The fees charged to students have never paid the cost of University teaching, but the money spent by the nation brings a sure return in national efficiency. The letter of the Vice-Chancellors is too long to quote in full, but we give a summary of their conclusions in another column.

THE Teachers' Guild has been leisurely in issuing its views upon the proposals of the Board of Education for the examination of secondary schools which are contained in Circular 849; but the delay has made it possible to produce a closely reasoned opinion which is on the whole favourable to the proposals. The Guild looks forward to the time when the relative importance of external examinations will be greatly reduced; in the meantime the system of examination should be organized in accordance with certain principles that are stated. It is pointed out that the examination can only test the efficiency of the school. The proposal that "the form and not the pupil should be the unit for examination" the Guild would interpret with latitude. We have held in these columns that the apparent attempt to close the approach to the professions except through the one avenue of the new examination was contrary to the democratic character of the country. We are glad to see that this view is held by the Guild.

"THE Three Great Questions" propounded by Miss E. E. Constance Jones in a recently issued pamphlet are: (1) What ought I to do? (2) How do I know what I ought to do? (3) Why should I do what I see to be right? The author's aim is to suggest a principle of action which will hold good throughout the whole region of human conduct and furnish the backbone of a consistent theory. It may seem impossible in the political sphere to apply Gospel precepts, such as "To him that smiteth thee on the one cheek turn the other also"; but Miss Jones points out that we should be guided by the spirit of the Gospel teaching and "not by isolated and often highly metaphorical maxims." Knowledge and goodwill are alike necessary to ensure right action. "We may have the best will in the world, and yet go wrong just for want of knowledge; and that is what we are particularly likely to do in political matters. We do not sufficiently understand the risk that attends ignorant action in international matters." Miss Jones rightly holds that the source of all international as well as all private wrongdoing is to be found in men's hearts. "It is not so much because of what we have done as because of what we are that we are entitled to confess that we are sinners."

IN spite of the War, schools are bravely "carrying on." Some may lose pupils and find it difficult to collect fees; requests for abatement will grow more urgent; but all schools, or almost all, are keeping open. This fact is brought to our notice by the issue of "Paton's List of Schools," the eighteenth annual edition of which has just reached us. The volume is as thick as ever, and as useful. For the time, schools on the continent of Europe are omitted from the list; but the English schools remain much as before. There has, of course, been something of an exodus from the East Coast. Cross references in the index make it easy to follow these removals. It is not perhaps surprising that parents are timid for their children, and, in a sudden fit of nervousness, should seek the security of an inland town. Zeppelins are something new; still, we are already growing accustomed to them. Of course, there are many more fatal street accidents each year in any large town than have been caused by the whole of the Zeppelin raids. We cannot have absolute security, and the danger from air raids is so slight and so impossible to guard against that we must habituate ourselves to the risk, slighter than the risk of a journey by rail.

THOSE who have the responsibility of appointing men teachers in schools are certainly in a difficulty on account of the War. No head master, no governing body, no Local Authority would wish to appoint a man physically able who is below the military age; and yet to maintain such an attitude comes perilously near in principle to conscription. While the country has not yet decided in favour of universal compulsory service, it is not right for an individual employer to try to bring in compulsion within the sphere of his influence. In reply to the action of the London County Council in this matter, the General Committee of the London Teachers' Association have passed a resolution stating that the Council's action "is a violation of the rights of citizenship, having regard to the fact that military service in this country is voluntary. Such action . . . becomes in the case of the London County Council intolerable, and morally, if not technically, a breach of the law." We quite agree—and yet we would hesitate to appoint a man who was fit and able to become a soldier. It is a crux. Each case should be dealt with individually on its merits.

THE Report of the Welsh Department of the Board of School Examinations and Teachers. Education contains an interesting and important reference to external examinations in relation to the staff. After speaking in terms of cordial recognition of the value of the examinations of the Central Welsh Board in guiding the development of the schools from their infancy, the Report says: "Much has already been done to mitigate the evils of a purely external examination by consulting the schools in regard to the examination syllabuses, and by accepting

alternative schemes more readily. But the examination is still an external one, as the teacher takes no part in it." It is very satisfactory for the schools that the Board should try to enforce the view that teachers should share in the examination of the pupils. One way in which the examinations of the College of Preceptors are differentiated from the examinations of other bodies, and superior to them, is that teachers in close touch with school work, and in co-operation with the heads of schools through the College Council, carry out the examinations in all stages.

IN a large missionary school in Kashmir there are, we believe, about 1,300 boys and some 50 girls. This may give roughly the measure of the advance made towards the freedom of women in India. But the advance is being made, and the effect of growth is cumulative. A woman who has known something of European learning will wish her daughters to have the same opportunities. The ice once broken, the edges of the hole may be enlarged without much difficulty. In Delhi a school known as Queen Mary's School has been recently established for the daughters of Indian gentlemen who are able and willing to pay fees towards the cost. Hitherto the scheme of education has not included domestic economy, but the Authorities are anxious to add this subject to the curriculum, and are seeking for the services of a qualified teacher. "It is not an ordinary post," writes the Head Mistress, "and we want an honorary worker. There must be plenty of women who have the welfare of India at heart and who would like to have more scope than either a Government or a private school would give." If any one of our readers should wish to hear more of this post, a letter may be addressed to the Head Mistress (who is now in England), Miss Jerwood, Little Bowden Rectory, Market Harborough. It would be a splendid thing to introduce scientific management into Indian homes.

WRITING in *Indian Education*, Dr. Sadler says: "On two points nearly all teachers are agreed. The War has made the schools and colleges more serious. It has also evoked the spirit of service. It has affected boys and girls alike. English schools are very different in outlook from what they were a year ago." Probably every teacher will echo with gratitude this remark that the spirit of service has been evoked. We will not say glibly that war is a blessing in disguise. War is a curse; its occurrence now has shown how thin is the veneer of civilization. We are back in barbarism. From no point of view is war a blessing; yet, having the curse with us, we may note what help can be snatched from it. The unselfish desire to serve others has been aroused by the War to a greater extent than can be remembered by the oldest among us. And this desire to serve others is a good and wholesome thing, and sweetens life both to the server and the served

At a Conference of the Churchmen's Union which was held at Rugby last month, Mr. Nowell Smith, Head Master of Sherborne, read a paper on "Religious Teaching in Schools." He expressed his conviction that the supposed danger of unsettling the minds of the young by admitting the spirit of free inquiry was unreal. The revelation of God, he said, to which the New Testament bears witness, can only be made a living part of a person's life by the co-operation of his own intelligence. Mr. Norwood, Head Master of Bristol Grammar School, followed with a paper, in which he said that no attempt should be made to deal with difficulties before they arose in the natural order of the mind's development, but that, when difficulties did arise, they should be faced frankly, and stress should be laid upon the fact that in the Articles of Belief, while there was an outer husk of verbal statement which was of its own age and times, there was also an inner kernel of essential truth which was of all ages. Honest simplicity and directness are more likely to enable a child to grasp the truth, and so make it an influence on life, than an appeal to authority.

THE Presidential Address of Mrs. Henry Sidgwick to the Educational Science Section of the British Association dealt largely with the attitude of the State towards secondary and University education. She deprecated a too rigid control, and in this view Lord Bryce concurred. There is, of course, always a danger to be apprehended from the prevalence of one set of ideas pressed upon the schools by authority. There is an especial danger in bureaucratic control, because it is inevitable that departmental officials should become inclined to set official administration above the genuine aim of education, however pure their motives and feelings may be when, as young men, they enter the Department. But education is a wider thing than the life of the schools, and bureaucratic control reflects to a great extent the general view of the nation on education. England is very largely governed by public opinion. This opinion may be sometimes manufactured and unreal, the hasty product of one-sided ignorance. Yet when expressed it is carried out. If we can ensure that the nation understands what education is, then we can trust the authority of a public department.

SERIOUSNESS is by no means incompatible with humour. Yet since the War began we have found it impossible to continue the occasional column entitled "The Lighter Side of Pedagogy," which we used to publish as often as we could find material to fill it. Humorous incidents must be of frequent occurrence in schools. May we not appeal to our readers to let a wider audience enjoy their fun?

THE inaugural oration at King's College and King's College for Women will be delivered on October 6 by Mr. Hartley Withers on "War and Self-Denial." The President of the Board of Education (Mr. Arthur Henderson, M.P.) will take the chair.

SUMMARY OF THE MONTH.

CIRCULAR 849.

The Council of the Teachers' Guild is of opinion that the scheme outlined by the Board of Education in Circular 849 is capable of expansion in harmony with the principles [previously stated], and therefore hopes that members of the Guild and of the teaching profession will give the proposals a general support, and that criticism will be mainly constructive. There are good grounds for believing that Professional Bodies will accept the certificates, and that excessive examining will be greatly reduced. The scheme gives a status to teachers in connexion with the control of examinations such as has not existed in England hitherto, and this fact, and the reflection that it is in harmony with the attitude of the Board for several years, will commend the proposals to many who would otherwise oppose any increased centralization of educational control.—Summary of the Memorandum issued by the Teachers' Guild.

BIRMINGHAM PROFESSOR'S DEATH AFTER WINTER IN TRENCHES.

Prof. Henri Chatelain, D. ès L., who was appointed to the Chair of French in Birmingham University in 1909, died in a military hospital in Paris on August 1st. A winter in the trenches near Soissons told upon his constitution, and in April he contracted a dangerous illness, from which he never recovered. Prof. Chatelain, who studied at the University of Paris under the late Gaston Paris, and under Profs. Thomas, Lanson, and Brunot, was (says the *Times*) a scholar of wide interests, but his special field was French of the fourteenth and fifteenth centuries, upon which he was a recognized authority. A correspondent writes:—"At Birmingham he soon proved himself no less able as a teacher and organizer than as a scholar. His high ideals of learning, his unsparing devotion to his University duties, his gracious manner, and his simple dignity of character won for him the respect and affection of all with whom he came in contact."

WAR WORK.

The Royal Society is compiling a register of scientific and technical men in Great Britain and Ireland, who are willing to give their services in connexion with the War. The Register is classified into subjects and will ultimately constitute a large panel of men of standing whose services will be available whenever any Government Department or similar authority requires specialist assistance. The Register is being co-ordinated with those independently compiled by other societies and institutions, but the Royal Society would be glad to have applications for forms from such members of the staffs of colleges and technical institutions as have not yet been registered by any society. The Royal Society is also drawing up, with the co-operation of the principal societies and institutions, a list of scientific and technical men actually on active service in His Majesty's forces. Any names, with rank and unit, for this list will be gratefully received by the Secretaries at Burlington House. The task of forming this Register has been much facilitated by the assistance of many Universities, University Colleges, and scientific societies whose help the Royal Society gratefully acknowledges.

A COLLEGE FOR TEACHERS AT THE JOHNS HOPKINS UNIVERSITY.

Another step towards the creation of a teachers' college in Baltimore, was taken in the recent creation of the degree of Bachelor of Science in Education by the Johns Hopkins University. This marks a partial fulfilment of the hopes of the University which have been entertained for a number of years. As early as 1910, the University announced its desire of establishing a department for the higher training of teachers as an organic part of the University. The curriculum leading to the new degree will be based on the College Courses for Teachers and the Summer Courses. The former, which were established in 1909, are conducted during the regular session in the afternoons and on Saturdays. The latter have been conducted since 1911. The new degree will be open to men and women on equal terms. The regulations concerning

matriculation and the curriculum will be determined by a special advisory committee of the faculty. The title of Director of these courses has been assigned to Prof. Edward F. Buchner, who organized and has conducted both of these branches of the University's activities.

LECTURES AT UNIVERSITY COLLEGE, LONDON.

A public introductory lecture by Prof. A. F. Pollard, M.A., Litt.D., on "The War and the British Realms," on Monday, October 4, at 5.30 p.m., will be given at University College. A public introductory lecture by Prof. L. W. Lyde, M.A., on "Racial Frontiers in Central and South Eastern Europe," on Monday, October 11, at 3 p.m., will be given at University College. Ten public lectures by Prof. A. F. Pollard, M.A., Litt.D., on "The Progress of the War," on Thursdays, commencing October 14, at 5.30 p.m., will be given at University College. These lectures are open to the public without fee, but application for tickets must be addressed to the Secretary of University College, Gower Street, W.C., and must be accompanied by a stamped addressed envelope.

A SCHOOLGIRL'S VIEW OF ZEPPELINS.

The children at one of the "Special" schools in London, where physically defective children are educated, were given an exercise in English composition the other day. The teacher told them to write a letter to anybody about anything they chose. A little crippled girl, named Dorothy Perkins, aged thirteen, produced the following:—

Haverstock Hill Invalid School,
Chalk Farm, London, N.W.

Dear Count Zeppelin.—I greatly admire your cleverness in having invented a species of aircraft called by your name. You, of course, know that; almost everyone knows that; it is common knowledge. But there is something you do not know, and that I wish to tell you. England is not Zeppelin-proof—you know that—but England's people are. I do not mean that the bombs from your airships can do no harm, but I mean you create no fear in their hearts when you send your aircraft over here. You do not make them cower under the bedclothes (for, of course, you send them by night), neither do they hide in the cellars, but their first impulse is to run to the streets to "have a look." I thought I would let you know it is no good to send them, to save some of your men a perilous midnight journey.

Hoping you will act on my advice and not send any more Zeppelins over (though I don't care much if you do)—I remain, a British Subject,
D. PERKINS.

(From the *Morning Post*.)

CHANGE OF INTEREST AT DIFFERENT AGES.

Dr. C. W. Kimmins, in the Psychology Section of the British Association, dealt with the special interests of children of different ages in the War.

In order to obtain information on this point, essays were written by all the children in ten senior departments (five boys' and five girls') of elementary schools. No preparation was allowed and no notice given. The children were told to write as much as they could about the War in fifteen minutes. In all, 3,081 papers were written, 1,511 boys, 1,570 girls.

The fact that emerged most clearly from the investigation was the bellicose attitude of the girls of ten, the wave of depression at eleven, and the establishment of normal interests at twelve years of age. The boys, on the other hand, became more warlike at eleven, and, though a period of slight depression followed, it was much less marked than in the case of the girls. The references, apart from those to the origin of the War, were almost entirely confined to the incidents happening within a comparatively short time of the date on which the essays were written. Such important events as the march on Paris, the retreat from Mons, and the battle of the Marne received no attention. Matters distant in time or place appeared to have little interest for young children.

The passage from matters of local to those of general interest as the age increases was very marked. Not a single member of the Cabinet was mentioned with the exception of Lord Kitchener, to whom, especially in the boys' essays, constant reference was made. From the age of eleven onwards great anxiety was felt with regard to the price of food, and the excessive interest taken in the operations in the Dardanelles

was clearly due to the supposed connexion of the free passage to the Black Sea with the price of food.

The most interesting results were (1) the clearly marked change of interest from age to age; (2) the radical difference between the interests of boys and those of girls up to the age of twelve; and (3) the maturity of ideas on such a subject as the War at the age of thirteen, more especially in the case of girls, who were in this respect at least a year ahead of the boys.—*Times*.

THE TEACHING OF HISTORY IN PRUSSIA.

The Prussian Minister of Education, says *The Manchester Guardian*, has just issued a new set of regulations for the teaching of history in secondary schools. He has come to the conclusion that "the period between 1861 and the present day is the most important for our country, and must form the centre of all instruction"; accordingly, modern German history will be substituted, where possible, for mediæval and ancient. The innovation is characteristic. The German mind has a passion for "actualities," its education has adapted itself more quickly than perhaps any other to modern developments, and the decree of the Prussian Minister of Education is another step in this direction. But there is an ulterior motive, too. Foreign observers have noted how carefully the mind of German youth was prepared for the present War—a matter of comparative facility where every teacher is under the direct control of the State. In school, history and literature provided the occasion for insisting, in a one-sided and exaggerated way, on the greatness of Germany; outside, the memory of German successes was kept fresh by the celebration of such festivals as Sedan Day. This tradition is now going to be carried on to an even greater extent. The period of German history between 1861 and the present day is to form the centre of instruction in history. There is hardly another period which can so easily be used to convince immature minds of the success of force and the value of "expansion." At a moment when it is hoped elsewhere that education will be reformed in such a way as to teach the lesson of fraternity and tolerance, the step of the Prussian Minister of Education is ominous.

THE SOCIETY OF EDUCATION.

The Society of Education was founded in June 1914, and now occupies permanent premises at 9 Brunswick Square, W.C. Meetings are held at this address on the third Friday of each month at 8 p.m. The Society is carrying out the purposes of its foundation. In January it took part in the Annual Conference of Educational Associations. Papers by well known educationists have been read and discussed, and research work is now being carried on. It is hoped before long to form branches of the Society in other educational centres of the country. The papers read and discussed before the Society will be published in a volume of Transactions. Persons wishing to become members, and Societies desirous of affiliation, are requested to apply for further information to the Hon. Secretary, W. G. Sleight, M.A., D.Litt., at 9 Brunswick Square. A meeting of the Society of Education will be held on Friday, October 15, at 8 p.m., at 9 Brunswick Square, W.C. (three minutes' walk from Russell Square Tube Station), at which a paper will be read by Mr. G. F. Daniell, B.Sc., Chief Examiner to the London County Council, entitled "School Certificate Examinations: their aim and relation to Inspection." The paper will be followed by discussion.

The death took place on September 21, at Croydon, of Mr. William Henry Hoar Hudson, formerly Professor of Mathematics at King's College, London. Born in 1838, he was educated at King's College, London, and St. John's, Cambridge, and was third Wrangler in 1861. He was elected in the following year to a Fellowship at St. John's, which he held until his marriage in 1875 with the daughter of the late Mr. Robert Turnbull, of Hackness, Yorkshire. He was Mathematical Lecturer at his college from 1869 to 1881. In 1882 he was appointed to the King's College Chair of Mathematics, which he occupied until 1903. He was also Professor of Mathematics, and afterwards honorary Fellow, of Queen's College, London. Prof. Hudson was the author of several publications on mathematics.

THE UPLANDS SUMMER SCHOOL.

THIS Summer School was held for the first time, during three weeks of August, at Glastonbury, in Somerset. In the prospectus its purpose was described as an "effort to bring together teachers engaged in many fields who have common interests in the study of educational principles and the reform of school teaching. There are not a few summer schools doing useful work, but there seems to be a need for a meeting ground for those whose interests are not limited to any special line of work, but are anxious to come into practical relations with those large fundamental ideas that are shifting our educational operations to a new base." It may be stated, without any qualification, that this purpose has been achieved. The attendance was not large; about ninety students had entered their names, but some twenty had been compelled to withdraw owing to the claims of duties arising out of the War. A comparatively small number was probably an advantage at a first meeting, as it gave an opportunity for teachers to make acquaintance and to exchange views.

Teachers from many fields of work were represented. Kindergarten teachers were perhaps the most numerous, but lecturers in training colleges and principals of private schools also made a good showing. It was hardly to be expected at this crisis that many men teachers could attend, but the promoters look forward in future years to finding men equally with women taking a share in the program.

As the School only opened on August 7, teachers in primary schools were scarcely represented at all, since the majority of city schools resume work in August. The Committee hope that the School may open a week earlier next year and extend over a month, arrangements being made for students to attend for a fortnight only if they cannot remain longer.

The work of the School was roughly divided into two parts. The mornings were chiefly allotted to the study of educational principles, conducted partly by lecturers, partly by discussions, partly by a series of demonstration lessons to school children. Prof. Findlay, of Manchester, and Prof. Shelley, of Southampton, undertook most of this work, but a short course by Mr. S. F. Jackson, of the Sunderland Training College, on "Problems in Modern Psychology" proved to be a most useful addition.

Short courses of two lectures each were given by the Rev. J. H. Powell on "Anthropology," with special reference to the Lake Dwellings and other remains in the neighbourhood of Glastonbury, and by Miss Alice Buckton on "Folk Drama." Miss Buckton's work was of special value because the bulk of the students were in residence at her Hostel, Chalice Well, and were able to appreciate the devotion with which she is endeavouring to revive the memories of Medieval England among the good folk of Glastonbury.

The afternoons were assigned to practical work, a choice being offered from various occupations. These, from one point or another, illustrated principles of education which occupied the morning hours. Miss E. Christine Pugh took one group of students in Nature study and Miss Florence Wood designed a course on "The Education of the Girl," which gave opportunities for practical study in fields of special importance to women at the present day. The most popular course was one on "Play Production in Schools," conducted by Mr. Shelley. He divided the students into groups, each of whom undertook the production of a play. Three plays of Shakespeare were chosen, and to these Yeats's "Kathleen na Hoolihan" was added. The students constructed the staging, devised and made the costumes, learnt the parts, and at the close of the Summer School presented the result of their work to their fellow students. Music also received some attention, not only in meetings for singing and folk dancing, arranged on various evenings by the students, but in the classes for Dalcroze Eurhythmics, conducted by Miss Elsy Findlay.

By this combination of theoretical and practical interests the entire body of students found themselves united: the intellectual, aesthetic, and practical aspect of their work were realized in experiences in which everyone had a share.

The students conducted three conferences, in addition to the program: one on the Musical Training of Young Children; a second on the Teaching of History, with special reference to the use of local materials; and a third on Practical Problems of Method in Training Colleges.

The most interesting outcome of the Summer School, as regards the future, was the formation of the Uplands Association. Both students and staff felt that the investigations commenced during these three weeks should be continued, and that some simple organization should be devised which would enable all who wished to co-operate after the School at Glastonbury came to an end. And it was widely felt that other teachers who could not attend the Uplands Summer School might be glad to take some share in its proceedings. Some misgiving was at first expressed as to whether an addition should be made to the formidable list of societies which already claim the adhesion of teachers, but the discussion of education in its social aspects con-

ducted during the last week of the school cleared the ground. The Committee appointed to manage the Association will undertake three tasks: it will arrange for the Uplands Summer School, 1916; it will issue three times a year a Circular as the organ of communication between the members; and it will "publish from time to time statements of those principles of reform which appear to be distinctive of the present epoch."

A first draft of such principles was drawn up and circulated to the members before the meeting closed. The Uplands Circular will contain papers and syllabuses dealing with topics that are likely to engage the attention of teachers at future meetings of the Summer School; and one or two circles for mutual study were arranged, so that teachers who have time at their disposal may keep in touch with each other's work throughout the year. The Circular will also contain reports of efforts made in schools or other institutions where principles of educational reform are being adopted or tried. The members of the Association also hope, as soon as funds permit, to set on foot a school in close connexion with the Association and bearing its name.

While the work of the Uplands Summer School has been promoted by professional teachers, all who were present felt that men and women not engaged in school work (and especially parents) might be glad to share in its proceedings. Provision is therefore being made to unite parents with teachers in future meetings. It is hoped to hold the next Summer School in a locality where families can easily be accommodated in seaside lodgings. If any readers of *The Educational Times* desire further information, the Secretaries of the Uplands Association (Address: 25 Andover Road, Southsea, Hants) will gladly furnish it.

THE UNIVERSITIES AND PUBLIC RETRENCHMENT.

SUMMARY OF LETTER ADDRESSED TO THE COMMITTEE ON PUBLIC RETRENCHMENT.

THE principal points to which we desire to call your Committee's attention may be summarized as follows:—

1. It is the earnest wish and fixed intention of all who are concerned with the working of the four Northern Universities that, during the period of the War, expenditure should be reduced to the lowest point consistent with efficiency. We have already effected drastic economies, and have others in view for next session.

2. As a considerable proportion (in all cases between a quarter and two-fifths) of the income of our Universities is derived from students' fees, the financial effect of the War upon our resources will be cumulative, and will probably be more serious next session than last, and worse still a year hence. But we need every penny of possible income to do our work for the country. Hence the gravity of any reduction in grants from public funds.

3. By Charter, our Universities are open equally to women and to men. The number of women students may be maintained, and may possibly increase. This would relieve the financial strain. But our obligations to our women students make it necessary to keep open the departments which they attend. This applies particularly, but by no means exclusively, to the departments in the Faculties of Arts and of Medicine. And the War has made the training of women students more significant than ever in the economic interests of the nation.

4. But by far the most important part of the work of our Universities lies in the field of Pure and Applied Science. We train chemists, physicists, doctors, dentists, public health officers, steel experts, civil, mechanical, and electrical engineers, architects, farmers, colliery managers, textile managers, metallurgists, gas engineers, dyers, leather trade experts. The Northern Universities have in consequence been in a position to render very important (in some respects, vital) service to the State during the War. And their functions are not only national but Imperial. To their departments of Applied Science students come from every part of the Empire. In each of our Universities there are fields of scientific work in which it would not only be disastrous to retrench upon existing expenditure, but, on the contrary, advantageous in the public interest to increase it.

5. In a specifically military sense, our Universities are giving important service to the State, especially in the training of officers. They tap a field of material and experience which is of special value to the State at this juncture.

6. The various departments of a University are interdependent. The intellectual life of one department gains from intimate association with the intellectual life of another. For example, you could not curtail or close down the departments of Inorganic and Organic Chemistry without paralysing the departments of Chemistry applied to dyestuffs, leather, or fuel consumption. Again, some of the researches in the Physics department have a close bearing on the

work of the department of Textile Industries, which at first sight seems remote. And the departments of Applied Science gain stimulus and range of vision from association with scholars who are engaged in economic, historical and other studies. A University which is actively contributing to the life of the nation is a unity, and would be lamed by partial closure. Moreover, it takes years to form a staff of researchers and teachers imbued with the spirit of scientific co-operation. Such a staff is a delicate organization, and, if "scrapped," could not be started again at pleasure.

7. Our Universities depend to a considerable extent (about one-fifth of their income) on support given by Local Authorities out of rates. Their support is to some extent measured by the Government grants. If the Government subsidy were cut down, the local grants would probably be reduced, and the result would be very serious. Moreover, if the policy of reduction on higher education were adopted in time of war, it would be very difficult to secure a return to the previous level of subsidy from Local Authorities when the War is over.

8. We suggest that the needs of the Universities in receipt of public grants should not be measured simply by the extent of the adverse balance which their accounts for the current year may happen to show. One institution may, by rigid economy, succeed in balancing accounts, or even in showing a balance on the right side, and yet be in great need of additional equipment, while another institution, exhibiting a considerable deficit in its accounts, may, for all that, be prosperous by comparison.

9. Finally, we draw the attention of your Committee to the desirability of taking some account of the future. The Northern Universities were created to supply the educational needs of the great industrial populations of the North. They are slowly, and not without a struggle, winning the confidence and respect of the communities in which they are set, and are inculcating upon the business world the advantages of scientific education. If it be true that one of the most obvious lessons to be drawn from the War is the need of an increased application of scientific method to industry, we feel that the Northern Universities have a great part to play in the direction of such a movement, and that it would be unwise and unthrifty to starve those of their energies which are devoted to that end.—We are, Sirs, your obedient servants,

F. E. WEISS,
Vice-Chancellor of the University of Manchester.

ALFRED DALE,
Vice-Chancellor of the University of Liverpool.

M. E. SADLER,
Vice-Chancellor of the University of Leeds.

H. A. L. FISHER,
Vice-Chancellor of the University of Sheffield.

CORRESPONDENCE.

THE EMPLOYMENT OF WOMEN.

To the Editor of "The Educational Times."

DEAR SIR,—The letter on this subject in your issue of September 1 omits all mention of a most important service which is discharged by the aid of the superior pay of men. By all means let wages be proportioned to the amount of wealth produced. But it is necessary to consider the wealth produced both within and without one's trade. "In fact, it may be discovered that the true veins of wealth are purple—and not in Rock, but in Flesh—perhaps even that the final outcome and consummation of all wealth is in the producing as many as possible full-breathed, bright-eyed, and happy-hearted human creatures" (Ruskin: "Unto this Last"). The majority of the professional women who clamour for higher pay take a very minor part in the production of this wealth. The majority of the men who get a wage superior to those women are indispensable co-operators in that production. And they must be paid accordingly. In short, a man's pay, under the existing conditions of society, must be sufficient to enable him to support a family.

It is idle to instance the many exceptions. The present system has its injustices on both sides. The man who remains a bachelor is, by comparison with his married colleagues who are doing the same professional work, grossly overpaid. And the woman who has children to support is, by comparison with those spinsters who receive the same salary for the same kind of work, terribly underpaid.

Let us take as an example the salaries of assistant teachers in elementary schools under the London County Council. The

men rise to £200 a year, the women to only £150. Neglecting the exceptions just referred to, it is obvious to any person of experience that the women are in a much better financial position than the men.

As for the exceptions, it certainly is high time to deal with them as they deserve.

But the only condition under which it would be right to adopt the system of "equal pay for equal work," as advocated by your correspondents, would be that the entire expense of rearing children should be borne by the State. Something approaching this condition has for the moment been adopted in connexion with military service. It matters little whether we affirm that all the soldiers are paid alike, their families being supported independently, or whether we say that the married men receive higher wages than the unmarried.

One cannot help wondering whether such people as your correspondents have failed to appreciate the full bearing of their contention, or whether, with a thorough grasp of the whole situation, they are pressing for equal pay, all the time knowing full well that State maintenance of children would have to follow.

It is tolerably clear that, if the charge for children were deducted from the wages bill of the community before the distribution of equal pay for equal work in every trade and profession, the unmarried women in the higher branches would be in a worse financial position than that which they now occupy. In other words, the very women who are leading the present agitation would be among the first to suffer under the new régime.—Yours faithfully,

B. DUMVILLE.

THE COLLEGE EXAMINATIONS.

To the Editor of "The Educational Times."

DEAR SIR,—It has long been a source of surprise to me that, at the pupils' examinations of the College, those who have already passed, as a whole, are not allowed to take an additional subject or single paper at subsequent examinations. It is allowed, I believe, when a public body has to be "certified" to, but not freely. It is this free entry that I think should be allowed when a candidate has in former years taken the certificate as a whole. Frequently one finds one holds certificates in many subjects, but there are a few other subjects in which it would be useful to have passed an examination, not to satisfy a public body, but for the sake of work, present or future. The examinations are held quarterly, and an additional entry (at a suitable fee) would cause but little trouble to the College, while it would bring revenue and be of considerable help to the holders. The certificate could be endorsed or a new certificate issued—also, perhaps, at a fee. Entry for additional subjects is allowed in Matriculation, Oxford and Cambridge Locals, and why not in the College of Preceptors?—I am, Sir, yours, &c.,

A TEACHER.

CURRENT EVENTS.

THE article entitled "Greek in London?" which appeared in our September number was written by Mr. Bernard E. R. Turner.

LIEUTENANT F. SEATON-SNOWDON'S Weights and Currency "Computer" should prove of great service to commercial houses with foreign trade. It can be purchased through dealers for 31s. 6d.

THE following, says the *Manchester Guardian*, is an extract from an old schoolboy's letter to his head master:—"You will know from the papers we have had the Zeppelins in London. I am glad to tell you I have seen one, so I have seen something which many people in Lancashire would like to see." And that, we may add, is exactly the characteristic spectatorial spirit in which London took the Zeppelins.

TEACHERS in elementary schools are reminded of the prize of £20 offered by the Moral Education League for an essay on "The Reform of Moral and Civic Education." Full particulars may be had on application to the Secretary of the League, 6 York Buildings, Adelphi, London, W.C.

PARENTS in East Ham, London, are appealing to the Board of Education to decide whether parents have the right to choose which school their children shall attend. The trouble has been caused owing to a reorganization scheme which transfers children to other schools, and thirty-three parents are refusing to send their children to the new schools.

WHEN the Zeppelins are expected in Hull a buzzer sounds, and all the town is awake. The children are kept from school next day to make up for their loss of sleep. Some people have complained of these absences from school, but another resident of Hull has written: "A few weeks before the holidays the children went to school as usual after an alarm. It was quite pathetic to see them—I am not speaking of infants—suddenly, and without any apparent reason, burst into tears, or put their heads on the desks and sleep from sheer exhaustion. To try to teach them was useless, and all that could be done was to keep them going and maintain discipline. Can anyone imagine what those children must have suffered, having to sit still for hours, when every nerve in their body was strained to its utmost from fear and excitement, and their brains weary from lack of sleep!"

"THERE has been a steady rise in the price of footballs since the beginning of the War, and the prices are now considerably above normal," says the Books and Apparatus Sub-Committee of the London County Council. Hence a suggestion to suspend the purchase of footballs for organized games. This is a particularly unhappy suggestion. If we are to make War savings, let them be of a character less directly bearing on the children's physical and moral welfare. School football and cricket of the past are playing an important part on the battlefields.—*The London Teacher.*

THE Association for the Teachers' Study of the Bible has arranged a course of four lectures on "The Gospel of St. Mark," to be delivered at King's College, Strand, on Wednesdays, at 6.15 p.m. (October 13, 20, and 27, and November 3). The lecturer is the Rev. William Temple. The fee is 3s. 6d. for the course. This can be paid at the door or to Miss C. Graveson, Goldsmiths' College, New Cross, S.E.

THE Essex Education Committee at their next meeting are to be asked to sanction the formation of a cadet corps for lads who have left school. It is proposed to lend the Council schools free of charge for the drilling of the lads, who, it is suggested, may eventually be linked up with the Essex Territorial Force or other approved organization.

THREE GLIMPSES.

Place: A preparatory school boarding house. Time: The first night of term. Characters: A Veteran, aged eleven; a New Boy, aged seven; the House Mistress, newly appointed; Jack, aged nine; Jack's Aunt.

I.

Veteran (aged eleven), to House Mistress, eagerly: "Where's my bed? Who's head of this dormitory?"—House Mistress: "You are. Do you think you can keep order?"—Veteran (with conviction): "Yes."

II.

House Mistress (to New Boy of seven in dormitory): "Now, Bobby, you can go to the bathroom. Do you know where it is? and would you like me to help you to wash?"—Veteran (aged eleven): "Please, Mrs. Blank, I'll take Bobby to the bathroom, and see that he washes properly."

Later.—Veteran (aged eleven): "Here's Bobby, Mrs. Blank. I think you will find him quite clean."

III.

Jack (aged nine) pays a visit to his aunt in a neighbouring house. Aunt: "How do you like Blank House now?"—Jack: "Awfully; but of course I don't know how long it will last."

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, Ulverscroft, High Wycombe, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE OCTOBER COMPETITION.

The best tribute paid to a teacher by a former pupil. The tribute may be taken from real life, from fiction, or from biography.

Either because the holiday spirit has made our readers less energetic than usual, or because of the dearth of tributes paid to teachers, there is a remarkably small field for this month. It looks almost as if the second cause were the efficient one. At any rate, one competitor goes out of his way to tell us that it would be easier to find adverse criticism. He is unkind enough to send as his tribute a question suggested for a Confession Album in connexion with a competition in the *Saturday Westminster Gazette* for January 21, 1905. Question 7 in the *Westminster* competitor's list runs: "How far would you walk to see your schoolmaster hanged?" Our only comfort is to note that this particular set did not get the *Westminster* prize. The opposite note is struck by a competitor who sends in a set of verses in praise of a certain Ezekiel Cheever, who was "the venerable master" of the poet:—

You that are Men, and thoughts of Manhood know,

Be just to the Man that made you so.

Martyred by Scholars the stabbed Cassius dies,

And falls to cursed Lads a sacrifice.

Not so my CHEEVER: Not by Scholars slain,
But Praised and Lov'd and wish'd to Life again.

A mighty Tribe of well-instructed Youth

Tell what they owe to him, and Tell with Truth.

All the *Eight Parts of Speech* he taught to them

They now employ to Trumpet his Esteem.

They fill *Fame's Trumpet*, and they spread a Fame

To last till the *Last Trumpet* down the same.

Magister pleased them well because 'twas he;

They saw that *Bonus* did with it agree . . .

And so the poem meanders its punning way, regardless of expense in the matter of italics and capitals. The poverty of the field is shown by the necessity of admitting that this has had to be awarded the first place. Its discoverer is too modest to submit even a *nom de guerre*, so we have to ask him (her) to send the necessary name and address. It might interest our readers if he (she) were to add the source of the poetic gem.

The following is submitted by the head master of a well known public school, who, however, has made the stipulation that it is not to be regarded as in the running for a prize. It is interesting as a bit of actual experience:—

"One evening an Old Boy sent in his card. After mutual greetings, he said: 'I have just passed all my medical examinations, and, before settling down to practice, I wanted to tell you how gratefully I recollect the time spent with you. I had been sent to many schools, but yours was the last, and you were the only master that cared for me.' I was greatly surprised, for he was very troublesome—too old, I thought, to get much good—and I was glad when he left. Of course, I have had more touching communications, but too sacred for publication."

One competitor sends a letter purporting to be from a soldier in the trenches to an old fellow pupil about their common master, but it is not up to her usual standard. Another competitor, of a practical turn of mind, says that: "The highest tribute that can be paid by a former pupil is to send his son to the schoolmaster who taught him . . . Barney Barnato set a fine example of practical tribute by presenting Mr. Jacobs, of the Jews' School, with £200 when he returned from South Africa, after getting rich."

"Taffy" sends the following:

"The late Archbishop Temple used to say that the proudest moment of his career as a schoolmaster was when he was shown the postscript of a letter written home by one of the Rugby boys. The boy, referring to his Head Master, wrote: 'Temple is a beast, but he is a just beast.'" Though well known, this is excellent, but it is not the tribute of a former pupil.

In a previous competition, dealing with "lines of excuse," several competitors mentioned that they could give more amusing communications from parents if the condition of mere *excuse* had not been laid down. Accordingly we give an opportunity.

SUBJECT FOR NOVEMBER.

The most amusing communication sent from a parent to a teacher.

CLASS LISTS

OF CANDIDATES WHO HAVE PASSED THE CERTIFICATE EXAMINATION OF THE COLLEGE OF PRECEPTORS—MIDSUMMER, 1915.

LIST OF SUCCESSFUL CANDIDATES AT COLONIAL AND FOREIGN CENTRES.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

<i>a.</i> = Arithmetic.	<i>du.</i> = Dutch.	<i>gm.</i> = Geometry.	<i>p.</i> = Political Economy.	<i>s.</i> = Scripture.
<i>al.</i> = Algebra.	<i>f.</i> = French.	<i>l.</i> = Latin.	<i>ph.</i> = Physiology.	<i>sh.</i> = Shorthand.
<i>d.</i> = Drawing.	<i>g.</i> = Geography.	<i>mn.</i> = Music.		

The signs * and † prefixed to names in the Junior and Preliminary Lists denote that the Candidates were entered for the Senior and Junior Grades respectively.

In the addresses, Acad. = Academy, Coll. S. = Collegiate School, Coll. = College, Conv. = Convent, Gram. = Grammar, R.C. = Roman Catholic, S. = School.

[Bracketing of names denotes equality.]

BOYS.

SENIOR.

Pass Division.

Lwin, H.G. *ph.* Norris Coll., Rangoon
 Ruthnam, A. *sc.* Norris Coll., Rangoon
 Ricketts, H. *s.c.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Sands, H.P. *s.g.p.* Queen's Coll., Nassau
 Johnson, G.E.H. Queen's Coll., Nassau
 Tong-Foo, A.B. Private tuition
 Htoon, T. Norris Coll., Rangoon
 Sackey, A.M.
 The Richmond Coll. of W. Africa, Cape Coast Castle

JUNIOR.

Honours Division.

Bilson, T. McC. *s.c.al.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Graham, G.A.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Pillai, V.M. *a.sh.* Norris Coll., Rangoon
 Sankar, H. *al.* Eton Coll., Colombo
 Hagan, J.M.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Tothill, R. *al.du.*
 Taunton's High S., Observatory, Cape Town

JUNIOR.

Pass Division.

Dartey, E. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 De Abrew, W.J. *al.* Eton Coll., Colombo
 Cameron, R.H.
 Bourda Wesleyan S., Georgetown, B. Guiana
 Goonewardana, L.P. *al.* Eton Coll., Colombo
 Lobo, A.X.S. Eton Coll., Colombo
 Jardim, R.F. *al.f.*
 The Second Grade S., Georgetown, B. Guiana
 Xavier, F.J. *f.* Norris Coll., Rangoon
 Lartey, B.K.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Mathew, H.P.A. *du.*
 Taunton's High S., Observatory, Cape Town
 De Freitas, C. *f.* St. Joseph's High S.,
 Bourda, Georgetown, B. Guiana
 Murugasan, P. Eton Coll., Colombo
 Sausman, E.V.C. Norris Coll., Rangoon
 Blankson, K.A. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Kumah, J.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 *Minnow, J.L.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Williams, J.A. Agricola English S.,
 Providence East Bank, Demerara

SENIOR.

Pass Division.

Permal, L. Norris Coll., Rangoon

JUNIOR.

Honours Division.

Inglis, I. *ph.*
 St. Joseph's Convent Boarding S., Castries, St. Lucia

JUNIOR.

Pass Division.

Cox, M.T.
 St. Joseph's Convent Boarding S., Castries, St. Lucia
 Hart, S.M. Brampton S., Mandeville, Jamaica

Burnside, B. Queen's Coll., Nassau
 Coppin, E.V.
 Bourda Wesleyan S., Georgetown, B. Guiana
 Graham, J.E. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 *Wood, J.E.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Rodney, V.P.
 Coll. S., Brickdam, Georgetown, B. Guiana
 Wong, J.B. St. Joseph's Inter. S.,
 Lacytown, Georgetown, B. Guiana
 Edinboro, B.C.
 Coll. S. Brickdam, Georgetown, B. Guiana
 Daniels, F.E.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Boham, E.J.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Harding, M. Private tuition
 Gunawardana, A.S. Eton Coll., Colombo
 Jesurasingham, E.S.V. Eton Coll., Colombo
 Sackeyto, A.V.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Sampson, H.B.
 The Richmond Coll. of W. Africa, Cape Coast Castle

PRELIMINARY.

Honours Division.

Ho-Yow, J. *e.a.al.gm.l.*
 Coll. S., Brickdam, Georgetown, B. Guiana
 Lamptey, E.G. *al.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Eck, H.P. *s.al.d.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Archer, T.E. *a.* St. Joseph's Inter. S.,
 Lacytown, Georgetown, B. Guiana
 Mintah, R.A. *a.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Bovell, O.E.
 Coll. S., Brickdam, Georgetown, B. Guiana

PRELIMINARY.

Pass Division.

†Luckhoo, H.A.
 Coll. S., Brickdam, Georgetown, B. Guiana
 Bart Plange, E.J. *s.c.al.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Bobio, G.A. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Thompson, J.F.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Holder, J.W. *al.*
 Coll. S., Brickdam, Georgetown, B. Guiana
 Winful, C.E.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Chotal, V.D. *a.gm.* The Bigandet English S., Rangoon
 Gill, Z.O. *a.*
 Coll. S., Brickdam, Georgetown, B. Guiana

Reynolds, H.K. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Lutterolt, E.M. *al.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 †Talbot, B.F. Private tuition
 †Andrew, S.G.
 Taunton's High S., Observatory, Cape Town
 Mills, G.H. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 †Walcott, F.R.
 Coll. S., Brickdam, Georgetown, B. Guiana
 Williams, J.G.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Denny, W.A.
 Queenstown Moravian S., Georgetown, B. Guiana
 †McMurloch, R.C.
 Coll. S., Brickdam, Georgetown, B. Guiana
 Anderson, B. *al.*
 The Second Grade S., Georgetown, B. Guiana
 †De Freitas, L. St. Joseph's High S.,
 Bourda, Georgetown, B. Guiana
 Lattey, F.M. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 †Mensah, J.P.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Maung, T.H. *d.* Eton Coll., Colombo
 Vanderpuye, P.J. *s.*
 The Richmond Coll. of W. Africa, Cape Coast Castle
 McRae, P.A. St. Joseph's Inter. S.,
 Lacytown, Georgetown, B. Guiana
 Surty, E.S. The Bigandet English S., Rangoon
 Plange, H. McC
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Maung, S. Norris Coll., Rangoon
 Medford, A.R. Beterverwagting Secondary S.,
 E.C. Demerara, B. Guiana
 Hughes, S. Agricola Wesleyan S., E.C. Demerara
 †Bradford, H.G.
 Queenstown Moravian S., Georgetown, B. Guiana
 Maung, M. Eton Coll., Colombo
 †Dash, D.J. Cove & John S., Belfield, B. Guiana
 Oliver, S.T. *a.* St. Joseph's Inter. S.,
 Lacytown, Georgetown, B. Guiana
 Williams, B.
 Mundenberg E., West Bank, Demerara, B. Guiana
 Mudiyanse, W.M. Eton Coll., Colombo
 Carter, R.I. Coll.S., Brickdam, Georgetown, B. Guiana
 Pokoo, J.W.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Lee, S.E. St. Joseph's Inter. S.,
 Lacytown, Georgetown, B. Guiana
 Mendis, J.C. Eton Coll., Colombo
 Quayson, J.A.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Vandyck, C.
 The Richmond Coll. of W. Africa, Cape Coast Castle
 Pestano, C. St. Joseph's Inter. S.,
 Lacytown, Georgetown, B. Guiana

PRELIMINARY.

Pass Division.

Lansiquot, I. *s.*
 St. Joseph's Convent Boarding S., Castries, St. Lucia
 Harty, H.G. *s.* Brampton S., Mandeville, Jamaica
 Jones, A.A. *l.*
 The Second Grade S., Georgetown, B. Guiana
 †Henriquez, D.L. Brampton S., Mandeville, Jamaica
 Carter, I.L. Coll.S., Brickdam, Georgetown, B. Guiana
 Joyce, A.M. Brampton S., Mandeville, Jamaica
 Mya, M.A. The Bigandet English S., Rangoon
 Hallegwa, R. The Bigandet English S., Rangoon
 Paul, G. Agricola Wesleyan S., E. B. Demerara
 Schwartz, C. Agricola Wesleyan S., E. B. Demerara
 Tin, M.T. Norris Coll., Rangoon
 Than, M. The Bigandet English S., Rangoon
 Fone, M.T. The Bigandet English S., Rangoon

GIRLS.

*Silvera, E.O.C. s. Brampton S., Mandeville, Jamaica
 Lee, A.M. *mn.*
 Taunton's High S., Observatory, Cape Town
 MaMaGlay, R.G. The Bigandet English S., Rangoon
 Headley, A.A. Lodge Anglican S., Lodge Village
 Parakh, K.N. Norris Coll., Rangoon

PRELIMINARY.

Honours Division.

Plissonneau, M. *s.c.al.f.*
 St. Joseph's Convent Boarding S., Castries, St. Lucia
 Duval, A.M. *s.c.al.f.*
 St. Joseph's Convent Boarding S., Castries, St. Lucia
 Laporte, L. *s.c.al.f.*
 St. Joseph's Convent Boarding S., Castries, St. Lucia
 Medouse, L. *s.f.*
 St. Joseph's Convent Boarding S., Castries, St. Lucia

LOWER FORMS EXAMINATION — PASS LIST.

BOYS.

Bentfield, P. St. F. Coll. S., Brickdam, Georgetown, B. Guiana	Giles, D. A. St. Joseph's Inter. S., Lacytown, Georgetown, B. Guiana	Marshall, T. A. Coll. S., Brickdam, Georgetown, B. Guiana
Chin, A. V. Coll. S., Brickdam, Georgetown, B. Guiana	Glasgow, C. L. Freeburg, Georgetown, B. Guiana	Muller, B. A. The Second Grades., Georgetown, B. Guiana
Chin, D. Coll. S., Brickdam, Georgetown, B. Guiana	Gomes, E. Main Street Boys' R. C. School, Georgetown, B. Guiana	Outridge, J. V. The Second Grade S., Georgetown, B. Guiana
Christiani, C. H. Queenstown Moravian S., Georgetown, B. Guiana	Gonsalves, E. St. Joseph's High S., Charlestown, B. Guiana	Pereira, J. G. Coll. S., Brickdam, Georgetown, B. Guiana
Christiani, L. St. Joseph's High S., Charlestown, B. Guiana	Harris, W. W. Lacytown, Georgetown, B. Guiana	Sargeant, P. A. St. Joseph's Inter. S., Lacytown, Georgetown, B. Guiana
de Freitas, V. F. St. Joseph's High S., Charlestown, B. Guiana	Lewis, N. Betervewagting, Secondary S., E. C. Demerara, B. Guiana	Squires, J. Queenstown Moravian S., Georgetown, B. Guiana
de Mattos, C. R. Main Street Boys' R. C. School, Georgetown, B. Guiana	Man-son-Hing, O. St. Joseph's Inter. S., Lacytown, Georgetown B. Guiana	Viapree, F. A. St. Joseph's Inter. S., Lacytown, Georgetown, B. Guiana
Garraway, S. Coll. S., Brickdam, Georgetown, B. Guiana		

GIRLS.

Alice, U. St. Joseph's Conv. Boarding S., Castries, St. Lucia	Cox, S. St. Joseph's Conv. Boarding S., Castries, St. Lucia	Inglis, R. St. Joseph's Conv. Boarding S., Castries, St. Lucia
Berney, N. St. Joseph's Conv. Boarding S., Castries, St. Lucia	da Silva, A. Charlestown, Demerara, B. Guiana	Jones, E. N. St. Joseph's Inter. S., Lacytown, Georgetown, B. Guiana
Bushelle, O. St. Joseph's Conv. Boarding S., Castries, St. Lucia	da Silva, V. Charlestown, Demerara, B. Guiana	Leila, E. Agricola Wesleyan S., E. B. Demerara, B. Guiana
Cameron, B. St. Joseph's Conv. Boarding S., Castries, St. Lucia	D'Mattos, S. St. Joseph's High S., Charlestown, Demerara, B. Guiana	McCrea, E. E. Brampton S., Mandeville, Jamaica
Coke, V. M. Charlestown, Demerara, B. Guiana	Ferdinand, M. St. Joseph's High S., Charlestown, Demerara, B. Guiana	McCrea, E. M. Brampton S., Mandeville, Jamaica
Corke, M. St. Joseph's Conv. Boarding S., Castries, St. Lucia	Gomes, V. Charlestown, Demerara, B. Guiana	Osbourne, M. St. Joseph's Conv. Boarding S., Castries, St. Lucia
Cox, E. St. Joseph's Conv. Boarding S., Castries, St. Lucia	Hall, A. M. Charlestown, Demerara, B. Guiana	Sutherland, M. St. Joseph's Inter. S., Lacytown, Georgetown, B. Guiana
		Wilkinson, W. St. Joseph's High S., Charlestown, Demerara, B. Guiana

PRIZE.

A Fourth Preliminary Prize for General Proficiency was awarded to
Miss L. Medouse, St. Joseph's Convent Boarding School, Castries, St. Lucia.

THE COLLEGE OF PRECEPTORS

PROFESSIONAL PRELIMINARY EXAMINATION. — SEPTEMBER, 1915.

PASS LIST.

THE Supplementary Examination by the College of Preceptors was held on the 7th, 8th, and 9th of September in London and at eleven other local centres — viz., Birmingham, Blackburn, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham. The following candidates obtained Certificates:—

SENIOR.

Pass Division.

Anderson, R. A. T.	Catterall, Miss A. <i>et. al.</i>	Mountain, Miss E. <i>ge.</i>
Barst, M. L. <i>et. l.</i>	Griffin, E. W. <i>ch.</i>	Tullie, R. J. <i>a.</i>
Brain, P. G.		

JUNIOR.

Honours Division.

Booth, W. R. B. <i>l.</i>	Eastwood, R. G. <i>al.</i>	Hamp, L. W.
Bowman, B. <i>f.</i>	Goadby, J. C. <i>l.</i>	Miller, J. H.
Collins, Miss B. L. <i>et. f.</i>		

Pass Division.

Ainsworth, D. R. <i>ch.</i>	Evans, J. C.	Maaskoff, N. <i>f.</i>	Shute, F. E.
Banbury, H.	Evans, W. L.	Mackinnon, C. C. <i>l.</i>	Sisson, J. K. G.
Barker, E.	Flint, W. A. <i>al.</i>	May, N. C. <i>f.</i>	Somers, Miss M. A. E.
Beattie, R. D.	Fox, Miss L.	Metcalfe, A. R.	Sudderdean, C.
Birkin, N. H. C.	Fuller Maitland, Miss L. S.	Mortimer, T. G. <i>f.</i>	Taylor, Miss B. F.
Box, K. J.	Hamp, J. H.	Murphy, M. F.	Thomas, J. E.
Carey, R. B.	Hayward, F. W. <i>a. gm.</i>	Neal, Miss H. M.	White, Miss J. E. M. <i>f. l.</i>
Clapp, J. H.	Hinton, J. W. M.	Nicholl, C.	Williams, W. R. <i>a. al.</i>
Cook, E.	Hoggett, G. H.	O'Brien, D.	Wilson, G.
Crowley, P. F. J.	Holley, G. G.	Pedroso, O. de F.	Winston, W. P. B.
Daniell, Miss N. B. <i>f.</i>	Jones, R. <i>a. gm. ch.</i>	Pegler, F. R.	Woodford, Miss L. E. F.
Davies, D.	King, C. E.	Scott, R. C.	Wyatt, E. L.
Davies, H. E.	Kippax, D. <i>f.</i>	Shaw, R.	Wyles, H. G.
Evans, G. W.	Lovenson, L. A. <i>f.</i>		

N. B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic.
al. = Algebra.
ch. = Chemistry.

e. = English.
f. = French.
g. = Geography.

ge. = German.
gm. = Geometry.
l. = Latin.

GUY'S HOSPITAL MEDICAL SCHOOL.

The Hospital, which is situated two minutes' walk from London Bridge, contains 644 Beds.

The **MEDICAL SCHOOL BUILDINGS** have all been erected or rebuilt since 1904; the Department of Anatomy in 1904, of Biology in 1905, of Physiology in 1910, of Chemistry in 1910, of Physics in 1910, and of Pathology in 1912. The Wills Library was presented in 1903, and the Gordon Museum in 1905.

The **STUDENTS' CLUB** and **RESIDENTIAL COLLEGE** were erected in 1890 at a cost of £21,000. The Club contains reading, dining, and smoking rooms, while the College affords accommodation for about 60 Students, who may be summoned to the wards at any hour of the day or night.

Adjoining the Club are the Pavy Gymnasium, a covered Swimming Bath, and a Squash Racquet Court. The Athletic Ground, of nine acres, is situated at Honor Oak Park, distance about 15 minutes by train.

A PRELIMINARY SCIENCE COURSE

for the first examination for a Medical Degree or Diploma (Subjects: Chemistry, Physics, and Biology) commences May and October. Fee: £16. 16s. (This fee is returned to the Student upon entry as a full Student.)

Entrance Fee for full Students: 20 Guineas.

Annual Composition Fee for full Students: 30 Guineas per annum.

Annual charge for Materials: 5 Guineas.

The payment of the Entrance Fee and the Annual Composition Fee will entitle, during the twelve months following the date on which each Annual Fee becomes due, a Student to attend all Lectures, Demonstrations, and other instruction provided by the School for Students of his standing (with the exception of such courses as may from time to time be specifically excluded), to compete for prizes, and, if selected, to hold appointments in the Hospital.

ENTRANCE SCHOLARSHIPS IN ARTS AND SCIENCE to the value of £380 are awarded annually in September.

For further particulars, and permission to be conducted over the School Buildings, applications should be made to
THE DEAN OF GUY'S HOSPITAL.

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A MONTHLY MAGAZINE OF EDUCATIONAL
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1915.

THE COLLEGE OF PRECEPTORS

INCORPORATED BY ROYAL CHARTER
BLOOMSBURY SQUARE, LONDON, W.C.LECTURES FOR TEACHERS
ON THE
SCIENCE, ART, AND HISTORY OF EDUCATION.

PRESENT DAY TEACHING.

By JOHN ADAMS, M.A., B.Sc., LL.D., F.C.P., Professor of Education in the University of London.

The Second Course of Lectures (Forty-third Annual Series) began on Thursday, September 30th, at 7 p.m.

The aim of this Course is to enable teachers in actual practice to keep in touch with the current educational developments. The various subjects will be dealt with from the standpoint of the practical teacher, and the lecturer will assume on the part of his hearers that acquaintance with the actual conditions and difficulties of school life that arouses a desire to get all available knowledge of how others manipulate such conditions and overcome such difficulties. Those who attend the course will have opportunities for submitting any difficulties the treatment of which would prove of general interest.

SYLLABUS.

I. (Sept. 30.) *The so-called New Education.*—The characteristic modern note: no real novelties: method cycles from Plato onward: professional conservatism: quickened consciences of present-day teachers: danger of falling behind the times: each generation demands its own educational presentation: impossibility of eliminating theory: *via media* between fads and tradition: the doctrinaire and the empiric: the pedagogic type of mind: means of keeping in touch with new developments: canons of educational criticism.

II. (Oct. 7.) *Certain New Movements on their Trial.*—Heuristic Method has now reached its limits: Montessorianism a disturbing influence not merely at infants' stage: Mr. McMunn's development: general revolt against "bookishness" merely a revival of the old "realist" controversy: "one child one desk" principle: Superintendent Wirt's protest: the Gary scheme: tendency to lengthen school hours and eliminate school holidays: spread of specialism among teachers: teaching by relays: the open-air school: the school journey: the "big brother" attitude: the Renaissance of Play.

III. (Oct. 14.) *Experiment in School Work.*—Every teacher must experiment while learning his business: modern educators are systematizing experiment: desire to put education on a scientific footing: two main kinds of educational experiment: dangers of the "brass instrument" methods: the attraction and the danger of statistical and quantitative methods: correlation formulæ and their application: intelligence tests of Binet and others: the Meumann School: the conservation of the interests of the pupil: the literature of experimental education.

IV. (Oct. 21.) *The Class.*—Origin of class teaching: nature of the class as an educational organon: element of compromise: contrast between class teaching and private coaching: "sympathy of numbers"; the psychology of the class as part of general collective psychology: disintegration and reintegration: teaching the class through the individual and the individual through the class: basis of classification of school pupils: the class a homogeneous crowd: size of class in relation to the work of teaching: reaction against class teaching: the probable future of the class.

V. (Oct. 28.) *Class Control.*—Excessive importance attached to mere control: basis of teacher's authority: "the nature of things": *discipline* and its various meanings: power of control as innate: personality of the teacher: fabled power of the eye: different ideals of class control: "talking" in class: possibility of teaching on the control maintained by another: the old "discipline master": class leaders and their manipulation: the Honour System: indirect aids in maintaining control.

VI. (Nov. 4.) *The Pupil's Point of View.*—Textbooks on Method tend to treat everything from the teacher's point of view: modern demand for more consideration of the pupil's rights: excessive demands for freedom of the pupil: Madame Montessori's system: Count Tolstoy's anarchic school: Froebel's "a passivity, a following": these views are reconcilable: caprice *versus* freedom: self-realization *versus* self-expression: subjective limitations of freedom increase with the age of the pupil: corresponding regulation of school control: from educand to educator.

VII. (Nov. 11.) *Abnormal Pupils.*—Ninety per cent. of pupils may be regarded as normal: the exceptionally dull are probably slightly more numerous than the exceptionally brilliant: nature of dullness: its relativity to age and subject of study: the temporary dunce and the precocious pupil: the permanent dunce: the all-round dunce: scale of dullness: the "defective" point: problem of the segregation of dull pupils: the treatment of the exceptionally gifted pupils: slow, omnibus, and express classes in school.

VIII. (Nov. 18.) *The Teacher as Knowledge-monger.*—Popular view of the teacher's work: teacher's own view: comparison with the Greek Sophists: communication of knowledge always an essential part of teacher's work: knowledge for its own sake, and knowledge as discipline: current controversy: technical meanings of *information* and *instruction*: present reaction in favour of importance of knowledge of subject matter: difference between *knowing* and *knowing how to*: temporary and permanent knowledge: the case for cram.

IX. (Nov. 25.) *The Teacher's Tools.*—Textbooks and books of reference: the school library: use and abuse of the blackboard: special appeal to visual pupils: kind of writing suited for the blackboard: coloured chalks and turbid media: the optics of the blackboard: eye-strain and how to avoid it: mechanical aids to blackboard drawing: the optical lantern: graphic illustrations, temporary and permanent: models and their manipulation: maps and globes: the use of the pointer: the supply and care of general apparatus: advantages and disadvantages of home-made apparatus.

X. (Dec. 2.) *Written Work.*—Need for written work as a means of training in expression: progress from transcription to independent essay-writing: three stages—reports, criticisms, creation: difference between having to say something and having something to say: difficulty in giving sufficient practice in writing: excessive demand on teacher's time for "corrections": the pupil's responsibility and the class teacher's: schemes of conventional signs for correction: advantage of throwing on the pupil the burden of writing-in corrections.

XI. (Dec. 9.) *The Teacher's Manipulation of Vocabulary.*—Meaning of vocabulary: connexion between words and thinking: mental content and vocabulary: extent of vocabulary of young children, illiterate people, and educated people: methods of increasing deliberately the vocabulary of pupils: dynamic and static vocabularies: vocabularies of great writers: use of the dictionary and of lists of words in learning a foreign language: the three vocabularies we all possess in our mother tongue: manipulation of these by the teacher.

XII. (Dec. 16.) *The Teacher's Relation to Adults.*—Popular notion of the teacher as a sprat among minnows: need for intercourse with equals and superiors: implication of the phrase *in loco parentis*: true relation to parents: "foster parent" view: conflicting influences of fathers and mothers on school attitude of children: teacher must moderate between them: teacher's relation to officials: the official mind and how to manipulate it: the teacher's many masters: need to study adult psychology: legitimate and illegitimate external restrictions of the teacher's freedom of action in school.

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INSPECTION INDISPENSABLE TO EFFICIENCY.

ANOTHER VIEW.

It would seem in every way desirable that in any organization of our educational forces none of these forces should be left out in the cold, but that to each should be assigned its fitting place, its special treatment, and appropriate work. Only so can a successful campaign be conducted and victory won.

We may be heartily grateful, therefore, to the Board of Education that, whilst the Teachers' Registration Council required fifty years' agitation before it became an accomplished fact, the registration of schools was, in 1908, set a-going on the Board's own initiative, without any pressure from without.

The object of this second registration, even more important than the first (inasmuch as the whole is more than the part), was to unite in one common service all the forces, from whatever source originating or by whatever methods proceeding, that would be likely to work fruitfully towards one common goal; or (to use a figure suggested by the law of chemical affinity) to bring together bodies, as different as hydrogen and oxygen, which nevertheless have some hidden attraction for one another, and when brought into close and continuous co-operation generate a third body unlike the other two and exhibiting qualities and powers which could not have been deduced from those of the component parts. This is no mere romancing. Crossing is just as marvellous in its effect in the case of schools as of plants and animals.* This is exemplified in the educational history of the three or four sister countries amongst whom these lines were written. To the school which in these countries is such a skilful blend of influences public and private has fallen the largest share of new ideas, fresh developments, and needed reforms.

It is, therefore, very much to be regretted that in these seven years this registration of schools in England has proved but a qualified success. Indeed, if the end desired was the blending of forces equal in amount, but differing somewhat in origin, outward features, and inner working, it must be called a lamentable, lop-sided failure.

The causes of this failure are two. The private schools for

* Cp. Mr. J. L. Paton's lecture on "Cross-Fertilization in Schools" in *The Educational Times*, March 1910.

some years were, not without reason, afraid of the Board, and would make no response to its overtures. But they have now changed their minds, and are willing to accept a certain amount—a *judicious amount*—of inspection from the Board. That amount will be determined, not by their wishes, nor yet by their resolutions (carefully framed though they be, after patient discussion), nor yet by the Board of Education itself, but by the rigid, unalterable circumstances of the case; by the special nature of the work that inevitably falls to them in any national system of education. The second cause is of a very different nature, and is to be found in the constitution of the Board itself. The officials of the Board have to carry out a policy already framed for them—a policy which does not and cannot look first and foremost to the good of education, but to the maintenance of a Ministerial majority. However good and noble may be their intentions and desires, they are hemmed in at every turn; have too often to keep the best part of themselves in abeyance, until they doff the official harness, and so are little able to evolve a new type, to make an advance on new lines. To expect aught else, as long as the Board is subject to political, rather than educational, exigencies, is to look for grapes from thorns, for figs from thistles. If the first, and easier, registration was a task too difficult for the Board, and had to be turned over to the teachers themselves, as represented by the Teachers' Registration Council, so, too, must it be with the second and more difficult. In that way we shall draw much nearer to the end we desire—a self-governing teaching profession. If education is to prosper, the Board must be confined more and more to the necessary task of watching expenditure, and of satisfying itself in a general way that the State gets full value for the immense sums spent.* The temper of the profession is rising, and it is not difficult to imagine the time, in a not very distant future, when the teacher, *fully equipped for his work*, will resent, as scornfully as a Cunard director would, that in return for a subvention given the Government should step in and seek to control matters in which it has no direct concern, and of which it has less rather than more expert knowledge. We have had enough wagging of the head by the tail.

Let us now come to closer quarters still. Is inspection in *all* cases indispensable to efficiency? Would it, for example, have helped Pestalozzi or the Hills at Hazelwood or Otto Salomon at Nääs or Arnold at Rugby? If so, what kind of inspection, and how much of it? And, above all, what do we mean by efficiency? Every day in our educational discussions we are glibly using terms we are too lazy to define, and think, forsooth, because we use them often, we clearly understand them. We speak of a national system of education, and insist severely on the necessity of efficiency; but great is the confusion, even of able men, if they be suddenly required to define the one term or the other. They are not easy to define, and no attempt at a definition will be made here. But, when a teacher in a publicly managed school exhorts his private brother to strain every nerve to attain higher efficiency, his real meaning, after a little reflection, becomes plain enough. He over-values the visible material advantages (buildings, equipment, maybe higher salary) in which he himself is strong; and undervalues, nay almost ignores, the points of higher spiritual worth in which he himself is relatively weak and his brother relatively strong (freedom at a moment's notice to make necessary changes, classes small enough to make real teaching and personal influence possible, greater nearness to the home, closer relations with parents, a staff not imposed on him from above, and the like). All branches of the educational army must, of course, be equally efficient; tenderness and indulgence must be shown to none; but they need not be efficient in the same way. It all depends on the work to be done. It would be absurd to require of the foot-soldier the same excellences as are required in the engineer, and *vice versa*. And it is not enough to enumerate points of efficiency; we must also weigh them.

The strongest of these points in which the private school

excels is its freedom, to which, as we are beginning more and more to acknowledge, is due the initiation of those new ideas, fresh developments, and needed reforms, from which all the schools ultimately benefit. Amongst the *raisonns d'être* of the private school this is the chief. But it is by no means the only one, and, in the case of many private schools, even very good ones, these special fruits of freedom are potential rather than actual—at any rate, in any high and marked degree. Geniuses in any profession must ever be few and far between. But there is one important, indispensable function that every private school must perform. The more highly organized a system of education be, the greater becomes the number of pupils who, from some idiosyncrasy of nature or circumstances, refuse to fill any place in it. This, at any rate, is the case with a masterful and wilful people like our own that objects to see the drill sergeant's methods introduced into every walk of life. Such cases are much more numerous than we are apt to imagine. It is just here the private school comes in, and by methods varying from week to week or from month to month—methods that sometimes owe their success to the degree in which they depart from those of the publicly managed and closely regulated school—enables these many failures and misfits, as Mr. Sidney Webb calls them,* to take a useful and honourable place in life. Thus, by degrees, are evolved such new types of schools as society requires. The private school is in this way seen to be the complement of the publicly managed school; and, inasmuch as it provides, from time to time, new methods and new types, it is as necessary for the successful working of the public-school system as it is useful for the actual work it turns out. It thus establishes a claim on the effective goodwill of the State, and craves, as an essential link in any complete system of education, a constitution and a treatment closely corresponding to its special functions and exceptional work.

For such exceptional work the entirest freedom is required—a freedom which would run a great risk of being curtailed by that increase of inspection which is desired by the Board. A small dose of arsenic or strychnine at suitable intervals may often be a good thing. But woe betide the man who thinks he cannot have too much of the good thing, and takes a tenfold dose!

"So long," says a great teacher in Norway who died five or six years ago, "as the State fixes for the teacher all his educational ideals through unbending laws and regulations, it does but ask him to be kind enough to take it easy, and wean himself of the bad habit of thinking out his own problems." In other words, it asks him to become more and more of a machine-minder. This is not the atmosphere in which experiment can live and thrive, or ways be found of dealing with recalcitrant elements which ordinary methods have failed to reach. The best help that can be given to the man who shows capacity and inclination for work such as this is to treat him as a willing steed and give him his head. Such a conclusion is strengthened by continental experience. We have already many more Inspectors in proportion to our population than the four countries in the north of Europe from which we have still so much to learn.

Has, then, inspection no place in the case of the efficient individual teacher working in freedom? It has. It is highly desirable that the recognition of schools, which in any real sense exists at present only on paper, should soon become a living reality. In this way we can check the weaknesses and defects to which some private schools are prone. A school may easily submit its buildings, equipment, staff, and salaries to inspection without losing its independence, and so receive recognition, say for three or for five years (according to the excellence of the school), after which a second and less thorough inspection would take place, prior to a second term. But this is a very different thing from the continuous control apparently contemplated by the Board. Those who call for such a control proceed on two tacit assumptions: (1) The infallibility of the Board of Education; and (2) its power at will to find an indefinite number of men endowed to such an extent with ability, experience, insight, sympathy, and inspiring genius that, at their entrance into the school, blessings spring

* "A Central Board subject to the give and take, the stress and strain, of political contests, cannot be an organic part of an educational system. Its proper function is the control of educational finance: only by an exotic and unreal conception of education can it deal with the processes of education."—Leader in *Times Educational Supplement*, July 6.

* See Mr. Webb's contribution to Mr. H. B. Binns's "Century of Education," page 288. But it should be noted that it is the schools Mr. Webb calls "misfits," not the pupils in them.

up on the right hand and on the left. *Credat Judaeus!* When shall we see another Matthew Arnold or another T. G. Rooper?

But there is one kind of inspection we can hardly have too much of. Let the light of public opinion play upon the Schools. It would be well if parents could be invited to make themselves more familiar with the school. Visits in foreign schools are welcomed and provided for much more frequently than with us. They are so rare with us that we have no name for them: abroad they are called *hospitering*. A yearly report also might be constructed on such a plan as to present much more of a picture of the school's manifold activities than is the case at present. It might be made a condition of recognition that such a report should be drawn up on a settled plan and issued by the school. In all these ways the school might be made to present to all who were interested the appearance of an inspection-hive in which the activity of the workers would be seen at a glance without any disturbance of their industry.

J. S. THORNTON.

THE EDUCATION OF GIRLS.*

I.

THE EDUCATION OF GIRLS FOR PROFESSIONAL LIFE.

By Mrs. W. L. COURTNEY.

It is necessary to differentiate between:

- I. Professions with a fixed course of training, for which a University education is a necessary preliminary (*e.g.* medicine, teaching).
- II. Professions for which girls cannot train until they are nineteen or over (*e.g.* nursing, social work, higher grades of Civil Service).
- III. Occupations which can be begun at an early age (*e.g.* secretarial and clerical work, journalism, lower grades of Civil Service).

Class I need not here be further considered, because the school curriculum for these girls must necessarily be guided entirely by the requirements of the Universities.

Class II includes two different types of professions. For some (*e.g.* nursing) a University course is irrelevant; for others (*e.g.* social work, Civil Service) it is eminently desirable, if the age at which wage-earning must be begun can be deferred until twenty-two to twenty-four. But the school curriculum will not need any special adaptation for either type. The nurse will be the better for a good general education, and would not in any case begin her vocational training at school. The social worker or aspirant to the Public Service, if she cannot afford the very desirable University course, will take her settlement, or other sociological, training from about the age of nineteen, and need not begin at school.

Class III is the group immediately concerning us. Here are two rival views:—(1) That vocational training should begin at fifteen or sixteen either (*a*) during the last school year; (*b*) at a special school or commercial college. (2) That vocational training should in no case begin before seventeen, and preferably should be deferred till eighteen. Those who hold this view advocate its non-inclusion in the curriculum of the secondary school.

The arguments in favour of (1) are: (*a*) that it ensures the girl remaining longer at school; (*b*) that it thereby strengthens her character and improves her health; (*c*) that, while ensuring her these advantages, it turns her out equally proficient in technical subjects. This is frequently disputed.

The arguments against (1) are: (*a*) that the time spent on vocational training is subtracted from the ordinary school hours, and therefore curtails general education; (*b*) that the girl so trained is not as proficient as the pupil of the special school.

The arguments in favour of (2) are obvious. It ensures better general education and defers the vocational education to an age when the mind is more mature and the technical qualifications are therefore more rapidly and more effectively acquired.

The arguments against (2) are: (*a*) that it defers the beginning of wage-earning to an age which many middle-class parents cannot afford; (*b*) that the employer prefers his assistants to begin young. This is again a very disputable point.

It is clear that the only person who certainly gains by the girl beginning young is the parent. The girl does not gain, for she feels the strain of work more severely, and chafes more against the long

hours and confinement. And the employer's gain is illusive; for, though the girl may be more amenable, she is less intelligent and attentive at sixteen than at eighteen, and, in the long run, probably of less use.

But if the girl is not to begin wage-earning work at sixteen, and is to wait till eighteen, where should she spend the years from sixteen to eighteen?

I answer—at school if possible, receiving a *good general education*. But if wage-earning at eighteen, or earlier, is indispensable, then from sixteen to seventeen at school, and from seventeen to seventeen and a-half or eighteen at a secretarial or business-training school, carefully selected. I do not believe in the possibility of getting more than the first rudiments of business training at school, because it is impossible to create there the business atmosphere. And, though the "hustle" of the crammer is as bad in its way as the ordinary school's absence of business atmosphere, there is something between the two, and that "something" is what the ordinary business employer regards as indispensable. It consists in a short training conducted, as far as possible, in classes pervaded by a business spirit, by persons who have been themselves in business and professional life, and understand its requirements, as no educationist can understand them. It is a question of atmosphere, not of subjects. The better the general education, the shorter can be this period of special training. But it makes the pupil alert, businesslike, and methodical, and is her best answer to the employer, who always seeks, if he can, a girl "with previous experience," thus placing serious difficulties in the path of the beginner. It will be very hard to persuade him that a girl, merely school-trained and not specially trained, has any equivalent at all to this "previous experience." And the more he can be persuaded to raise the standard of his requirements, the greater chance there is of raising generally the level of secretarial and clerical work, until it is worthy to rank as a profession, not an occupation, and of relegating to other employments the mass of ill-trained clerical workers, who at present degrade this and kindred branches of employment, and bring down the rate of wages.

II.

THE EDUCATION OF GIRLS WITH REFERENCE TO THEIR FUTURE CAREERS.

By Miss R. OLDHAM.

The War must of necessity aggravate what is already a serious condition of social life—the numerical preponderance of women over men. Another grave result will be the shortage of men in many occupations. The welfare of the community as a whole demands that we should in this time of social truce consider the measures that will best serve in the process of reconstruction. It is obvious that an increasing number of women must be denied the opportunities of wifehood and motherhood. How can such women best serve their purpose as useful citizens? Two reforms are vital: A free entry for women into all professions and callings from which they are not physically debarred, with a free way through these callings, and a raising of the status of the domestic worker or home-maker. The education of a girl suffers from the narrow sphere of choice that lies before her, and from the fact that, in such callings as are open to her, she is for the most part relegated to a subordinate position and a lower scale of remuneration. Her intelligence shows her the injustice of artificial restrictions based on sex prejudice, and the anomaly of opening to her, *e.g.* the profession of medicine while keeping that of law closed. Denied the right of citizenship as she is, she has little incentive to high effort or to public spirit. It is hardly surprising that the outcome of such conditions should be, on the one hand, narrowness and irresponsibility, on the other bitter revolt against the prevailing social system. Even to-day, when the State has called upon women to volunteer for War service, there is a dangerous tendency to re-grade the work so as to reserve for men all that carries with it interest and responsibility. The time cannot be far distant when women will gain a larger participation in public life; it is one of the first duties of the teacher to prepare her girls for such participation by developing in them a sense of national responsibility.

In the second place, a more liberal education is necessary for the girl who is to be home-maker. In the opinion of many, it is in this sphere that woman performs her highest service to the State. If the foundations of national greatness are indeed set in the homes of the people, we should train with the utmost care the girls who will to a great extent make the home. We should seek to remove the stigma of inferiority that rests on girls whose tastes lie in the direction of domesticity and manual accomplishments. Such girls should be discovered early: to this end, every girl should, at some period of her school life, devote the greater part of one year to the domestic arts. This training should be supplementary to a broad general education, which, far from making a girl discontented with her lot, will do much to show her the importance of the service she is rendering to the nation.

* Notes from Papers read at the Manchester Meeting of the British Association.

The State could do much to give greater dignity to the career of the domestic worker by entrusting to women the control of certain branches of its departments, such as those that deal with maternity and child-welfare, or that demand special knowledge and experience possible only to women.

Finally, there is need for increased effort in every department of education. There must be among other advances a generous provision of trade schools to better the condition of the masses of women engaged in industry. What we need, above all, in England at the present time is to make our education a more systematic and careful preparation for the business of life.

III.

EDUCATION OF GIRLS WITH SPECIAL REFERENCE TO THEIR CAREER—EDUCATION PREPARATORY TO CLERICAL WORK.

By Miss E. A. CHARLESWORTH.

The writer approached the subject from the point of view of one who has been engaged in clerical work for many years, and has been, as a member of the Executive Committee of the Association of Women Clerks and Secretaries, in touch with large numbers of women employed in all branches of such work.

As the outcome of this experience she has come to the conclusion that there are some general principles, the inculcation of which is of greater importance and value as a preparation for work than any kind of special instruction. These may be summed up under the headings:

1. Self-reliance and self-dependence. Determination to rely upon own qualifications and efforts, rather than upon influence of relatives and friends, in obtaining posts and making progress.
2. Willingness to face the cost of living. Realization that earnings must be sufficient to cover bad times as well as good, extraordinary as well as ordinary expenses.
3. Appreciation of the place of the individual worker in the social economy, and of the influence of actions upon the welfare of fellow-workers.

Some kind of specialized instruction doubtless necessary. Consideration when this instruction should begin, what subjects form the best framework for it, and where and by whom it should be given.

Strong reasons why specialized instruction should not begin too early: (a) Clerical work is of an abstract nature; it does not, like a craft, develop creative faculties and constructive powers. The meaning and value of the tasks performed by a junior clerk are not obvious, and the work is not educative unless and until a broad foundation of general education has been laid. (b) Without this broad foundation the work tends to have a narrowing influence upon the mind and a deteriorating effect upon the powers: the worker quickly arrives at a point beyond which no further development seems possible.

Suggestions as to subjects which should be introduced in specialized instruction: Elementary economics, principles of accountancy and of record-keeping, geography on modern principles, reading of good journals and newspapers.

As to where instruction should be given, it is clear that the general principles set out above could only be inculcated in a school where the tone and discipline were good; the secondary school is undoubtedly the best place for girls to receive both general and special instruction.

IV.

WOMEN'S EDUCATION.

By Miss HALDANE.

We have to face special questions raised by War conditions, and must consider how to meet them. A new vista in employment has opened up for women. Of the enormous number of new openings that have arisen, some, of course, are temporary; but women will doubtless be more largely employed as earners in the future: (1) because of the shortage of men; (2) because in certain directions women's labour has proved as efficient as men's; and (3) because work will probably be plentiful but cheap after the War, and more individuals in the family will be required as wage-earners.

What preparations are we as educationists to make for the coming changes? We must, above all, realize that in our secondary education we have to prepare not only for the great profession of teaching, but for technical work of very varied sorts. We shall expect our women not only to become doctors, teachers, nurses, secretaries, &c., but also farmers, market gardeners, caterers, officials in factories, railways, &c., and we must see that these women do not go into their new occupations without the foundation of education which is essential if a man or woman is to carry on his or her work in a broad-minded way.

The danger at present is that girls are hurried through the training

considered requisite before they have had time to think for themselves or find themselves as individuals. The danger is difficult to meet at this moment, but we must strain every nerve to prevent its becoming permanent. Whatever our economic condition, we should struggle against the fatal economy of curtailing the education of the nation, and should lay to heart the conclusions of Mr. Acland's Committee on Examinations in Secondary Schools. It would be most valuable if we could have a recognized stage in education (certainly not represented by any cram examination) which should be the gateway to the University on the one hand and the technical classes on the other.

THE BALACLAVA CHARGE AND THE ALABAMA ARBITRATION.

To the Editor of "The Educational Times."

SIR,—The all too short address on "Military Training in Schools," by Mr. J. Lewis Paton, High Master of the Manchester Grammar School, at the British Association, is so worthy of our fullest consideration that I am glad to be able to send you a copy in the hope that you will give it a place in your columns.

In the Balacava Charge the soldier knew "some one had blundered," but the great blunder was not the order to the Light Brigade, but the belief of the time that International disputes could only be settled by war, and nearly half a century had to pass before the late Lord Salisbury publicly recognized that the blunder was the war of which the Charge of the Light Brigade was but an incident.

The compensation for so awful a calamity as the present War can only be found in an ending which shall make its repetition an impossibility. The civilized nations must complete the work begun at The Hague Convention, and a peace be established which will secure the collective responsibility of civilized States for the maintenance and enforcement of international law.—I am, &c.,

MARK H. JUDGE.

7 Pall Mall, September 20, 1915.

MILITARY TRAINING IN SCHOOLS.

An Address by Mr. J. Lewis Paton (High Master of the Manchester Grammar School) to the British Association.

The present seems to me, of all times, the most inopportune for discussing this question. We are all under the obsession of the War. National opinion, so far as it has been formed, has not been the growth of deliberate reflection, but rushed into being (like the huts of a training camp), under the pressure of menace such as never threatened our nation before, and will never threaten us again. We are at present

In a state where men are tempted still
To evil, for a guard against worse ill.

All that is urged is based not on the present state of things but what will follow when the War is over, when mankind will have a chance such as it never had before to open a new era and to roll the world upon a new and a better course.

1. If military training is to be made universal and compulsory in secondary schools, this ought to be part of a national scheme. Compulsion by patches will never work. Where is this national scheme? At present it looks as if the idea was to train officers in the secondary school, and the rank and file in the elementary school. Is Lancashire prepared to accept this? England follows Lancashire. If we are to have a conscript army, serving under compulsion, at least let it be on a democratic basis with free upward nobility and no caste about it.

2. This War is the result of ideas firmly held, resolutely and unscrupulously carried out into action. The seed-time of ideas is boyhood and early manhood. The ideas instilled into the mind then are the ideas which will govern the issues of life. Instil the idea of war, and war will be the crop we shall reap. Already our history is instilling far too much the idea of war. Every page of it teaches implicitly that when nations disagree the way they settle their difference is by means of war. And war appeals far more to the imagination of youth than arbitration. A boy is, and cannot help being, a bit of a Red Indian; he is far more stirred by the Balacava Charge than by the Alabama Arbitration. The teaching of history needs reforming. But what he does influences your boy much more than what he hears. And now you propose to train

every boy in the practice of arms. War is to be his chief game. I do not know whether scouting is still to have any existence, but, if so, it is to be merely as a preparatory branch for the great universal English game of war. And directly a boy turns sixteen he is to be turned out of the Scouts and don the khaki. That means that scouting will be shorn of one of its most valuable training qualities: the training of the senior boy in responsibility. Have the originators of this proposal thought out the inevitable psychological result of their proposal? Steadily, day by day, they are going to drill into our boys, at the most susceptible period of life, the idea that the service which their country requires of them is fighting.

3. One would have thought that this War had been sufficient object lesson to us never again to turn a nation into a barracks. Why did the European peoples go to war? Because for generations they had been living for war and preparing for it. If our present experience teaches us anything, it is the impotence of conscription to save us from war. Europe is suffering from the fever of war. What produced it? Conscription and military preparation. What remedy is proposed to cure the patient? The authors of this proposal have only one prescription: "Repeat the conscription dose—the mixture as before, only make it stronger and increase the amount."

4. What is the principle we are fighting for? Is it government by consent, or government by coercion? Is it a nation drilled and regimented, and dragooned by the War Office? Or a nation free and spontaneous in its service, mutually co-operative in its organization?

Let us get down to the root difference between the two parties in this debate. Neither of us holds with Treitschke that war is good or desirable in itself. Both of us agree that the present state of things is of the devil. But my opponents accept it as a thing that must be, and say, "We have to live in the world as it is." Our position is the exact opposite. "We have to make the world as it should be; and it is in our power to do it." We fail in our highest duty if we do not make some advance towards this. To accept evil as a thing that must be, to accept the works of the evil one as something that cannot be done away, is to deny the highest of which we are conscious. It is to deny Christ.

There remains the question: On what lines can national security be assured? First smash Germany. But after smashing Germany do not put the yoke of Prussian militarism round your own neck. At present any other scheme may sound Utopian. First smash Germany, and the chief difficulty is removed. Then summon The Hague Conference. Utilize to the full the reaction against war which is sure to set in. Throw all the highest statesmanship, moral wisdom, and strongest will-power of the nations into the ending of war. If we do not end war, war will end us. It ought to be done; therefore it can be done. And if it can be done, it must be done.

Our doubts are traitors,
And make us lose the good we oft might gain
By fearing to attempt.

THE LATE MME BERGMAN ÖSTERBERG,

Pioneer in Great Britain of the Training of Women as Teachers of
Ling's Swedish System.

On July 28 Mme Bergman Österberg completed thirty years of service as founder and director of the Physical Training College at Dartford Heath. Her death occurred on July 29, the first day of her retirement. Her career has been one of unbroken success. At the invitation of Mrs. Westlake, she came to London in 1881, and was for some years Superintendent of the Physical Training Department of the School Board for London. Being unable to find sufficient trained women for the work, in 1885 she founded a small training college at Hampstead. In 1895 the College removed to Dartford Heath, where she had purchased an estate. The premises were repeatedly extended, games were added to the curriculum, and the students instructed in lacrosse, hockey, cricket, and so forth. A laboratory was built a few years ago; the physiological part of the program became more thorough and scientific. For the last few years Mme Österberg was able to

train sixty or seventy students at a time; the demand for their services was constant, and came from India, the Colonies, and other countries. It may be fairly claimed that she opened up a new and well paid profession for women. In order to ensure the continuance of the work after her retirement, she decided, with the full sympathy and approval of her husband, Dr. Edwin Österberg, Ph.D. of Upsala University, to present it to the women of this country. A body of five trustees has been created to receive this munificent gift, and to carry on the work on existing lines. The trustees are Dr. C. Addison, M.P., Mr. Waldorf Astor, M.P., Sir Geo. Newman, M.D., the Marchioness of Salisbury, the Right Hon. Lord Shaw of Dunfermline.

Mme Österberg was a woman of strong personality, deeply interested in women's economic independence, their position in law, the necessity for them to train for their life work, and to reap the reward that should be paid to the workers of the community rather than to rank or wealth. Efforts that were made to attain this end could always be sure of her full sympathy, pecuniary help, and useful advice founded on a wide outlook and strong practical genius. Her delight in the right proportions and correct attitudes of the human body was largely aesthetic, since her tastes were exceptionally artistic. But with the aesthetic sense, guiding and controlling it, there was a wonderful eye for betterment, for developing the best that could be obtained from any human tabernacle; and this with the maximum of encouragement, the minimum of criticism. The writer happened to be visiting the College when a student, in an absent-minded moment, entered the room head first—i.e. in advance of the rest of the body. The correction was kindly, but complete—convincing, never to be forgotten. The writer, who knew Mme Österberg intimately, and has travelled with her in Sweden, passed some critical remark on women's dress. She agreed, but doubted whether any single feminine vagary is so ruinous to the figure as men's practice of piling heavy collars on the neck—a malpractice that passes almost without comment.

Mme Österberg invented a convenient and hygienic costume for her students and for all who practise gymnastics; it is, moreover, elegant, simple, cheap. Although worn only within the extensive grounds of the College and by those who take classes, and although the boundaries were strengthened so as to screen the students from the gaze of the curious, Dartford was somewhat scandalized by the costume, by a colony of Swedish teachers, and by Englishwomen doing something unaccustomed. But there was no withstanding Mme Österberg, whom her intimates sometimes called Napoleon. The services of her students and teachers were given free to the schools of the neighbourhood. The fruits of correct position and wisely graded exercises, of physical betterment visible in many ways, were frankly acknowledged, and the foreign lady came to be regarded as a benefactor to the neighbourhood.

If poor children had no shoes for the gymnasium Mme Österberg found them. It was at one time suggested that she should stand for election to the Dartford Town Council, but the demands of the College, as well as her frequent visits to Sweden, induced her to decline.

The buildings of Dartford Training College were repeatedly extended, and embrace a fine gymnasium, blocks of bedrooms, new common rooms, and a physical laboratory for the physiological part of the work.

A few months ago Mme Österberg confided to the writer that she had just been offered privately £30,000 for the College buildings. Only five days before her death she signed the documents which vest the property in a trust. An executive committee of ten persons, who represent various official bodies, will be responsible for the general management of the institution. Miss Wikner, for many years Mme Österberg's able assistant, retains the direction of the physical side of the work. Mme Österberg was a native of Skåne, the most southerly province of Sweden. During the last few years she was able to render Swedish women practical help in two directions. Norway and Denmark have enfranchised their women, and it is confidently expected that Sweden will shortly follow suit. Being a travelled and observant woman, Mme Österberg had come to the conclusion that the franchise is not generally put to the best use; she wished to prepare Swedish women for the coming change that they might use their new powers wisely. After consultation with Social experts, she

arranged for a series of lectures covering a period of ten years, to be delivered by University-trained women and other competent women, dealing with the position of woman in the State; her rights in marriage and divorce; the law as it affects legitimate and illegitimate children; instruction in municipal government and municipal hygiene; information as to the professions open to women, and the education obtainable therefor. The lectures were to be given in small towns and the remoter places in autumn and early spring, so as not to hinder the attendance of women engaged in farm work. They have been hailed with enthusiasm and largely attended by both sexes; Swedish men welcome the prospect of women obtaining the vote.

Mme Österberg was well acquainted with the useful work of Swanley Horticultural College, and desired the better preparation of her countrywomen in fruit farming. She last year presented her beautiful estate of Båstad to the Fredrika Bremer Förbundet, an association devoted to women's interests. It will arrange the course of instruction and organize professional scholarships. C. S. BREMNER.

EDUCATION BY HOPE.

By JOHN HENDERSON.

"THERE is something in man which is always apparently on the eve of disappearing, but never disappears—an assurance which is always apparently saying 'farewell' and yet illimitably lingers, a string which is always stretched to snapping and yet never snaps."

These words, quoted from Mr. G. K. Chesterton's *Essay on Watts*, have particular reference to the allegorical picture of Hope by that great painter, and suggest a line of thought which it may be opportune to indicate for the consideration of those interested in education. Broadly speaking, hope is eternally growing from a centre of self towards a circumference of others. In youth it is the ego that counts for all importance; in later years the ego is content merely to be of use for the greater hope, the sun-rising of the next generation. Especially is this thought driven home at a time like the present, when the value of the next generation becomes vital to an extent never before realized by living man, and there must be parents innumerable, up and down the country, to whom the War, coming first as a shock, has resolved itself into a determining energy to do all that can be done for the next rising of the glorious sun of youth. How many errors of the past are regretted! How many wasted opportunities would be recalled if they could! The one consoling thought is that errors and wasted opportunities may be compelled into the service of the new life, may assist, by denial, in helping the yet "imprisoned splendour to escape." Man ever looks for some phoenix to rise from the ashes of a spent, destructive fire, and just at present (all nobly) the sacred bird should promise reincarnation of the righteous desires of a nation purified in intent, and, in its just pride, humbly prepared to do that thing right which aforesaid it has done wrong.

Many parents, hitherto accustomed to what have been regarded as the peaceful ways of living—by the professions, by commerce, by arts and crafts—will begin to consider whether the services, as they are called, do not also form an outlet for the imprisoned splendour; whether, after all, the Navy and Army are to be regarded as mere expenses never likely to show any return commensurate to their cost, or, more correctly, as the first duty of man to himself, to those personally dear to him, to the country he loves and venerates. It would be easy enough to allow one's pen to write mock heroics on such a theme, but it is not easy to say just enough to drive the truth home and avoid the too much which would make bathos of it. The larger part of the truth is summed in the word "serve," and, if we can get that word burned upon our national conscience we shall have gone some way towards the education of the next generation—towards the drawing out of its possibilities—towards the making of avenues for the escape of the ethereal splendour.

For the vicious trend—one must realize it in looking back a few years—has been indicated in the common expression "What will the boy make at it?" an expression common in more senses than one. We have forgotten the ideal of service, the chivalrous desire—the holy infatuation, if you like—to put country first. We have desired good, cheap food, and high remuneration. We have had our desires to some extent, and found them Dead Sea fruit. For the future let it be not "What will the boy make at it?" but "What will the boy make of it?" What will he make, that is, of his opportunity to serve mankind at large.

It is not difficult to perceive the application of such a doctrine in connexion with the defences of the realm. It is far more difficult to train ourselves to the same aspiration in the more ordinary business of life, where the race for position and wealth is more commonly in men's thoughts, and service is too often dedicated to the manufacture of dividends for shareholders rather than the behoof of the State. The difficulty is enhanced, too, for the present-day man of middle age by his very desire to give the next generation the right guidance upon the right road. It will simplify things if we take an imaginary example. Suppose the case of a man, too old to seek a new path, desirous of seeing his son enter one of the services. He knows, this man, the value of money—knows it better than he knows most things. The temptation is to do all he legitimately can to make things easy for his boy; he vows to provide him with all that money can buy in order that the State may be well served. The desire is by no means entirely wrong, but, on the other hand, it is not quite completely right. Part of the service the boy is to render is in making his own opportunities for service. And the heroic thing for the father is to see and prepare to guide himself by this hard fact. If he can scrape together a thousand pounds and spend it on his boy's spade-work, let him do it—the money will have been well expended; but if he can amass ten thousand pounds let him still be content to spend only one. To use ten where one will serve is grievous waste and of pernicious effect. There was an old Scots doctor who used to admonish his young friends until they thought him a mean scoundrel. "Money is a grand possession." They thought it better to cultivate the "soul above money." But, when they were old enough to bear the truth the good doctor enlarged his teaching: "It's what you can make it do to serve," he used to say.

If a nation may be said to learn by its mistakes, even more truly may it be said to be educated by its hopes, and to be educated is more than to learn. What we gain from mistakes is the bitter determination to do better next time; what we gain from education by national hopes is a rekindling of the youthful fire without which there is no lift of the soul. To learn from error is material first, spiritual second. To be educated by hope is spiritual first and always. Thereby matter is overcome by spirit.

There must be no confusion of hope with baser things. We grow careless in the use of words, and, by expressing ourselves badly, are in danger of thinking without direction. A right use of English is no mere pedantry. It is not hope to wish for a fine day, though we say, often enough, "I hope it won't rain." It is not hope that makes us look for our children's names in the scholarship list—it is desire. At least, there is more desire than hope in the emotion; we are justified in hoping only so far as there has been service of the larger end in view, only when we are able to believe all things even to the point of gaining the larger end in some other way if the first effort fail. The assurance, always apparently saying farewell, yet must linger. Again, there is a danger of calling that hope which is nothing but emulation, good enough so far as it serves—we cannot get away from the word—its end, but very far from hope. Emulation we can define; it has its limits. Hope we can never define, neither can we place limits to it.

This business of education, this drawing out of the best that it may be strong to serve, is itself an allegory of hope—almost, indeed, a parallel. For surely the thing striven for "is always apparently on the eve of disappearing, but never

disappears . . . is always apparently saying farewell and yet illimitably lingers." Mere bookwork and scholarship hunting are beside the mark. It is character we want. Some impatient man, not far from the truth, remarked a few days since: "Any sentimental fool can learn tactics. It takes a man of good heart to make a soldier." And the distinction between what we please to regard as practical schooling and that exalted, intangible thing, education by hope, can be clearly seen at the present day. What is the result of modern enlightenment? Care of self. The ideal of service was better expressed when a man, unable to read or write, carved a hidden pillar in a church now shattered by high explosive shells.

Perhaps the practical minded will throw out a contemptuous "high-falutin'," or, more kindly, set out to prove there is no sound argument in this notion of education by hope. He is quite right. There is no argument. But he may, as a reasonable being, accept the reminder that neither is there argument for vision or self-sacrifice or for any service of the unborn future. To cast one's bread upon the waters may not be altogether reasonable, but it is a tolerably hopeful act. Anyhow, it is what most of us are doing who believe in the next generation, and some of us are practical to this extent, that we have learned to stretch out the hands of hope towards the dim circumference rather than clasp them upon the centre.

Once there was an old man who travelled with his boy, a youth of nineteen or twenty. Every morning they went eastward towards the sun, and, when the earth swung round so that the sun was upon their right, the old man still persisted in making east. "I learned that lesson very early in life," he would say, cryptically enough. Now the time came when the old man knew that he must soon die. And, taking his son up on to a lofty plain, he gave him instructions how to continue the journeying—how, above all, he must ever make towards the east. "My son, you will carry on the good work," he said.

The young man was sorrowful at hearing his father speak of death, but his sorrow was overcome by surprise at the explicit instructions he received. "Why must one march always eastward?" he asked.

"Because," replied the old man, "it is wisdom to seek always for the dawn of the new day."

The young man was silent for some minutes; then he asked: "Is it the sun you seek? If so, why not at midday or in the evening?"

And the old man replied with a sigh: "It is too late then. Go forward, my boy, and the blessing of early light guide your steps."

It is of the essence of hope that we can do no more than think and dream and speak of it in allegory. After all, we are very human—very prone to error.

TOWARDS A SCIENCE OF EDUCATION.

By NORMAN MACMUNN.

If one is to judge by conversations with large numbers of schoolmasters, parents, philosophers, poets, artists, and other men and women of every shade of opinion and creed, there are very few who have conceived any definite line of progress in educational science. Broadly speaking, teachers themselves are divisible into two classes—the traditional empiricists, and the non-traditional or anti-traditional empiricists. In short, we are in applied psychology very much where the seventeenth century doctor was in applied medicine.

And yet the field for investigation is at least as vast as in the case of the physical sciences. So far as I am aware, there is no printed work—and it might take many volumes to correlate and sift all the available material—dealing with the education of the young among savage tribes. We talk loosely about the respective claims for free activities and for passive obedience in childhood, but nobody has yet dealt adequately with the differences of adult type presented respectively in those races where the child is given much and little scope for individual development. Of course, we do know that some

highly efficient races, such as certain Polynesian tribes, allow especial scope for free, spontaneous play, and we know also that certain backward races exaggerate the evils of traditional repression. But here alone there is immense scope for scientific observation and classification of results.

More work has been done in the equally important work of investigating the mind of the civilized child under certain circumstances of pathological variation. Much light has been thrown on general education by the study of the defective and the delinquent. But here, again, we need both a larger mass of evidence and its more effective publication. Probably only a relatively small section of the teaching profession has realized that, generally speaking, the rebel type of child tends to be restored to normality by a sort of homœopathic treatment encouraging him to go on in his own line of conduct. This treatment Mr. Homer Lane, of the Little Commonwealth, uses constantly and with the best results, and I may say that I have pursued it myself for the past three years and that I am now in a position to confirm his conclusions. But the evidence must, and scientific explanation can only, come by an accumulation of data and a careful checking of phenomena.

The first essential of the scientific observation of the child must be, as in all other research work, the isolation of the phenomenon to be studied. I have maintained elsewhere that the schoolboy is not the natural boy, and that deductions from a type which has been established and confirmed by artificial process are generally fallacious and misleading. We are, therefore, more likely to obtain useful data in a year from the study of boys living in an evocative than in three centuries from those living in an instructional and even partially repressive atmosphere. It would, of course, be unscientific to say in this article which extreme is in itself the more ideal from the point of view of the immediate objects of current education; but I must plead guilty to considerable astonishment at the general failure to appreciate the extraordinary experimental value of the study of children under circumstances allowing them full scope for their natural concentration and for their spontaneous activities.

But more distressing than the failure honestly to face problems of method is the aversion of the traditional teacher to admit that his art is dependent on the same universal laws as those applying to the other arts and sciences—laws subject, like theirs, to changes imposed by the advance of scientific method. The loose terminology employed by both traditionalist and revolutionary is enough to make the angels weep. "Discipline" to one section implies external constraint, while to another school the only true discipline is that of voluntary and spontaneous self-control and self-adjustment. For those—and I happen, though this for the moment is irrelevant, to be one of them—who believe that in communities of children freedom for natural activity is its own corrective and its own trustworthy law-giver, there is as much need for close scientific justification as for the doctrines of their opponents. But what is to be the line of their scientific justification? Obviously not by "results," in the narrower sense of the word (though these are frequently at least striking), but by the building up of an *a priori* probability based on instances drawn from ethnology and race evolution, from biography, from observed instances of psychological appeal and of the faith of the children in the value of their own freedom, from deductions from their own spontaneous play, and—this is certainly not so valueless as the traditionalist would have us believe—from their expressed opinions. For example: the frequent view, varying but slightly in its expression, of emancipated small boys that "punishments make you do what you don't want to do."

If the supporter of the new ideal wishes to obtain credit as a scientific educationist, he must make it clear to his opponents that when he talks of freedom as a sovereign specific he means freedom in the choice of activities, and that activity is for a child a prime essential of a freedom having for him any real meaning.

But our opponents have, I think, still more to learn. To attribute every victory of the teacher to "personality" is at least as absurd as to attribute it to "method." The good teacher trusts his children, gives them scope, respects them, and toils ceaselessly to provide material for active personal work; but it is sheer nonsense to say that the poorest of

teachers could not multiply his efficiency by a clear perception of the need of satisfying these claims. As a matter of fact, a class of children of eleven years old will work on for days by themselves if the didactic material is based on observation of their psychology. A class of my own of this age taught themselves for five days while I was ill in bed, and I had ample evidence, both external and internal, that my absence in no way affected the keenness of my boys. If I claimed a sovereign virtue in my "personality," I should not only be guilty of unpardonable vanity, but I should be seeking an explanation that would hardly be less in keeping with the observed characters of children than the far simpler one that I had left for them a choice of material on which they could work with a sense of happy activity, employing their natural concentration and feeling their own growth towards efficiency.

In thus laying my cards upon the table, I may seem to have departed myself from a proper scientific reserve. If so, let these remarks be taken merely as the statement of a hypothesis; and it is the proper investigation of hypotheses that is going, more than anything else, to bring us nearer to a true science of education. Again I have confined myself to a limited field of experiment and research. Although I might have urged (as any serious educationist would urge) the study of such matters as the relation of hand to brain, the incidence of fatigue, the classification of the interests of the adolescent, the defects of visual and auditory memory, the relationship of left-handedness to stammering, and to special mental characteristics, and a hundred other fruitful fields of educational research. In all these, however, we are faced equally with the principle urged above—that it is only by studying the spontaneous activities, the self-declared interests, and the natural traits of children that we can arrive at conclusions that are really sound and reliable.

THE RESULTS OF RATIONAL AND CONVENTIONAL SPELLING COMPARED.

By WALTER RIPPMMANN, M.A.

THE following account of an experiment in starting with a rational spelling before teaching the conventional will be of particular interest to the teachers of young children. A comparison of what can be achieved when the language taught has a good spelling, like the Italian, with the results obtained in our English schools has been forced upon us of late. We ask ourselves why the English child does not "explode into reading and writing," like the Italian child, of whom Dr. Montessori tells us. Any efforts directed to reducing the waste of time, especially in our elementary schools, entailed by the teaching of spelling deserve the most earnest consideration. The experiment shows that, when children start by using a rational spelling, they acquire in *fourteen months* the power to read and spell in the conventional way as fluently and correctly as others who have been occupied for nineteen months with the conventional spelling only, and, what is more, their speech is distinctly better. There is nothing surprising in this to those who appreciate the value of phonetics; but it is good to have a practical demonstration, and we owe a debt to those who undertook the work.

The report given below is the work of a Scottish student of method.

A short time ago, along with a member of the Committee of the Simplified Spelling Society, it was the good fortune of the writer to visit a school "somewhere in Scotland," and to see—or, to be exact, to hear—the results of an interesting experiment that had been made in the infant department of the school. The subjects of the experiment had been caught young—as soon, in fact, as they went to school. They were about a dozen in number. For the first few months of their school life they had been taught as a separate class in reading. Their textbook was not the ordinary textbook set up in the ordinary spelling, but a special book called "Nurseri Rieuz and Simpl Poemz." This had been supplemented by suitable extracts from the books in use in the school printed on the blackboard in Simplified Spelling.

This special class was taught by the infant mistress herself at the same periods as the other children of a similar age who were taught the conventional spelling in the usual way. These pupils had not been specially selected; they had been taken at random from a group of incoming children at the beginning of their school

year. As far as possible, the Simplified Spelling section of the class got lessons of the same duration as the "Nomic" section. But an unusual amount of sickness amongst both teachers and pupils interfered somewhat with this arrangement. In spite of some little interruption, the "Furst Reeder" was overtaken in ten months. Thereafter the Simplified Spelling section was put to the ordinary senior infant work, taking their places along with children who had been a little longer at school.

The head mistress reports that, when they joined the others, the Simplified Spelling pupils were very apt at reading and spelling passages containing fairly ambitious words, so long as these were printed in Simplified Spelling. So far as the pupils' experience went, each sound was represented by a symbol or group of symbols. There were no exceptions and there was nothing to cause hesitancy. They knew nothing of the irregularities of the common spelling. The non-Simplified Spelling section, on the other hand, had become accustomed to the idea of exceptional and "Look-and-Say" words, and also to the fact that one sound may be represented by more than one symbol, while, conversely, one symbol or group of symbols may represent several sounds. This section was familiar with irregularities. It was found that the thorough training that the Simplified Spelling pupils had received through their use of a consistent spelling made them particularly alert in observing the relations of sounds and symbols, and they passed through the "transition" stage more easily than had been expected.

At the date of our visit these Simplified Spelling pupils had been fourteen months at school. They were brought before us as a section. Books in the ordinary spelling were put into their hands, and each child read a passage, after which he (or she) was given certain words to spell. No child was omitted either in reading or in spelling. Next about the same number of children of the other (non-Simplified Spelling) section, who had been nineteen months at school, were brought in. They read the same passages from the same reading book and were also given words to spell. On the whole, the reading of the two sections, as regards the mere naming of words, was very similar. Words of irregular spelling that gave the first section trouble gave trouble to the second section also. The spelling test did not reveal any difference in the matter of attainment. There was, however, a noticeable difference as the result of the speech training which the pupils of the Simplified Spelling section had received. They had a freer, clearer, easier pronunciation, and a more distinct clear-cut articulation than those of the Nomic section.

To sum up. The Simplified Spelling pupils (taken, it may be repeated, at random from a group of new pupils) after ten months' instruction in Simplified Spelling and four months' in ordinary spelling, read as well and spelt as well as the non-Simplified Spelling pupils who had had nineteen months' instruction in the usual methods.

The balance was altogether on the side of the children who had been taught on the new lines. They had had a better training in the relations of sound and symbol, they had acquired a better and a more natural utterance and expression, and had laid a more solid foundation for the subsequent cultivation of a polite form of speech. That, too, under conditions which the head master and the head mistress responsible for the experiment did not consider altogether favourable.

The work of nineteen months done in fourteen! And yet teachers continue to ask: "What of the transition stage? And what of the spelling?" The answer may be found in the results of this experiment.

REVIEWS.

Suggestions for the Teaching of Elementary Science, including Nature Study. (Instalment No. 9 of "Suggestions.") (Board of Education Circular 904. Wyman; or Eyre & Spottiswoode. 1d.)

This pamphlet is a revised edition of, and is to be substituted for pages 59-64 (Chapter VI) of, the 1915 Reprint of "Suggestions." To recommend it for the consideration of those responsible for the teaching of science in elementary schools is scarcely necessary; it is sufficient to call attention to its existence and to emphasize its importance.

A school is not bounded by four walls; the study of Nature, animate and inanimate, as a means of training a pupil in habits of accurate observation and clear thinking, is generally realized to be of especial importance, provided it is undertaken in an appropriate manner. The casual "Object-Lessons" of former years, the occasional (and eagerly anticipated) visit of

a specialist in pops, bangs, and explosions, to say nothing of the fiery serpents, have given place to a more systematic utilization of natural phenomena as a basis for mental and physical training. And therein, welcome as is this change, lurks a danger which many of us do not sufficiently realize. Once again, therefore, we are reminded that "the systematic study of any branch of physical science is beyond the capacity of children, but the mental habits thus acquired will be the best preparation for any course in science which they may pursue in later years." We could go further. The mature mind which has entirely lacked scientific training is placed at a serious disadvantage; yet the elementary school should not attempt to produce botanists, nor physicists, nor chemists.

The home of instruction in the formal sciences is the University, the technical school, and, to a minor extent, the secondary school. We are here concerned less with instruction than with development of the power to profit by instruction. Accordingly, so far as science teaching in an elementary school is concerned, the subject taught is of considerably inferior importance to the aim and method of teaching. With regard to the choice of a subject, we are reminded that much must depend upon the outlook and interests of the teacher himself. We are not all required to have specialized training in science, but we are expected to have some first-hand knowledge of our subject, and to possess a genuine, infectious interest in it. We shall have achieved *something*, for instance, if, in our talks upon animate Nature (commonly, if incorrectly, termed "Nature Study"), we merely foster a delight in the care and observation of a few plants or arouse a benevolent curiosity in the habits of the honey-bee.

That this result can most readily be attained by informal treatment of the subject in hand is a fact which has been abundantly proved by experience. This is especially true in the case of junior classes; in consequence most of us are in hearty agreement with the suggestion that "... the best work is often done with younger children by short informal talks during a 'conversation,' drawing, or similar lesson, or in connexion with an outdoor ramble. The common plan of giving two or three periods of fixed length in each week to 'Nature study' certainly has many disadvantages. At some seasons of the year Nature study may properly be taken every day for a short time; at others much less frequent instruction will suffice."

As regards science in the upper classes, it is to be anticipated that in rural districts the key-note of the instruction will be the further investigation of the conditions of plant and animal life, the correlation of these studies with others (particularly with geography and practical arithmetic), and the cultivation of school gardens. There is placed in our hands much sound advice anent both general principles and details of this portion of the syllabus. The task is no simpler in the upper than in the lower school. Side by side with the actual acquisition of knowledge, we have to continue the development of the powers of accurate observation, proper expression, and the association of kindred phenomena. We are glad to observe that the encouragement of *independent* observations and investigations by each child in the upper division is emphasized. What is more interesting to a child than to be requested to investigate a certain problem as if it had never been solved? With what legitimate pride does he compile observations, draw inferences, and announce the results *pro bono publico*! And this, though with careful guidance, yet without apparent instruction on the part of the teacher. Here is a test of the teacher's skill in his own craft!

In urban districts, however, it may reasonably be expected that senior classes will engage chiefly in the study of the more obvious phenomena of inanimate Nature. The elements of Natural Philosophy can be made to be of absorbing interest; they can also be very, very dull. The secret again lies partly in the tastes of the teacher, partly in the use of a "method of inquiry," which must be most carefully directed, and partly by requiring, we should say *allowing*, individual experimental work on the part of each pupil. Indeed, were one sentence in this connexion to be preferred over its fellows for insertion in capital letters, the majority of us would undoubtedly select the following: "Any course to be really satisfactory must make provision for regular practical work by the children

themselves, in *classes of a reasonable size*." (The italics are ours.) At the same time, the more limited value of demonstration lessons is frankly recognized. Finally, it is pointed out how, in the highest classes, the science teaching may become of a more utilitarian or domestic nature. Boys can solve practical problems, and make simple pieces of mechanical apparatus—preferably of the variety that "work." Girls can find out experimentally the relative values of flannel and calico for clothing purposes; they can perform simple experiments with water and with milk, and examine methods of ventilation or the intricacies of a hot-water system.

It is noteworthy that no attempt is made to draw up model schemes of work. That is a task for us teachers who have to consider many things besides our ideal. But we are provided with something much more useful: sound, up-to-date, practical suggestions derived from the results of experience in schools of all sorts and conditions.

Methods of Teaching in High Schools. By S. C. Parker.
(6s. net. Ginn.)

When Prof. Parker tells us that the line between elementary and secondary education "should probably be drawn at about twelve or thirteen years of age," he recognizes the principle that age, and not the mere subjects to be taught, is the *differentia* between the two kinds. No doubt the nature of the subjects and the stage of advancement in their study loom large in the teacher's estimation, but, after all, method is of the mind, and not of the subject upon which it is exercised. Accordingly, our author promises us another volume in which method shall be treated on the same principles as here, but illustrated from the elementary grades proper. It naturally follows, from the standpoint adopted by our author, that his work takes a different form from that adopted by our English writers on secondary education. Instead of writing a book in which each of the ordinary subjects in the secondary-school curriculum is treated in more or less detail, Prof. Parker has set himself to deal with method in general, but he limits himself to the workings of the adolescent mind, and exemplifies his thesis by reference to the subjects ordinarily taught in secondary schools.

Beginning with the broadening influence high-school instruction should exercise, he proceeds to deal with classroom management and the selection and preparation of subject-matter. Then follow several chapters in which modes of learning are examined in relation to the nature of the pupil, both on the physical and on the mental side. In these chapters we find practical applications of all those commonplaces of psychology that students so often learn in dreary isolation from any use to which they may be put. It would be, perhaps, too much to say that Prof. Parker has overcome all the difficulties that beset the man who seeks to reconcile the divergent claims of theory and practice, but he has certainly greatly reduced the usual breach between them. There is not much that is fresh in the treatment of interest, but, when we come to the problem of adapting class instruction to differences of individual capacity, we have new ground broken. Much has yet to be done, but it is gratifying to find that writers are beginning to realize the importance of the psychology of the class. Supervised Study and the Use of Books are chapters that offer excellent opportunity for thoroughly practical advice to teachers. Methods of Exposition are treated with freshness and vigour. There is a special chapter on Practice Teaching and Lesson Planning which will be of great use to students in training, yet it is not without value for professional teachers who have the modesty to look into what Prof. Parker has to say. The lesson the experienced teacher will learn from this chapter will, no doubt, be different from that learnt by the mere student, but it will be none the less valuable for that. The same remarks apply to the last chapter, which is devoted to Organized Observation of Teaching. All teachers who are interested in the technique of their work will find help here.

It is curious how unwilling secondary teachers are to make much of examinations. Perhaps it is a wise instinct that guides them in their distrust of external interference with the

conduct of their class work. This is probably why Prof. Parker does not even mention the subject by name, though he has his penultimate chapter devoted to Measuring the Results of Teaching. Here we have the results of some of the experiments on the various modes of estimating progress, and a useful indication of the advance being made in developing scales of measurement in connexion with the various subjects.

A feature of the book is the heading "Main points of the chapter," which indicates a clear synopsis of what follows. No doubt the reviewer strongly approves of such an arrangement as a labour-saving device. But it has an educational as well as an economic value, and, since the text is written in a clear and attractive way, there is no great temptation to rest content with the mere bald statement. The book is thoroughly well documented, and the author has "quoted, wherever possible, from worthy discussions of the topics under consideration." These quotations are usually full enough to be of intrinsic as well as of illustrative value. Each chapter is followed by an excellent Bibliography, so that the book forms not merely a self-contained treatment of the subject, but provides material for a study as extended as the student cares to undertake. It should prove an admirable textbook for post-graduate work.

Functions of a Complex Variable. By James Pierpont, LL.D. (20s. net. Ginn.)

Already Dr. Pierpont's work on "Theory of Functions of Real Variables" is known to many. More especially, of course, it is familiar to the American student of higher mathematics. In the present volume the author turns his attention to the investigation of Theory of Functions in its relation to variables which are not restricted to lie in the domain of real magnitudes. Incidentally Dr. Pierpont deprecates the use of the epithet *imaginary* as applied successively in the course of time to each new class of numbers that mathematical science has found it necessary to take into account, and he employs it under protest in the present day acceptance only because the term has taken root so deeply in analytical language. Lectures to the writer's students in Yale University form the basis of the treatise before us and a persuasive simplicity of manner which manifests itself very probably reflects the Professor in his classroom, and is likely to make the text more readily comprehensible to the self-taught student of the subject. On the scope of the work the many students who are ever passing through the University without intent to become mathematical specialists have exercised a distinct influence, inclining the writer to omit this or that topic from his discussion, whilst on the other hand the student of applied mathematics leaves his impress no less clearly, and suggests the devotion of special attention to the Functions of Legendre, Bessel, and Lamé. A prominence has been accorded to elliptic Functions which lend themselves admirably to the illustration of the principles which the subject under consideration embraces. The text is aided by numerous clear diagrams and is rendered the more attractive by the general excellence of its production, a feature characteristic of many of the American textbooks.

GENERAL NOTICES.

ENGLISH.

Chambers's Effective Readers. (Book VI, 1s. 6d. Chambers.)

This is the last of a series of readers for younger scholars, with extracts from a very varied list of writers of high merit, and especially from the popular novelists—Blackmore, Reade, Mrs. Craik, G. Eliot, C. M. Yonge, Thackeray, Dickens, Lytton, and Scott. The book is illustrated, and contains a needless appendix—a summary of grammar with exercises. As a reader it will prove popular, and provides better literary fare than do many similar series.

Composition for Junior Forms. By G. H. Green, L.C.P. (1s. 4d. Black.)

Mr. Green gives the impression that he writes from the classroom, so thoroughly practical and fundamental are the contents of

his book. It is written in a simple way, and urges ideals of writing which are supported by reasons likely to appeal to scholars in junior forms. No elaborate rules are formulated, but sound advice is given, and there is a suggestive chapter on reading. Fifteen full-page illustrations are given (eight in colour), and some of the exercises are based on them.

- (1) *British Orators.* Passages selected by J. H. Fowler, M.A.
(2) *The Isle of Gramarye; or, Tales of Old Britain.* Part II. By E. P. Roberts. (Each 1s. Macmillan.)

These are the latest additions to Macmillan's "English Literature for Secondary Schools"—a series which has won deserved favour. They both meet a felt want. Mr. Fowler's selection is excellent; all the extracts are short and distinctive, and offer scope for a more or less formal study of argument and rhetoric. He includes a passage from Mr. Asquith's speech to the House of Commons on August 6, 1914. Mr. Roberts has retold in an interesting way a number of old tales which are too little known. In both books there is a list of questions designed to "discourage cramming," and Mr. Roberts adds a short bibliography.

Practical English Composition. By C. M. Gerrish, B.A., and Margaret Cunningham. Edited and arranged for English Schools by E. W. Edmunds, M.A., B.Sc. (2s. 6d. Heath.)

This book comes with the recommendation that it has found great favour in American schools, and the editor has made such alterations as seemed desirable for English students. It is a lengthy book and is for advanced pupils. Its excellences are the wealth of subjects dealt with and set as exercises, and also its full treatment of exposition and argument, with a short treatment of elementary logic. It is rather overweighted with rules, and it treats of description before narration.

HISTORY.

A History of England and the British Empire. In 4 vols. By Arthur D. Innes (sometime Scholar of Oriol College, Oxford). Vol. IV, 1802-1914. (6s. net. Rivingtons.)

We have already expressed our high appreciation of the three preceding volumes, and we need say of the final volume only this, that it amply confirms our former opinion. The work is quite deserving of the honour of a Library Edition, which we are glad to see announced. The supreme difficulty of the present volume is squarely faced in the preface: the later chapters deal with matters that are highly controversial in the political sphere, and are not yet open to treatment with full knowledge of the inner facts. Mr. Innes thus feels himself obliged "to abstain from pronouncing his own judgment on controversial questions and to endeavour to set forth an exact statement of facts and a correct exposition of the varying views taken of those facts by intelligent and honest members of all the political parties." So far as the facts are open to the public, he has done this with great discretion, and it is to be hoped that this part of his work will be studied with clear understanding of the point of view of the writer. We have frequently commented on this difficulty with regard to modern events, and now will only emphasize the necessity of holding final judgment in reserve. The volume is well furnished with plans and coloured maps.

The Main Stream of European History. By the Rev. Frederick Harrison, M.A., Senior History Master, Rutherford College, Newcastle. (1s. 6d. Blackie.)

Mr. Harrison, not without reason, nor yet without prudence, uses the present War as a peg to hang his book upon. "There are three great factors which together produced the conditions from which this War arose: (1) the rise of the German Empire; (2) the Eastern Question; (3) the neutrality of Belgium. . . . In the following pages, therefore, a simple account is given of the rise of the German Empire, the origin and development of the Eastern Question, and the events that led to the formation of the Kingdom of Belgium." True; and yet he has to begin at the fall of the Roman Empire, and to include many things remote enough from the War. Given a reasonable previous knowledge of details, the book marshals the main points in a lucid and effective way so as to enable students to grasp their interconnexion, causes, and results. The style is plain and perspicuous. There are half a dozen useful maps.

GEOGRAPHY.

Geography and World Power. By J. Fairgrieve, M.A. (3s. University of London Press.)

The sub-title informs us that this is "a textbook of Matriculation standard, illustrating the geographic control of history." Mr. Fairgrieve has made a masterly analysis of various forms of geographic control, and his arguments and conclusions are set out in simple and convincing language. Possibly his style may be rather too convincing for some pupils of Matriculation standard, for the author did not intend to produce a cram-book of isolated

geographical scraps, but rather a book which should provoke thought and possibly opposition. All will not agree with the whole of his conclusions, but we believe that few books contain and suggest so much valuable geographical material. The book was completed before August 1914, and it is interesting to notice how many of his conclusions have received recent and striking support. The whole volume, by its arrangement and illustrations, verbal and otherwise, bears the impress of many years' careful collecting of material, and we unreservedly commend it both to the teacher and to the general reader.

Bacon's Contour Atlas. (6d. each.)

Three recent editions of this atlas have been issued—viz. Lancashire and Yorkshire, Southern Wales, North England. The four special maps in each, on a scale of about 1 to 1,000,000, and the notes on them, should prove very useful. The whole production solves the question as to the best cheap contour atlas for general use.

Black's Travel Pictures. Edited by R. J. Finch, F.R.G.S. (10d. per set.)

The selections in the Australasian and the North American portfolios are quite as interesting as those which we have previously recommended.

"Phillips' Synthetic Maps."—Series 2, *British Isles*; Series 8, *Australasia*. By E. G. R. Taylor, B.Sc. (6d. each.)

The idea is not a new one, but this is the first attempt which has been made to introduce a cheap series of synthetic maps for use in schools. There are two coloured foundations—relief and density of population, and then eight transparencies, containing amongst them fairly complete information with regard to climate and commercial activities. There is a card of suggestions for use, and the whole are contained in a moderately serviceable envelope. The series warrants the consideration of the teacher, but the transparencies give one the impression that they are too fragile for constant use by the ordinary schoolboy. The British Isles are on a scale of 1 to 5,000,000, and so the amount of material shown is of necessity small, but the omission of Cardiff, Shrewsbury, Chester, and Birkenhead on the railway map is a blemish.

MATHEMATICS.

Homogeneous Linear Substitutions. By Harold Hilton, M.A., D.Sc. (12s. 6d. net. Clarendon Press.)

Dr. Hilton's treatise on the above subject is valuable, whether one considers it with reference to its scope or to the method of treatment adopted. The writer's aim in the selection of material has been to produce, perhaps for the first time, an account in connected form of those portions of the subject of homogeneous linear substitutions which bear directly on group theory and on the theory of bilinear forms and invariant factors and to exclude from the pages of a moderate sized volume any discussion of the nature of substitution-groups, since these have been very recently investigated by Prof. Burnside. In respect of treatment the work, from the student's point of view, gains very considerably from the fact that the author has been in a position to combine with the scholarship of the scholar the experience in teaching which endows its possessor with an insight into the best methods of imparting knowledge. Further, Dr. Hilton has been happy in so arranging the contents of his volume that it may be useful not only to the reader who has opportunities for making a complete study of both the theory and the applications of the subject treated in the text, but also to the student whose requirements are met when he knows how to apply the properties discussed, even though he may not be able to follow the theory in detail.

A History of Japanese Mathematics. By David Eugene Smith and Yoshio Mikami. (12s. net. Open Court Publishing Co.)

Fifty years ago the mathematics of Japan—the *Wasan*, as it is termed—was almost essentially peculiar to the country. To-day it is becoming common to the world. The subject is one that has received relatively little attention, in spite of its natural interest, and the object of the authors in writing this book has been to give, without going too deeply into detail, a general historical account of the nature and development of the *Wasan*, interwoven with much interesting information concerning some of Japan's most famous mathematicians and their life work. Owing to the extraordinary seclusion of Japan the *Wasan* is shown to have never reached the high plane that was attained by European mathematics nor to have altered materially in its main principles. Japanese mathematicians showed their ingenuity more in the unravelling of intricate problems than in the evolution of new theories. The patience and skill they exhibited in minute analytical work was nothing short of wonderful. Even if the Westernization of Japan is resulting in the submergence of the *Wasan*, the work accomplished by the old mathematical school provides a fascinating study which must be thoroughly understood if the nature and scope of present-day

changes are to be fully appreciated. The book is well written and well illustrated, and should be read by all students of mathematical history.

SCIENCE.

The Investigation of Mind in Animals. By E. M. Smith. (3s. net. Cambridge University Press.)

Written, of course, from a scientific point of view, the seven chapters which are devoted to a study of Habit, Memory, Instinct, Homing, Imitation, and Intelligence in Animals are of absorbing interest, not only to those specially interested in the moral sciences, but also to every lover of animals. The former, at least, will find in the bibliographical appendix such reference to original research as will give them food for much reflection and inward digestion; readers of the second class will view with redoubled interest the comportment even of the domestic cat. The experiments described cover a wide field, ranging from the "avoiding reaction" of paramæcium to the amazing reports of the "thinking horses of Elberfeld." The records of these experiments and the deductions therefrom bear evidence of the most careful compilation.

Elements of Optics. By George W. Parker, M.A. (2s. 6d. Longmans.)

The fact that this book is intended for students possessing a very limited knowledge of mathematics naturally demands a treatment quite elementary in character. The reasoning, however, is clear, the illustrations are quite good, and the author has spared no pains to make the subject attractive to the young student. There are four chapters, dealing respectively with Reflection, Refraction, the Eye and Optical Instruments, and Dispersion. Numerous worked examples are included, and test papers (with answers) are provided, the questions being selected, the author tells us, chiefly from University and college examination papers.

Numerical Examples in Physics. By H. Sydney Jones, M.A. (3s. 6d. Bell.)

Based upon, and complementary to, practical laboratory work, this carefully compiled volume is intended to serve as an introduction to mathematical physics, Part I being devoted to Heat, Part II to Light, and Part III to Magnetism and Electricity. While many of the examples are quite suitable for use in secondary schools, the more advanced student will find questions involving a fuller knowledge of mathematics and physics—as, for instance, in the sections on Diffraction and Alternating Currents. Worked examples are interspersed throughout the book, as well as problems affording the use of graphs. Answers are provided, and an appendix supplies very useful tables of physical and other constants. One is a little inclined to quarrel with the author's decision to restrict the scope of this useful book, and one hopes that he will provide a companion volume to include Sound and the Properties of Matter.

GERMAN.

Für kleine Leute. By A. T. Gronow. (3s. Ginn.)

This is a really attractive first German book for children. The vocabulary is simple and practical; grammar is taught by use. There are nursery rhymes, riddles, and songs, as well as short stories dramatically told, and entertaining games.

Erstes Deutsches Lesebuch. By M. Schmidhofer. (2s. Heath.)

Another first book for children, which would much lighten the labours of teaching by the translation method. The subject-matter is interesting and original. Many songs and verses are given, and the first half of the book is in roman type. We do not think that German could be "used exclusively in the lessons" as the author hopes; there is too much variety in the vocabulary, and not enough exercises are provided.

A First German Grammar. By G. O. Curme. (5s. American Branch, Oxford University Press.)

"A first German grammar, and at the same time a first reader," says the author. The grammar is the centre of the instruction given, and is very thoroughly treated; for this reason we should not recommend this book for children. Serious students of the language, however, will make good progress with its help. The actual instruction in grammar is given in English, and there are English into German exercises, in which the "English" is sometimes curious. "In Germany many cannot do that to which their heart impels them, which would be permitted in America, but not in Germany"; "I shall go into the woods to-morrow to hunt more flowers."

Ein Lustspiel. By R. Benedix. Edited by A. Oswald. (1s. 6d. Blackie.)

This entertaining comedy is well printed and edited. It is most suitable for use in a sixth form for relaxation after stiffer work and for conversation practice. Older students would be able to select scenes and act them, and thus get much pleasure from the book.

PUBLICATIONS RECEIVED.

EDUCATION.

Handbooks in the Art of Teaching.—(1) Aims and Methods in the Teaching of English. By Arnold Smith. 2s. net. (2) The Teaching of Modern Foreign Languages by the Organized Method. By Hardress O'Grady. 1s. net. (3) Montessori Examined. By W. H. Kilpatrick. 1s. net. (4) On the Teaching of Latin. By F. R. Dale. 1s. net. (5) Cottage Gardening as taught in Elementary Schools. By George A. Taylor, 2s. net. (6) Classroom Phonetics: Suggestions for Lesson Notes. By Hardress O'Grady. 1s. net.

ENGLISH.

The Westminster Shakespeare.—(1) As You Like It; (2) Romeo and Juliet; (3) The Merchant of Venice; (4) Julius Caesar; (5) Macbeth. Arranged for reading by J. W. Mackail. Constable, each 1s. 4d. net.

The Thompson Seton Readers.—(1) The Legend of the White Reindeer; (2) The Little War Horse; (3) The Slum Cat; (4) Monarch; (5) The Biography of a Silver Fox. By Ernest Thompson Seton. Constable, each 1s. net.

Perse Playbooks.—No. 5: Lyrics, Play-songs, Ballads, The Littleman Rimes. By Boys of the Perse School, Cambridge. With Essay on Littleman's Poetry and the Play Way by H. Caldwell Cook. Heffer, 4s. net.

Poems of To-day: an Anthology. Published for the English Association by Sidgwick & Jackson, 2s. net.

General Phonetics: for Missionaries and Students of Languages. By G. Noel-Armfield. Heffer, 3s. net.

HISTORY.

A Short History of Russia. By Lucy Cazalet. Clarendon Press, 2s.

The Pupils' Classbook of English History. Book IV: The Hanoverians and Modern Times. By E. S. Lay. Macmillan, 8d.

A Short History of Modern History. From Tudor Times to the Present Day. By Frederick Bradshaw. For the University of London Press, Hodder & Stoughton, 3s.

Black's History Pictures.—The Stuart Period (1603-1714). Selected and arranged by G. H. Reed. 10d.

GEOGRAPHY.

The Atlas Geographies.—(1) Earth Lore (Preparatory); (2) The World and its Peoples (Preparatory). By Thomas Franklin and E. R. Shearmur. Johnston, each 7d. net.

Practical Geography Notebooks. Based upon the Atlas Geographies. By Thomas Franklin and E. R. Shearmur. Johnston, 4d. net.

MATHEMATICS.

Elements of Finite Differences; also Solutions to Questions set for Part I of the Examinations of the Institute of Actuaries. By J. Burn and E. H. Brown. Layton, 10s. 6d. net.

MUSIC.

Song Time: a Book of Rhymes, Songs, Games, Hymns, and other Music for all occasions in a Child's Life. By Percy Dearmer and Martin Shaw. Curwen, 2s. 6d. net, cloth 3s. 6d. net.

On the Choice of Pianoforte Music for Schoolgirls. By Annie T. Weston. Curwen, 6d.

RELIGION.

Murby's Smaller Scripture Manuals, with Text.—The Acts. Vol. II (Chapters xiii-xxviii). By Charles Knapp. 1s.

UNCLASSIFIED.

What can a Little Chap do? By John Oxenham. From "Princess Mary's Gift Book." A Copy Book. (Profits to the Work for Women Fund.) Hodder & Stoughton, 6d. net.

The River Severn: from Source to Mouth. By M. Lanchester. Pen-and-ink Sketches and Map by Author. Murby, 2s. 6d. net.

Some Ways of Study for Citizenship. I. Nature and Institutions; II. A Local Civic Survey. By T. P. Gill, Department of Agriculture and Technical Education for Ireland.

Board of Education.—Imperial Conference Papers. Educational Systems of the Chief Colonies not possessing Responsible Government: (1) The Gambia, 9d.; (2) Leeward Islands, 1s.; (3) Seychelles, 9d.; (4) Hong Kong, 1s.; (5) Uganda, 1s.; (6) Barbados, 1s. 6d.; (7) Nyasaland Protectorate, 9d.

MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

18030. (L. M. STEWART, M.A., B.Sc.)—Show that the volume of a sphere is to the volume of any circumscribed solid as the surface of the sphere is to the surface of the solid: that a similar generalization holds for plane surfaces and perimeters.

Solution by J. MACMILLAN, M.A.

The circumscribed solid may be supposed made up of a set of pyramids, each having its vertex at the centre of the sphere, having one of the plane faces as its base, and having a radius of the sphere for altitude;

therefore total volume of solid = $\frac{1}{3} \times r \times$ surface of solid;
therefore ratio of vol. of sphere to vol. of solid

$$= \frac{\frac{4}{3}\pi r^3}{\frac{1}{3}r \times \text{surface of solid}} = \frac{4\pi r^2}{\text{surface of solid}} = \frac{\text{surface of sphere}}{\text{surface of solid}}.$$

If a polygon be circumscribed to a circle, the polygon may be supposed made up of triangles, each having its vertex at centre of circle, having for base a side of the polygon, and having radius of circle for altitude;

therefore ratio of area of circle to area of polygon
= $\frac{\pi r^2}{(\frac{1}{2}r \times \text{perimeter of polygon})}$
= $\frac{2\pi r}{\text{perimeter of polygon}}$
= $\frac{\text{perimeter of circle}}{\text{perimeter of polygon}}.$

17523. (C. E. YOUNGMAN, M.A.)—Tangents at A, B, C to a circle (O) intersect at D, E, F on an equal circle (H); prove that the symmedian point of ABC lies on (H), and the Lemoine line of DEF touches (O).

Solutions (I) by N. SANKARA AIYAR, M.A.; (II) by W. N. BAILEY.

(I) ABC is therefore an ex-circle of DEF.

Hence R = r₁ for DEF. Take DEF as originals; therefore

$$\begin{aligned} a'/2 \sin A' &= s' \tan \frac{1}{2}A', \\ \text{i.e., } a' &= 4s' \sin^2 \frac{1}{2}A = 2s'(1 - \cos A'), \\ \text{i.e., } a' &= 4s' [(s' - b')(s' - c')]/b'c', \\ \text{i.e., } 2a'b'c' &= (b' + c' + a')(a'^2 - b'^2 - c'^2 + 2b'c') \\ &= a'^3 - b'^3 - c'^3 + a'^2c' + a'^2b' - a'b'^2 - a'c'^2 \\ &\quad + b'c'^2 + b'^2c' + 2a'b'c', \end{aligned}$$

$$\text{i.e., } b'^3 + c'^3 - a'^3 - b'c'^2 - b'^2c' - a'c'^2 - a'^2b' + a'b'^2 + a'^2c' = 0.$$

The Lemoine line of DEF is therefore

$$a/a' + b/b' + \gamma/\gamma' = 0.$$

This touches the ex-circle if

$$\begin{aligned} b'^2(s' - b') + c'^2(s' - c') &= a'^2(s' - a'), \\ \text{i.e., } (b'^2 + c'^2 - a'^2)s &= 2(b'^3 + 2c'^3 - a'^3), \\ \text{i.e., } b'^3 + c'^3 - a'^3 - b'c'^2 - b'^2c' - a'^2c' - a'^2b' + a'b'^2 + a'c'^2 &= 0. \end{aligned}$$

Hence this touches the circle round ABC.

For a conic which reciprocates the two circles into each other, and D into EF, &c., changes A into the tangent at D, and therefore the symmedian point of ABC into the Lemoine line of DEF. Hence the symmedian point lies on the circle DEF.

[Rest in Reprint.]

17904. (T. MUIR, LL.D.)—Prove that

$$\begin{vmatrix} a & b & c \\ a & 2d & d+e & d+f \\ b & d+e & 2e & e+f \\ c & d+f & e+f & 2f \end{vmatrix} = \begin{vmatrix} d & e & f \\ d & 2a & a+b & a+c \\ e & a+b & 2b & b+c \\ f & a+c & b+c & 2c \end{vmatrix}.$$

and give another pair of similar determinants having the same value as these.

Solution (I) by the PROPOSER; (II) by A. M. NESBITT, M.A., and W. J. MARYN, M.A.

(I) By performing the operations,

$$\begin{array}{cc} \text{row}_4 - \text{row}_3, & \text{row}_3 - \text{row}_2, \\ \text{col}_4 - \text{col}_3, & \text{col}_3 - \text{col}_2, \end{array}$$

we are at once led to the form

$$\begin{vmatrix} b-a & c-b \\ e-d & f-e \end{vmatrix}^2,$$

which is manifestly unaltered by the interchange of a, b, c with d, e, f . Another form of the common result is

$$\begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ d & e & f \end{vmatrix}^2.$$

Two other determinants with the same value are

$$\begin{vmatrix} . & a & b & c \\ a & -d+e+f & f & e \\ b & f & d-e+f & d \\ c & e & d & d+c-f \end{vmatrix},$$

$$\begin{vmatrix} . & d & e & f \\ d & -a+b+c & c & b \\ e & c & a-b+c & a \\ f & b & a & a+b-c \end{vmatrix}.$$

(II) The first determinant can be changed — by multiplying second row by $e-f$, third by $f-d$, fourth by $d-c$, and adding for a new fourth row—

$$\begin{vmatrix} . & a & b & c \\ a & 2d & d+e & d+f \\ b & d+e & 2e & e+f \\ \Sigma[a(e-f)] & . & . & . \end{vmatrix} \div (d-e),$$

and is thus equivalent to

$$\Sigma[a(f-e)] \times \begin{vmatrix} a & b & c \\ 2d & d+e & d+f \\ d+e & 2e & e+f \end{vmatrix} \div (d-e),$$

i.e., to $\{\Sigma[a(f-e)]\}^2$, or $\{\Sigma[d(c-b)]\}^2$, or $\begin{vmatrix} a & b & c \\ d & e & f \\ 1 & 1 & 1 \end{vmatrix}^2$,

so that the two are equivalent.

It is also clear that, if we write $a+d\lambda, b+e\lambda, c+f\lambda$ in place of a, b, c in the first determinant, we have not altered its value; and, in like manner, no alteration is made by writing $d+a\mu, e+b\mu, f+c\mu$ for d, e, f in the second. So that

$$\begin{vmatrix} . & a+d\lambda & b+e\lambda & c+f\lambda \\ a+d\lambda & 2d & d+e & d+f \\ b+e\lambda & d+e & 2e & e+f \\ e+f\lambda & d+f & e+f & 2f \end{vmatrix}$$

and

$$\begin{vmatrix} . & d+a\mu & e+b\mu & f+c\mu \\ d+a\mu & 2a & a+b & a+c \\ e+b\mu & a+b & 2b & b+c \\ f+c\mu & a+c & b+c & 2c \end{vmatrix}$$

are each equal to the square of the determinant $\begin{vmatrix} a & b & c \\ d & e & f \\ 1 & 1 & 1 \end{vmatrix}$.

It is, however, permissible to doubt if this be really Dr. Muir's way of regarding the question.

17588. (R. TATA, M.A.)—The centres of circles touching the parabola $y^2 = 4ax$, and cutting it at the extremities of a focal chord, lie on the cubic $(x-a)^2(2x-5a) = 27ay^2$.

[Solutions far too numerous to admit of separate publication.—ED.]

Solutions (I) by R. F. DAVIS, M.A., and others; (II) by G. W. BORDER, M.A., and others.

(I) Taking $ny = x + n^2a$ as the equation of the common tangent to the two curves, and $-ny = x - a$ as the equation of the focal chord, the equation of the circle will be

$$(n^2 + 1)(y^2 - 4ax) = (ny - x - n^2a)(ny + x - a).$$

The co-ordinates of the centre of this circle are

$$2\xi = (3n^2 + 5)a \quad \text{and} \quad -2\eta = n(n^2 + 1)a,$$

whence eliminating n we have $(2\xi - 5a)(\xi - a)^2 = 27a\eta^2$.

(II) Let $y = mx + a/m$ be the equation of a common tangent to the parabola and a circle.

The other common chord, through the focus, must be equally inclined to the axis of the parabola. Its equation is therefore

$$y = -m(x - a).$$

We have for the equation of the circle

$$y^2 - 4ax + \lambda(y - mx - a/m)(y + mx - am) = 0,$$

with the condition $1 + \lambda = -\lambda m^2$, i.e., $\lambda = -1/(m^2 + 1)$.

Let (X, Y) be the co-ordinates of the centre. Then

$$2X = \frac{(1 + m^2)}{m^2} \left[4a - \frac{a(1 - m^2)}{1 + m^2} \right] = \frac{a(3 + 5m^2)}{m^2},$$

$$2Y = -\frac{(1 + m^2)}{m^2} \frac{a(1 + m^2)}{m(1 + m^2)} = -\frac{a(1 + m^2)}{m^3}.$$

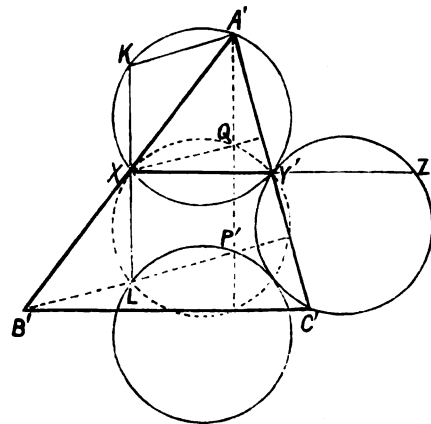
Hence $(2X - 5a) = \frac{3a}{m^2}$, $(X - a) = \frac{3a(1 + m^2)}{2m^2}$;

therefore $(X - a)^2(2X - 5a) = 27aY^2$,

whence the result.

17453. (W. N. BAILEY.)— X, Y are two fixed points, and a circle through X and Y cuts a fixed straight line through Y in A . Another circle touches XY at X and cuts AX in B so that $AX = XB$, and meets the first circle in C . If a third circle be drawn coaxial with these and with its centre on AB , then its point of intersection, P , with a circle through B and X , which cuts the circle AYC orthogonally, is a circle. Show also that the locus of C is a circle which passes through Y and the middle point of XY ; that the circles BPX, CPX pass through fixed points on the locus of P ; and that the circles APX, BCX cut orthogonally.

Solution by J. G. MADDEN, B.A.



Invert with respect to X . Then we get the following corresponding properties:—

- X and Y are two fixed points. X and Y' are two fixed points.
- Circle through X and Y . Straight line through Y' .
- Fixed straight line through Y . Fixed circle through X and Y' .
- These meet in A . These meet in A' .
- Circle touching XY at X . Straight line touching XY' at ∞ , i.e., parallel to XY .
- Cuts AX in B , so that $AX = XB$. Cuts $A'X$ in B' , so that $A'X = XB'$, since $AX \cdot A'X = BX \cdot B'X$.
- Meets first circle (AXY) in C . Meets $A'Y'$ in C' .
- Circle coaxial with these and with its centre on AB , i.e., on XB . Straight line passing through C' , and perpendicular to XB , i.e., to $A'B'$.
- Circle through B and X , cutting circle AYC orthogonally. Straight line through B' perpendicular to $A'C'$.
- These meet at P . These meet at P' .

So the problem inverts into the following:— Given the middle points X, Y' of two sides of a triangle, $A'B'C'$, and the angle A' included between those two sides, prove—

- (i) the locus of the orthocentre P' is a circle.
 - (ii) the locus of C' is a circle cutting XY' in Y' and Z' , where $XY' = Y'Z'$.
- [For suppose in original problem Z is mid-point of XY . Then $KZ \cdot XZ' = XY \cdot XY'$. But $XY = 2XZ$; therefore $XZ' = 2XY'$.] (iii) $B'P'$ and $C'P'$ pass through fixed points on the locus of P' .

(iv) A'P' and B'C' are perpendicular.

(i) A'Q = QP', and Q lies on the reflexion of the circle A'XY' in the straight line XY'; therefore locus of P' is a circle, which is equal to the circle A'XY'.

(ii) A'Y' = Y'C'; therefore locus of C' is a circle equal to the circle A'X'Y'.

When the point A' is at Y', so also is C'; therefore locus of C' passes through Y'.

When the point A' is at X, C' is at Z' on XY', where XY' = Y'Z'.

(iii) Through X draw KXL perpendicular to XY' to meet B'P' in L. Then KA' is parallel to XQ, since

$$\angle KA'Y' = \text{supplement of } \angle KXY' = 1 \text{ right angle};$$

therefore KX = A'Q = QP' = XL, since XQP'L is a parallelogram.

Hence L is a fixed point on the locus of P', being the point corresponding to X' on this locus.

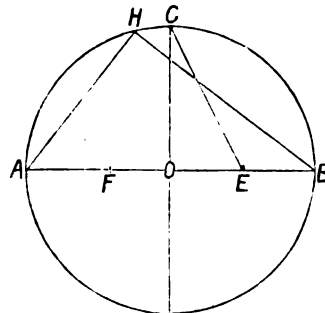
Similarly CP' passes through the fixed point corresponding to Y' on the locus of P'.

(iv) P' being the orthocentre of triangle A'B'C', A'P' is perpendicular to B'C'.

18011. (H. D. DRURY, M.A.)—The following construction for the division of a circle into five equal parts is perhaps not generally known. Prove it. Through the centre O draw two diameters AB, CD at right angles; bisect the radius OB in E; from E along EA mark off a length EF equal to EC. With centre B and radius BF describe a circle, and let it cut the given circle in H, then will the arc AH = $\frac{1}{5}$ circumference.

Solution by F. H. PEACHELL, M.A.

Let AB = 4a.
Then EO = a, CE = a√5;
therefore
BH = BF = a + a√5;
therefore
cos HBA = HB/BA = $\frac{1}{2}(\sqrt{5} + 1)$
= cos 36°;
therefore AH is the side of a regular pentagon.



17978. (T. MUIR, LL.D.)—Prove that

$$\begin{vmatrix} a_1 & a_2 & a_3 & x_4 & x_5 & x_6 \\ b_1 & b_2 & b_3 & y_4 & y_5 & y_6 \\ c_1 & c_2 & c_3 & z_4 & z_5 & z_6 \\ -x_4 & -x_5 & -x_6 & a_1 & a_2 & a_3 \\ -y_4 & -y_5 & -y_6 & b_1 & b_2 & b_3 \\ -z_4 & -z_5 & -z_6 & c_1 & c_2 & c_3 \end{vmatrix} = \begin{vmatrix} a_1i + x_4 & a_2i + x_5 & a_3i + x_6 \\ b_1i + y_4 & b_2i + y_5 & b_3i + y_6 \\ c_1i + z_4 & c_2i + z_5 & c_3i + z_6 \end{vmatrix} \begin{vmatrix} -a_1i + x_4 & -a_2i + x_5 & -a_3i + x_6 \\ -b_1i + y_4 & -b_2i + y_5 & -b_3i + y_6 \\ -c_1i + z_4 & -c_2i + z_5 & -c_3i + z_6 \end{vmatrix},$$

and thence show that the determinant on the left is equal to the sum of two squares.

Solution by MAURICE A. GIBLETT, B.Sc. (Lond.), and others.

Let $D = \begin{vmatrix} a_1 & a_2 & a_3 & x_4 & x_5 & x_6 \\ b_1 & b_2 & b_3 & y_4 & y_5 & y_6 \\ c_1 & c_2 & c_3 & z_4 & z_5 & z_6 \\ -x_4 & -x_5 & -x_6 & a_1 & a_2 & a_3 \\ -y_4 & -y_5 & -y_6 & b_1 & b_2 & b_3 \\ -z_4 & -z_5 & -z_6 & c_1 & c_2 & c_3 \end{vmatrix}$,

Multiply rows 1, 2, 3 by i, and columns 4, 5, 6 by -i. D is unaltered. Then

$$D = \begin{vmatrix} a_1i & a_2i & a_3i & x_4 & x_5 & x_6 \\ b_1i & b_2i & b_3i & y_4 & y_5 & y_6 \\ c_1i & c_2i & c_3i & z_4 & z_5 & z_6 \\ -x_4 & -x_5 & -x_6 & -a_1i & -a_2i & -a_3i \\ -y_4 & -y_5 & -y_6 & -b_1i & -b_2i & -b_3i \\ -z_4 & -z_5 & -z_6 & -c_1i & -c_2i & -c_3i \end{vmatrix}.$$

Perform the operations col. 1 + col. 4, col. 2 + col. 5, col. 3 + col. 6,

and then row 4 + row 1, row 5 + row 2, row 6 + row 3.

We obtain

$$D = \begin{vmatrix} a_1i + x_4 & a_2i + x_5 & a_3i + x_6 & x_4 & x_5 & x_6 \\ b_1i + y_4 & b_2i + y_5 & b_3i + y_6 & y_4 & y_5 & y_6 \\ c_1i + z_4 & c_2i + z_5 & c_3i + z_6 & z_4 & z_5 & z_6 \\ 0 & 0 & 0 & -a_1i + x_4 & -a_2i + x_5 & -a_3i + x_6 \\ 0 & 0 & 0 & -b_1i + y_4 & -b_2i + y_5 & -b_3i + y_6 \\ 0 & 0 & 0 & -c_1i + z_4 & -c_2i + z_5 & -c_3i + z_6 \end{vmatrix} = \begin{vmatrix} a_1i + x_4 & a_2i + x_5 & a_3i + x_6 \\ b_1i + y_4 & b_2i + y_5 & b_3i + y_6 \\ c_1i + z_4 & c_2i + z_5 & c_3i + z_6 \end{vmatrix} \begin{vmatrix} -a_1i + x_4 & -a_2i + x_5 & -a_3i + x_6 \\ -b_1i + y_4 & -b_2i + y_5 & -b_3i + y_6 \\ -c_1i + z_4 & -c_2i + z_5 & -c_3i + z_6 \end{vmatrix}$$

The determinants on the right are conjugate imaginaries. Hence the determinant on the left, being the product of conjugate imaginaries, is equal to the sum of two squares.

18020. (F. G. W. BROWN, B.Sc., F.C.I.P.)—Show that the equations $xy(x^2 + y^2) + z^3(x + y) = a - z(x^3 + y^3)$, $x^2(1 + y^2) + y^2(1 + z^2) + z^2(1 + x^2) = b$, $x(x + y) + y(y + z) + z(x + z) = c$,

may be solved by reducing them to the cubic

$$u^3 + au^2 + \beta u + \gamma = 0,$$

where $a^2 = c + \beta$, $6\beta = 1 + 2c + k$, $-a\gamma = a + \beta^2 - \beta c$,

and $k^2 = 1 - 24a + 12b - 8c + 4c^2$;

hence, find x, y, z when a = 878, b = 399, and c = 69.

Solution by the PROPOSER.

If the roots of the cubic are x, y, z, then

$$a = -\Sigma x, \quad \beta = \Sigma xy, \quad \text{and} \quad \gamma = -xyz.$$

Denote the given equations by (1), (2), (3), then (1) becomes

$$a = xy(x^2 + y^2) + z^3(x + y) + z(x^3 + y^3) = \Sigma xy(x^2 + y^2) = \Sigma x^2 \cdot \Sigma xy - xyz \Sigma x = [(\Sigma x)^2 - 2\Sigma xy] \Sigma xy - xyz \Sigma x \dots (4).$$

$$\text{From (2), } b = \Sigma x^2 + \Sigma x^2 y^2 = (\Sigma x)^2 - 2\Sigma xy + (\Sigma xy)^2 - 2xyz \Sigma x = a^2 - 2\beta + \beta^2 - 2\gamma a \dots (5).$$

$$\text{From (3), } c = \Sigma x^2 + \Sigma xy = (\Sigma x)^2 - \Sigma xy = a^2 - \beta \dots (6).$$

Now to find a, β, γ: multiply (4) by 2 and subtract from (5), then

$$a^2(1 - 2\beta) - 2\beta + 5\beta^2 = b - 2a.$$

Substitute for a from (6), then

$$3\beta^2 - \beta(1 + 2c) + (2a - b + c) = 0,$$

from which

$$\beta = \frac{1}{6} [1 + 2c \pm \sqrt{(1 - 24a + 12b - 8c + 4c^2)}] = \frac{1}{6} (1 + 2c + k),$$

the negative sign being inadmissible.

From (6), $a^2 = c + \beta$,

and from (4), $-a\gamma = a - a^2\beta + 2\beta^2 = a - (c + \beta)\beta + 2\beta^2 = a + \beta^2 - \beta c$.

When a = 878, b = 399, and c = 69, then $k^2 = 2209$ or $k = 47$; $a = -10$, $\beta = 31$, and $\gamma = -30$, hence the cubic becomes

$$u^3 - 10u^2 + 31u - 30 = 0 \quad \text{or} \quad (u - 2)(u - 3)(u - 5) = 0;$$

therefore

$$u = 2, 3, 5.$$

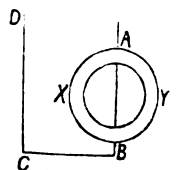
QUESTIONS FOR SOLUTION.

Erratum in Question 18070. (Col. R. L. HIPPLEY, C.B.)

Readers are asked to note that the cut accompanying this Question is defective. The text shows that BO₁AC₂ should be a parallelogram, and indicates the relation of its sides to other lines in the diagram.—ED.

18086. (CHAS. W. R. HOOKER, B.A., B.Sc.)

—The figure represents a circular wheel-rim of density $\frac{1}{2}$, passing through two frictionless and water-tight openings at A and B in the side of a tank ABCD, containing water, the half AXB of the wheel being immersed. Then it is easily seen, by applying the principle of Archimedes, that the vertical force upwards on AXB is equal to downward force of gravity on AYB. Hence the wheel is acted upon by a couple and will revolve with an acceleration. Also the magnitude of the couple is



quite determinable, and the work done can easily be calculated. It is possible also to allow for a certain calculable maximum of friction at A and B, so that, admitting a certain amount of friction less than this maximum, the contrivance will still work. Of course the above argument is quite faulty. Explain the fallacy.

18087. (S. KRISHNASWAMI AIYANGAR, B.A.)—Show that $1 - \frac{1}{5} \cdot \frac{1}{2^2} + \frac{1}{9} \cdot \frac{1}{2^4} - \frac{1}{13} \cdot \frac{1}{2^6} + \dots \infty = \frac{1}{4} \log 5 + \frac{1}{2} \tan^{-1} 2.$

18088. (E. G. HOGG, M.A.) - Prove that $\iint r^2 dS/p = [\Sigma (a^2) \Sigma (1/a^2) + 6] \frac{1}{2} V,$

when the integral is taken over the surface of the ellipsoid $x^2/a^2 + y^2/b^2 + z^2/c^2 = 1,$ $r^2 = x^2 + y^2 + z^2,$ p is the central perpendicular on the tangent plane at $x, y, z,$ and V is the volume of the ellipsoid.

18089. (C. M. ROSS, M.A.)—Show that $\int_{-x}^x \int_{-y}^y \frac{a dx dy}{(x^2 + y^2 + a^2)^{3/2} (x^2 + y^2 + b^2)^2} = \frac{2\pi}{a+b}.$

18090. (T. MUIR, LL.D.)—If Δ stand for the determinant $\begin{vmatrix} a & b & c & d \\ b & a & d & c \\ c & d & a & b \\ d & c & b & a \end{vmatrix},$

and A, B, C, D be the elements of the adjugate determinant, show that $\begin{vmatrix} A^2 B^2 C^2 D^2 \\ a^2 b^2 c^2 d^2 \end{vmatrix} = -(a+b+c+d)^4 \Delta^2.$

18091. (Professor R. SRINIVASAN, M.A.)—If $f(n) = \phi(n) + S_2 \phi(n+2)/2! + S_4 \phi(n+4)/4! + \dots,$ where S_2, S_4, \dots are Euler's numbers, show that $\phi(n) = f(n) - f(n+2)/2! + f(n+4)/4! + \dots$

18092. (B. HOWARTH.)—Let a and b denote positive integers, and let $1/a$ give rise to a pure circulating decimal whose period does not obey the complementary law. Then the period of $1/ab$ does not obey the complementary law.

18093. (W. E. H. BERWICK.)—If an irreducible quintic equation, whose coefficients are rational numbers, be soluble by radicals, show that it has four imaginary roots or none.

18094. (J. J. BARNVILLE, B.A.)—Prove that $x^{12} - 7^2 x^{21} + 2 \cdot 7^6 x^{14} + 7^7$ is divisible by $x^6 + 7x + 7.$

18095. (C. E. YOUNGMAN, M.A.)—Given two points A, B and a circle (C) coaxial with them; also the circle (A) with radius AB: with centre M on (C) draw through B a circle cutting (A) again at N, and with centre N draw a circle touching (A). Then the envelope of the radical axis of (M) and (N) is a limaçon; and the locus of their common points is the same.

18096. (Professor E. J. NANSON.)—Find the locus of the fifth vertex of a pentagon having four vertices on one given conic, and having consecutive vertices conjugate to a second given conic.

18097. (S. KRISHNASWAMI AIYANGAR, B.A.)—If λ, μ be the latus rectum of the parabola and rectangular hyperbola of closest contact with a curve at any point, show that $2\lambda\rho = \mu^2.$

18098. (R. F. DAVIS, M.A.)—Prove that the product of the ordinates is constant for the two points P, Q, in which a variable circle through the foci of a given hyperbola intersects the same branch of the curve. What is the envelope of PQ?

18099. (W. F. BEARD, M.A.)—If a pair of common chords of a circle and parabola are perpendicular, the join of the point of intersection of the chords to the centre of the circle is bisected by the axis, and the projection of the join on the axis is equal to the latus rectum.

18100. (C. E. YOUNGMAN, M.A.)—Given the in-circle of a triangle, and either a point or a tangent of the circum-circle, the envelope of the circum-circle is a circle. Given the in-circle and the orthocentre (or the mid-point of a side), the envelope is two circles.

18101. (W. N. BAILEY.)—Through the mid-points of the sides of a triangle lines are drawn parallel to the external bisectors of the opposite angles. Show that the triangle thus formed has the same nine-point circle as the given triangle.

18102. (F. G. W. BROWN, B.Sc., F.C.P.)—The area Δ and the circum- and Brocard radii R, β of a triangle are given; find the

equation whose roots are the squares of the sides, and show that this equation may be expressed in the form

$$l^2 d^2 x^3 - 4 \Delta R^2 \beta^2 d x^2 + 16 \Delta^2 R^2 \beta^2 l^2 x - 16 \Delta^2 R^2 l^4 d^2 = 0,$$

where l = Lemoine radius, and d = distance between the Brocard points. Hence find the sides when

$$\Delta = 4\sqrt{6}, R = \frac{2}{3}\sqrt{6}, \text{ and } \beta = \frac{7}{24}\sqrt{\frac{97}{6}}.$$

18108. (A. M. NESBITT, M.A.)—O is the centre, and OA (= 2a) a radius of a circle: P_1, P_2, \dots, P_n are n points on the circle, and the angle AOP, is denoted by α_r . Prove that the equation to the Simson-line of P_4 with respect to the triangle $P_1 P_2 P_3$ has for equation $y \cos(\sigma_4 - \alpha_4) - x \sin(\sigma_4 - \alpha_4) = a \Sigma \sin(\alpha_4 + \alpha - \sigma_4),$

where $2\sigma_r = \alpha_1 + \alpha_2 + \dots + \alpha_r,$ and $\Sigma \phi(\alpha) = \phi(\alpha_1) + \dots + \phi(\alpha_r);$

and that the four Simson-lines of $P_1 P_2 P_3 P_4,$ taking that of each point with respect to the triangle formed by the other three, pass through a common point given by

$$x = a \Sigma_4 \cos \alpha, \quad y = -a \Sigma_4 \sin \alpha.$$

Calling this point the "Simson-point" of the four points $P_1 \dots P_4,$ it follows that the five points $P_1 \dots P_5$ have five "Simson-points." Prove that these lie on a circle whose centre is at

$$x = a \Sigma_5 \cos \alpha, \quad y = -a \Sigma_5 \sin \alpha,$$

which may be called the "Simson-centre" of the five points. In like manner the six "Simson centres" of six points $P_1 \dots P_6$ lie on a circle whose centre is at

$$x = a \Sigma_6 \cos \alpha, \quad y = -a \Sigma_6 \sin \alpha.$$

This "chain" may be extended indefinitely.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS)

18621. (MORGAN BRIERLEY.)—Given the circum-circle and the ratio of the sides including the vertical angle, to construct the triangle a maximum.

18677. (W. E. JEFFARES, B.A.)—If α, β, γ be the roots of $ax^3 + 3bx^2 + 3cx + d = 0,$ find the equation whose roots are

$$(\beta - \gamma)^2 (2\alpha - \beta - \gamma)^2, (\gamma - \alpha)^2 (2\beta - \gamma - \alpha)^2, (\alpha - \beta)^2 (2\gamma - \alpha - \beta)^2.$$

14335. (Professor E. J. NANSON.)—The congruence determined by $x = f + lr, y = g + mr, z = h + nr,$ where f, g, h, l, m, n are functions of $p, q,$ and l, m, n are direction cosines, is orthogonal if

$$\frac{\partial(f, l)}{\partial(p, q)} + \frac{\partial(g, m)}{\partial(p, q)} + \frac{\partial(h, n)}{\partial(p, q)} = 0.$$

14395. (Professor COCHEZ.)—Courbe $\tan \omega = \rho + 1/\rho.$

14401. (Rev. W. ALLEN WHITWORTH, M.A.)—If a number be taken at random, the chance that it is of the form \square or $\square + \square$ is very nearly $\frac{1}{2},$ the chance that it is of the form $\square + \square + \square$ very slightly exceeds $\frac{1}{2},$ and the chance that it is of the form $\square + \square + \square + \square$ is exactly $\frac{1}{2}.$

14571. (Professor MORLEY.)—Prove that the sum of the cubes of the coefficients in the expansion of $(1-x)^{-p}$ is, when convergent, $\cos \frac{1}{2}(p\pi) \Gamma(1 - \frac{1}{2}p) / \{ \Gamma(1 - \frac{1}{2}p) \}^3,$ p being real or complex.

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THE EDUCATIONAL TIMES

AND
JOURNAL OF THE COLLEGE OF PRECEPTORS

Vol. LXVIII No. 655

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The Educational Times.

Communications Intended for the Editor should be addressed to Ulverscroft, High Wycombe.

PROFESSIONAL ORGANIZATIONS.

THE event of the month has been the masterly analysis of the causes that led to the rise of professional associations among teachers in England, written by Mrs. Sidney Webb and published in *The New Statesman*. With somewhat pitiless logic, Mrs. Webb traces the growth of these associations, indicating their weaknesses and their errors, and arguing in conclusion that the Teachers' Registration Council, the final result of the sectional organizations, is based upon a confusion of thought which will cause its undoing unless steps are taken to modify its constitution. In the course of her narrative, Mrs. Webb does not spare criticism upon the vacillating and contradictory policy of the Board of Education, and upon the want of clear thinking on the part of teachers. With the proposals in reference to the Registration Council we will deal later.

For the readers of this paper it is interesting to be reminded that the College of Preceptors was the first attempt in England to organize teachers into a professional body. Mrs. Webb has been unable to find any trace of organization among teachers in the United Kingdom until the establishment of the College of Preceptors in 1846. During the Middle Ages when Guilds of many sorts flourished, teachers, probably owing to their close connexion with the Church, appear to have been without any professional organization. The public memory is admittedly short, and it is well to recall what the College has done. Says Mrs. Webb:

It is worth remembering to-day that it is to the little group of the more public-spirited and the more scholarly among the despised proprietors of private venture schools for middle-class children, that we owe the first attempt in the United Kingdom at the professional organization of teachers of any kind.

Again:

The value of the College of Preceptors has, in fact, lain not so

much in providing a model for the professional organization of teachers—in this respect it has been superseded by more modern organizations—as by initiating among teachers of all grades and subjects the movement towards the creation of a learned profession with distinct rights of self-government.

Again:

The College inaugurated—I might almost say it invented—the modern system of the periodical examination of pupils of each school by outside examiners. . . . Nowadays we are apt to declare that the device of outside examination has been carried to excess and applied in a wooden way; but considered as a check on the slovenly, pretentious, and, in some ways, dishonest work of the mid-Victorian schools and academies for the middle class, it amounted in its day and generation to nothing less than a revolution.

And once again in reference to Registration:

The story of the teachers' struggle for some share in the control of their own service is full of instruction. The movement was started as long ago as 1861 by the College of Preceptors. . . . What they desired was the protection of the profession against unqualified and disreputable competitors of the type satirized in "Nicholas Nickleby."

These extracts show that Mrs. Webb's researches have convinced her of the value of the work done by the College in years past. But throughout the monograph we find the suggestion, implied rather than stated, that the present position of the College is one of diminished importance. It is true that the original proposals with regard to Registration no longer stand because the conditions of teaching have entirely changed. The ideal of the College in 1861 was a Register following the lines of the Medical Register. At that time the members of the College were proprietors of private schools, each one under the sole control of its principal, who dealt, as an individual, with the parents of his pupils. Between the parent and the schoolmaster there was complete freedom of contract. The one offered certain wares: the other was free to purchase or not. Under these circumstances the public needed protection from impostors. To-day conditions have changed, and in schools under public authorities there is little or no freedom of contract. The efficiency of the school and the staff is guaranteed first by the authority which, with the help of expert advice, makes the appointments, and then by the Inspectors of the Board of Education. Probably, also, there is only one school within convenient reach of the pupils' resi-

dence. The objects of a Register have changed from what they were in 1861.

But many private schools still exist, and for them a Register of qualified teachers and efficient schools is still a necessity. Private schools, however, are for the moment overshadowed by the schools governed by public authority. The proposals of 1861 no longer apply to the whole profession of secondary teachers. The College, of course, has changed and must still further change its policy. It cannot now speak for the whole body of secondary teachers. But it has a distinct position and a definite value. This value will remain until, if ever, the whole teaching profession is completely organized by the State. The value is that the College affords a common meeting ground for teachers of all grades and types of schools. It forms a link between the great public schools on the one hand, through all the intervening stages, to the smallest and least considered private school on the other hand. It is not easy to overestimate the value of an organization where men and women with varying aims and ideals, teaching in schools under various types of authority and dealing with parents from different points of view, can meet and talk of educational matters.

We have not left much space to deal with Mrs. Webb's views of the Registration Council, the culminating point of all the efforts of teachers for organization. Briefly, Mrs. Webb holds that the Council cannot succeed under its present organization for the reason that the majority of teachers will remain unregistered, and that Registration will prove a certificate of no greater value than the academic distinctions upon which it is granted. Unless the Council can prevent unregistered teachers from being appointed to schools, and this power will never be granted, the Register will fail to gain general recognition. Mrs. Webb also charges teachers with a confusion of thought in trying to combine a professional Council with a Register of persons qualified to teach, "two quite disconnected ideals." She laughs at the notion that teachers can become a self-governing profession when they are paid by administrative authorities and not by private persons. But here Mrs. Webb appears not to have understood the claim. Teachers do not ask to have the power to impose upon their employers conditions of work. They ask to be able to express their considered views through an authoritative channel, and they expect that when these views deal with a purely professional matter they will be considered favourably by the administrators.

In one other point we must differ from the conclusions that Mrs. Webb reaches. People are governed more by their feeling than by logic. It may be easy to show that the Register ought to fail to give distinction. But in point of fact it will not fail simply because teachers have decided that to be upon the Register is a distinction. We agree entirely with Mrs. Webb in holding that the real function of the Registration Council is to become a professional council of teachers. We have always looked upon registration as a preliminary work; when that is done the Council can proceed to its real work of discovering

and expressing the united views of teachers. The Council will also have to produce an electoral roll. Here again Mrs. Webb charges us with want of clear thinking. A Body, she says, cannot be allowed to make the conditions of admission to the roll of electors to which it owes its authority. It seems therefore to be suggested that the Board of Education should decide the terms of admission to the electoral roll, which will consist of all persons admitted to be "teachers"—a term difficult to define. The Council when elected will be really representative of the teaching profession.

Mrs. Webb considers, and in this we shall all agree, that whatever changes the future may bring, the Teachers' Registration Council expresses the highest organization to which we have at the moment attained, and that only by supporting it can we go a step further. Her advice on this point is worth quoting:

Meanwhile it is of the utmost importance to the whole teaching profession that the present Teachers' Registration Council, with its limited powers and functions, should be made a recognized success. As matters stand to-day, the only way of demonstrating that success is for the whole body of teachers to put themselves on the Register, and in this way to prove the keenness of their desire for a share in the control of their own work.

NOTES.

It will be remembered that the College of Preceptors was at first omitted by the Board of Education from the list of bodies to whom Circular 849 was sent for criticism and suggestion. But representations in the proper quarter soon set the matter right, and copies of the Circular were sent to the Council with a request for a statement of the Council's views. The Council have now prepared a statement of their views for transmission to the Board of Education. Naturally they point out with some firmness that the College should be included in the list of examining bodies recognized for the purposes of the Circular. The College has for more than fifty years shared the field of work with the Oxford and Cambridge "Locals," and was the first body to undertake the examination of pupils in schools. The Council also point out with complete pertinency that the alleged difficulties in connexion with the multiplicity of examinations arise, not from the number of examining boards, but from the diversity of requirements on the part of professional bodies: a diversity not modified by the Board's proposals. We give the College views in full on another page.

THE Women's Defence Relief Corps have done good work in organizing women workers, many of them school mistresses, for work on the land in their spare time. The work during the harvest that is just past was tentative, and the organization was not sufficiently developed to cope with the numbers of those who offered to help. This difficulty has now been removed. The farmers have been so satisfied with the work that was done that they have offered contracts for the harvests of next year. Whether

The College and the Board.

Women and Harvest.

or not the War is over by then, there is certain to be a marked shortage of male labour. The Women's Defence Relief Corps therefore ask that all women who wish to work in the harvest next year should enrol themselves now, and state at what period they expect to be free. Names should be sent to Miss Creamer, 6 King Street, Southall, Middlesex. A lecture has been prepared on the experience of the harvest workers, and it can be given, on request, to suitable audiences.

In these days, when short-sighted economists are crying for a reduction in the nation's education bill, it is good to listen to the stirring words addressed to the Workers' Educational Association by the Rev. William Temple, late Head Master of Repton. "The whole problem of our future," he says, "is a problem of education, for by education we mean not only schooling, but the whole process of developing those qualities which distinguish a man from a brute or a machine—the quickening of intelligence, the quickening of imagination, the widening of sympathy." And, again: "It is as plain as anything can be that there is no capital so precious to a nation as the brains and character of its citizens, and, therefore, no investment so profitable as that which may bring brains and character to their full development. England has never believed in education, but if this War has not created such a belief we have assuredly missed half its meaning." It goes without saying that much of our expenditure on education has been wasteful, because it has been carried out by a half-educated democracy trying experiments, but we must continue the experiments until full educational opportunities are available for all.

We publish an interesting letter, signed "Ex-Sergeant," on the subject of the leading article in last month's issue. The letter in itself carries sufficient weight, so that we regret the less that we are unable to publish the name of the distinguished writer. With regard to the Boy Scouts, there is but one opinion among those who have had experience. And that opinion is that scouting affords an opportunity of training valuable sides of activities and intelligence that may hardly be touched by the ordinary school course. Probably it would be possible to develop the system, and make it applicable to older boys; but as it is now organized it seems to us that the interest of the boys is apt to weaken at about the age of fourteen. It is then that the more formal training of the O.T.C. becomes acceptable. In addition, it must be remembered, the older boys are playing, with scientific intelligence, the highly organized games of cricket and football. There are, of course, rare examples of boys who are never troubled with diffidence or a want of confidence in their own powers; but for most boys it is essential that they practise all their powers in order that they may feel confidence where confidence is justified.

THERE is a tradition of a boarding-house master who used to say to his boys: "I want some of you to help me in the garden this afternoon. It is quite voluntary. You can do as you like; but those who do not help will have no jam for tea to-night." No doubt we have all met with examples of this sort of voluntarism. It is hardly possible to over-estimate its meanness. A similar case has occurred on an Education Committee in Wales. The teachers were asked to volunteer for work on the National Register. Some did so: all the women teachers and a proportion of the men. At a meeting of the Committee after the holidays, the Vice-Chairman wanted to have the names of those who had not volunteered, and in that connexion he was inclined to move that the salary scale be abolished, and that every application for an increase be treated on its merits—meaning, that teachers who had not volunteered for Registration work should lose their increase. If this man's views are accepted by a majority of the Committee, the proposal for voluntary work becomes as the highwayman's pistol: "Volunteer, or lose your salary."

PROF. JOHN ADAMS, writing in the *New Statesman* for October 16, points out a weakness, if not a fallacy, in Mrs. Sidney Webb's criticism of the Teachers' Registration Council. Mrs. Webb holds that a Council which excludes a large number of actual teachers who are qualified by the fact of their appointment by a public body, can never speak for the whole body of teachers. Prof. Adams argues that this exclusion may be temporary, and may well have the effect of raising the qualifications of teachers. If a system is bad, there is no value in perpetuating it. If it is admitted that there are some 40,000 teachers with qualifications below what is reasonable, it would be a tactical error to admit them to the Register and so perpetuate the error. It is fair to hold that the conditions of admission to the Register are the most modest that, in the opinion of the teaching profession, ought to prevail, and that if all acting teachers do not at present hold these qualifications, the existence of the Register will ensure that they do so in the future. The really valuable work that the T.R.C. has done up to the present is, in Prof. Adams's opinion, the removing of friction among the various bodies of teachers.

SUMMARY OF THE MONTH.

CRIME OF EXTRAVAGANCE.

"They (the people of this country) have not only got to learn that in this War, in our present circumstances, extravagance is a crime, and that economy, parsimony even, becomes the highest of national virtues, but that we must look to the individual acting alone in his own home for the foundation of the national resources, by the help of which alone we and our Allies can obtain the triumph to which we look forward."—The Chancellor of the Exchequer (*The Times*, July 2, 1915).

ECONOMY.

Lord St. Aldwyn, speaking on the subject of the circular letter from the Local Government Board urging economy in public expenditure, said that his own feeling was that Government Departments, which wrote those admirable letters, ought themselves to set the example. In no Department was that example more urgently needed than in the Board of Education. It would probably be found that the inspectorate of the Board (the general Inspectors and Inspectors of special subjects) would aggregate something like five hundred. In his opinion a great portion of the work they did could be more effectually performed by officials of the various Local Education Authorities at infinitely less cost. He believed the Gloucestershire Education Committee knew a great deal more about the state and requirements of the various elementary schools in the county than the Education Department in London; and yet they were favoured by constant visits of certain gentlemen from London, who made sometimes very absurd suggestions, and who might just as well remain in London, and, to quote the words of the Local Government Board Circular, devote their attention to other matters instead of this unproductive work. The Committee decided to reply to the Government Circular, pointing out the economies they themselves were endeavouring to effect, and respectfully suggesting that the Government might set their own house in order in various Departments.—*Local Government Chronicle*.

THE VALUE OF READING.

The National Home-Reading Union have provided courses upon "The Problems of the European Situation," "The Balkan States," and "The Home Life of our Allies." A circular letter says:—

The last twelve months have been for the Union a time of increased difficulties, but also of new opportunities. Its aim is, now as before, to guide, help, and stimulate all who have been taught to read in using this power for good, so as to make reading a joy in the home and a formative element of social life. During the present crisis, welcome testimony has been received from members of the steadying, refreshing, and heightening influence of the courses of reading pursued by them at the suggestion, and with the help, of the Union. The value of systematic reading has been freshly realized as an aid to usefulness in the national service, and as a powerful antidote to the spirit of unrest, the twin dangers of idling and meddling, and the alternation of excessive optimism with unreasoning depression.

THE FUTURE OF EDUCATION.

What is the vision? I seem to see a mighty host drawn from every nation under heaven, and from every social class, pledged to one great cause—the full development of human powers through the intercourse of man with man in fellowship and brotherhood. They are filled with a high courage; their eyes shine with hope and faith. As they labour the world is changed. A new spirit is at work; and the things they care for are the fruit of that spirit—love, joy, peace, loyalty, beauty, knowledge. Eagerness to win these does not lead to rivalry or faction, for these are blessings of which the more anyone possesses, the more there is on that account for all beside. Life is still varied, and there are many diversities of service; still town and country with all their manifold pursuits, but no leading into captivity, and no complaining in our streets; still sorrow, but no bitterness; still failure, but no oppression; still richer and poorer, but no thoughtless luxury, no grinding destitution; still church and world, yet both together celebrating unintermittently the one Divine service, which is the service of mankind.—Rev. W. Temple to the W.E.A.

MR. ARTHUR LEACH.

Mr. Arthur Leach, who has just died in London, was probably our greatest authority on the English public school, and the compilers of the "Victoria History" series, as well as others, were greatly indebted to him for notices of the rise and success of Lancashire and Manchester schools. Born in

1851, he was a nephew of Sir John Leach, Master of the Rolls and a competitor with Brougham for the Woolsack under Lord Grey. He married, in 1881, a daughter of Silas Kemball Cook, of Greenwich Hospital fame, which made him brother-in-law of Sir Edward Cook, of the Press Bureau, of Sir Charles Cook, of the Charity Commission, with whom in later years he was associated as a colleague, and of Mr. Alfred Cook, of St. Paul's School. That was a family of particularly vigorous minds, and it required an agile wit to keep pace with them. Certainly there has never been an official less official in the dry-as-dust sense. Much of his life was spent in what most people might think the rather dreary atmosphere of educational officialdom. He was steeped in knowledge which was the result of long poring over tomes which the average person is quite contented to see dust-covered on his shelves; but there was never a man less chained by theories and precedents, less redolent of the library. He was a keen Liberal, and one remembers him bursting with energy and enthusiasm at the 1910 election over a constituency so utterly hopeless from a Liberal standpoint as St. George's, Hanover Square. Himself a boy at heart, he was never happier than with his own or other people's boys, and the death in action of his second son last month was a terrible shock to him.—*Manchester Guardian*.

AGRICULTURAL EDUCATION AND THE WAR.

The report for 1914-15 of the Education Branch of the Board of Agriculture respecting the distribution of grants for agricultural education and research was issued on Saturday. The report deals mainly with the work of the institutions and Local Education Authorities to which grants were made. In 1914-15 the total grants amounted to £95,410, as against £67,939 in 1913-14. The great progress in organization which marked the year 1913-14 was arrested. Not only was the attendance of students seriously affected by the War, but a considerable proportion of the staffs of the various bodies concerned took up military service. Many schemes involving capital expenditure were arrested. One of the first matters to attract the attention of the Board on the outbreak of the War was the need of augmenting the supply of home-grown foods. Special instruction on that subject was given by means of leaflets.—*Morning Post*.

THE ADVANCEMENT OF SCIENCE.

At the recent meeting in Manchester, the General Committee of the British Association unanimously adopted the following resolution, which has been forwarded to the Prime Minister, the Chancellor of the Exchequer, and the Presidents of the Boards of Education and of Agriculture and Fisheries: "That the British Association for the Advancement of Science, believing that the higher education of the nation is of supreme importance in the present crisis of our history, trusts that His Majesty's Government will, by continuing its financial support, maintain the efficiency of teaching and research in the Universities and University colleges of the United Kingdom."

EDUCATION AND FALSE ECONOMY.

At the Annual Meeting of the Workers' Educational Association, at Birmingham University, on October 16, the Rev. William Temple was re-elected President. A resolution was moved by the President setting forth that, while recognizing the need for national economy, the Association affirmed its belief that the reduction in national expenditure on education would be both false economy and prejudicial to the welfare of the nation, and demanding that the whole educational resources of the nation should be so administered and expended as to secure that the children of the poor did not suffer, as compared with the children of the well-to-do. The resolution was carried unanimously, as was also another, moved by Mr. F. G. Hull (Fawcett Association), declaring that the Association viewed with concern the tendency manifest in the country to secure for industry the service of children below the present statutory leaving age, which was admittedly too

low, and urging the Board of Education to exercise its full powers to prevent this sacrifice.

SCHOOLMASTER AND THE NATIONAL REGISTER.

An assistant schoolmaster, named Harold Pugmire, who is engaged by a Heywood school but whose home is at Liverpool, has been committed to prison for twenty-eight days in the second division by the Heywood magistrates for non-payment of a fine of £5 which was imposed upon him in September for failing to fill up the form required by the National Registration Act. The defendant told the court that he objected to take any part in helping on the evil of fratricidal strife by which hundreds of thousands of homes were bereaved and ruined. In September he declared his opinion that all war was against the teaching of Jesus, that in his judgment the registration form had been brought into being owing to the country being at war, and he as a Christian refused to fight or in any way assist in warlike preparations. The maximum penalty was inflicted upon him. At the time the presiding magistrate, the magistrates' clerk, and the solicitor for the Registration Committee stated that, according to the law as passed by the Commons of England, there was no alternative to the fine, and imprisonment was impossible. Since there was no alternative to the fine according to the ruling of that court, it remained, he said, "for other people to show why a person such as I am, following a useful employment, offending no man, doing no wrong, but trying to remove ignorance, pain, and trouble from the earth and to follow the teaching of Jesus, should be committed to prison, and thus forced to waste my time and the resources of my nation."

SÉGUIN.

By R. P. H. BLORE.

III. MUSCULAR EDUCATION.

THE first need of man in his struggle with his environment is strength, which directly tends towards self-preservation. Consequently, at different times exercises have been invented to increase strength, so that man might have a better chance of triumphing in this struggle. "Thus, the Parthians and Arabs gave themselves up to horsemanship, the Roman . . . invented military and pedestrian exercises, the Greek . . . created the philosophic gymnastic, the Christian knight the Feudal gymnastic." Gymnastic for children or for idiots does not demand any elaborate apparatus, as it has not for its object the "stunts" of a strong man. "Thus, the position of attention, the rhythmic march, the jump in width, height, and depth, only demand a few square feet where one can put a table and a ladder for the development of the lower members; and for the chest and the higher members the same ladder, the ladder turned upside down, the bar-bell (*balancier*) and dumb-bells."

Séguin has in mind the system of M. Amoros, whom he commends. However, the elaboration of the system and of the apparatus he criticizes as unsuitable for children and idiots. Again, the exercises should be of a more hygienic character, and many dangerous and purposeless exercises should be eliminated.

Exercises should be divided into two kinds—(1) exercises which demand a sudden concentration, and (2) those which demand a steady application of strength. In the former category would be jumping, whilst in the latter dumb-bell exercises. The instructor must make a wise mixture of the two according to the individual. Otherwise positive harm may be done. "Allow, for example, a child arrested in growth to leap down from a height. There is no reason in this to make him grow, whilst the same exercise combined with heavy dumb-bells would be excellent for a frail and lanky young man." Where the spine is feeble the first class of exercises is dangerous, so also to the highly nervous, and "gymnastics as carried on in the gymnasiums ought to be considered as a dangerous agent."

Thus, the gymnastic which normal children undergo is not suitable to all of them, and entirely unsuitable to idiots, for the greater part of the exercises are of the first class, whereas the latter class are more useful, as they "secure the production of a constant effort, for a time determined and determinable according to each subject." Secondly, much of the gymnastic in use takes for granted that the child possesses a complete control of complex movements, a "complete co-ordination between the will and the motor apparatus, a regularity in the dynamic forces, which do not exist in the idiot," and, we might add, in the normal child. Besides, both the ancient and modern gymnastic, in seeking to produce a race of athletes, favour the pre-

dominance of the muscular system. This at the present is "an anachronism, or rather an immorality."

"Understood and applied as I have formulated it, not only does it serve the actual tendencies of society, which seeks life in the equilibrium of functions, but, still more important, the gymnastic which I teach is connected with intellectual and moral education by the part which I assign there to the nervous system and the organs of sensation. Here the child passes from purely physical exercises to physiological or, more correctly, from exercises of movement to sense exercises, by an uninterrupted gradation which challenges inertia to remain behind."

This gradation is very important, because individuals may be divided into two classes: those in whom the muscular system and those in whom the nervous system predominates. The former are "powerful levers deprived of sensibility; the others unfitted for real life are only weak sensitives." Modern gymnastics tends to produce the first class, whilst by the simultaneous carrying on of the two kinds of gymnastics, equilibrium between the two systems, muscular and nervous, will be gained.

The predominance of one of these systems is more general among idiots than among normal children. The idiot is either a prey to too much nervous excitation, or at the mercy of his muscular forces, or completely passive. We must therefore lay down as a principle that the education of the muscular and nervous systems must proceed together, and, above all, that the amount and expediency of each should be calculated with regard to each individual. Not only with regard to idiots, but in the case of intellectually backward children, of rickety children, of young persons whose muscular systems, being atrophied, are unable to make any useful contraction while their nervous systems are highly developed; in all these cases where the equilibrium is lacking the muscular gymnastic must first be given with individual attention to each pupil; next, it ought to be taken together with the gymnastic of the nervous system.

With the normal child, grasping with the hand is congenital; therefore with the idiot Séguin proceeds to develop this first by the aid of the ladder. He takes the child by the belt of his gymnastic costume and lifts him on to the rungs of the ladder, trusting to the instinct of self-preservation to make him grasp. He directs the hands and the feet of the child with one hand, so as to make him ascend or descend. If his hands refuse to seize the rungs he falls into the arms of his master, who puts him back on the ladder. If this is insufficient, he puts the child on the back of the ladder while he mounts the ladder in front, placing his hands over the hands of the child, and causes him to mount the ladder. The descent is more difficult. The master with his feet disengages the feet of the child from the ladder, thus he hangs by his hands. Next he disengages one of the hands of the child who, because the other lacks strength to support the body, by the instinct of self-preservation naturally grasps the lower rung, where the hand of the master fixes it.

In this exercise the body of the child is fully extended; "the muscles, inert before, contract with the energy and support a weight, movements that no active and voluntary exercise could replace." Gradually the master withdraws his help, applying less and less force in holding the hands of the child until he is able to be freed altogether. As soon as the usage of the hands is acquired they must be applied to useful objects—i.e. to feeding himself, to the ordinary needs of life, and finally to extend their sphere to occupations which are foreign to the usual habits of the child, such as letting him handle stones, bricks, pickaxe, wheelbarrow, &c. The wheelbarrow is especially useful as an aid to balance, to maintain equilibrium in standing still, and walking.

The next step is to give the power of standing still and marching. This is done by the help of dumb-bells and the barbell exercises, which would be impossible if grasping had not been acquired. The barbell aids in balancing. The starting-point of all regular and precise action is the position of attention. The means of attaining this are for the master to fatigue or occupy the hands of the child with dumb-bells; to fix the child's head with his look, or with his hand, to fix the feet either by command or by holding them between his own, or in a little box screwed to the floor, or with four small pieces of wood arranged like a frame, or even with a circle or square drawn with chalk. This latter method is preferable to the others. "I have seen children upset material obstacles, . . . and yet accept this imaginary one, and take me by the hand and manifest the desire to see me draw the circle, in which they placed themselves voluntarily."

The attaining of the position of attention is most important, as it is the only starting point for regular action; it is the necessary passage from an unorganized action to one in which the intellect and will are in accord.

"All finally should be familiarized with the gymnastic of the fingers, which the most simple yet the most necessary acts of daily life demand, such as dressing oneself, buttoning, knotting, folding, lifting, picking up objects of all shapes, arranging, washing oneself, combing, &c. . . ."

Gymnastic should be practical before all. "If it is sometimes harmful for an idiot to climb a pole, he will have need at every

instant to handle skilfully a button, a glass, a fork." Much of Séguin's criticism of the gymnastics of his time would apply at the present day. The various systems advocated by strong men, who display abnormally developed muscle, seek to secure the predominance of the muscular system. The great chests and the enlarged biceps are secured at a price, for X-ray photographs show enlarged hearts.

"The greatly expanded chests do not indicate increased respiratory capacity. . . . When these expanded chests are lit up by X-rays the heart is seen to be big and hypertrophied; the lungs are more voluminous than they should be in healthy young men. Such pupils are artificially overtrained. When the exuberance of their youth is over they will fare worse in life than those who have kept themselves naturally fit."—"The Human Body" (Dr. A. Keith).

Again, it appears that too much insistence on the basal muscles tends to brutalize. Plato saw this tendency in the training of the soldiers of his State, and proposed an education in music to counter-balance it. Yet it seems that the tendency of modern conditions, the factory system where each man only does a part instead of the whole object, the specialization of function tends to lay less and less emphasis on the basal muscles, and more and more on the tiny accessory muscles. Hence, besides recognizing a distinction between the muscular and nervous system, we must distinguish the basal and the accessory muscles, and secure a balance between these two as well as between the muscular and nervous systems. The excess of the sensory over the motor has the opposite effect. It is the duty of the sensory nerves to give correct details to the nerve centres. The nerve centres must direct the response through the muscular system, and proportion the response to the need. Where the muscular system predominates, the response is out of all proportion to the need, for the fault is in the sensory system, which has not given correct details. Where the sensory system predominates, there is no direct response at all. The energy liberated is diffused over other channels.

We have a type like Hamlet, and Richard II, who diffused their energy in thought rather than in the necessary action; like Eli, whose sensory apparatus gave him clear details of the conduct of his sons, but who "restrained them not"; whereas Macbeth gives a good example of the excess of the muscular. The aim of gymnastics is, then, according to Séguin, the equilibrium of the two systems. The thought, nowadays, seems to be in agreement with Séguin as to the danger of some classes of gymnastic apparatus and exercises. Many gymnasiums have been fitted up with expensive and complicated apparatus for the purpose of muscle making. But it seems from observation that if a child undergoes a rigid course of muscle-making exercises at an early age the growth is stunted.

The hypothesis is that development in width at an early age is inimical to development in height. The broadening exercises according to this hypothesis should come when growth is almost, if not entirely, finished. The Board of Education are favouring the Swedish exercises, which do not demand what Séguin calls "sur-excitation"—i.e. the sudden employment of concentrated strength. It is maintained that these latter exercises in children cause harm, if not in the present at a time beyond school age.

The whole question of physical education is discussed from a modern standpoint in Stanley Hall's "Adolescence," Vol. I, Chapter III. Every teacher will agree that the securing of the state of attention, not only bodily but mentally, is the starting-point of education. Séguin's ideas are born again in Montessori. The games of silence, and the provision of occupation which holds the attention and controls it, are the methods employed in this system. (See "Practice and Principles of Montessori," Culverwell, pages 239 and 295.)

The principle of utility with regard to gymnastic is again manifested in the Montessori apparatus, where children are taught to lace, button, knot, fasten patent fasteners, &c. (page 227, *op. cit.*).

Again, the first practice each morning in the Montessori school is the inspection of the children and the commendation of cleanliness. The children also are taught to wait on each other at meals, to wash the dishes, to set the tables, &c. Extending around the schoolroom is a bar raised above the floor, on which the children may exercise themselves by hanging from it by their arms, or by travelling along it in the same way. Montessori has realized the fact that the grasping power of the hands is important, that the arms need more exercise than they usually get at this period, and that the legs need relief. It is interesting to note that Culverwell suggests a horizontal ladder in the place of the bar. The fact that the brain centres which control the organs of speech, and those which control the muscles of the hand, and the great probability that gesture language preceded oral communication, point out the importance of hand training. Séguin in one case of idiocy, where the child could only control the movements of the arm as a whole, spent a year in teaching him to control his hand. The next year was spent in teaching hand and eye to act together. From these acquired powers the power of thinking consecutively was as it were created, and the child was able to enter a school for normal children. (See Culverwell's "Montessori Method," page 16.)

SOME FURTHER SCHOLASTIC ADVERTISEMENTS.

By C. EDGAR THOMAS.

A SHORT while back an article from the pen of the present writer appeared in these columns on "Some old Scholastic Advertisements." Since then a few other specimens have come to light, and, in the hope that the previous paper was of interest, the following other examples are herewith submitted.

The accompanying advertisement of an Irish schoolmaster is, from the standpoint of pomposity, inflation, and ignorance, unrivalled. It is only fair while quoting it, however, to say that Mr. Hendrick was not by any means a good specimen of the average Irish teacher, who is, as a rule, modest, conscientious, and fairly well accomplished. This effusion somehow reminds one forcibly of one of Samuel Lover's inimitable characters.

MR. HENDRICK'S DEVOIR TO THE GENTRY OF LIMERICK.

Would be elated to assign his attention for the instruction of eight or ten pupils, to attend on their houses each second day, to teach the French language, Geography on the principles of Astronomy, traversing the Globe by sea and land on the rudiments of a right angle, with a variety of pleasing Problems, attached to Manners, Customs, etc., of different Countries, Trade and Commerce; Phenomenons on Volcanos, Thunder, Sound, Lightning, etc. Such as please to continue, may advance through a course of Natural Philosophy, and those proficient in French can be taught the above in that language.

N.B.—At intervals would instruct in the Italian Language. Please to inquire at Mr. Barry, Newton-Perry.

J. HENDRICK, Philomathos.

Another amusing and interesting specimen is culled from the *Monthly Mirror*. As a sidelight on the manners and customs of the time (1826) it is particularly illuminating, while the answers received in response to it were doubtless many.

WANTED, for a newly erected Chapel, near Grosvenor Square, a gentleman with a scholastic training, elegant manners, and insinuating address, to conduct the Theological department to a refined audience. It is not necessary that he believe in the Thirty-nine Articles; but it is expected that he should possess a white hand and a diamond ring; he will be expected to leave out vulgar ideas, and denunciations against polite vices which he may meet with in the Bible; and, upon no account be guilty of wounding the ears of his auditory with the words h—ll or d—n. One who lips, is near-sighted, and who has a due regard for amiable weaknesses, will be preferred.

N.B.—If he is of pleasing and accommodating manners, he will have a chance of being introduced to the first company, and three card parties every Sunday evening. One who knows a few College jokes, or who has been Chaplain to the Whip Club, will be preferred. He will have no occasion to administer Baptism, &c., &c., there being an old gentleman employed, who, on account of extreme distress, has agreed, for ten pounds per annum, to preach in the afternoon, and do all the underwork.

Letters must be addressed to James Speculate, Esq., Surveyor's Office, New Square, Mary-le-Bone.

In regard to the foregoing a publication entitled "The Goodfellow's Calendar," a handbook of humorous anecdotes and criticism, gives some account of a party, who, it says, would have been eminently suitable for the situation. It says:

The Rev. R. C. Maturin, for many years a Belfast schoolmaster, and afterwards Curate at St. Peter's, Dublin, was author of one of the most immoral and trumpery tragedies, "Bertram," that ever disgraced the stage, or gratified the low taste of an acting manager. He died October 30, 1824. This exemplary pillar of the Established Church was exceedingly vain, both of his person and accomplishments, and, as his income would not allow him to attract attention by the splendour of his dress and manners, he seldom failed to do so by their singularity. Mr. Maturin was tall, slender, but well proportioned, and, on the whole, a good figure, which he took care to display in a well made black coat tightly buttoned, and some odd light-coloured, stocking-webbed pantaloons, surmounted, in winter, by a coat of prodigious dimensions, gracefully thrown on so as not to obscure the symmetry it affected to protect. The Curate of St. Peter's sang and danced, and prided himself on performing the movements and evolutions of the quadrille, certainly equal to any other divine of the Established Church, if not to any private lay gentleman of the three kingdoms. It often happened, too, that Mr. Maturin either laboured under an attack of gout or met with some

accident which compelled the use of a slipper or bandage on one foot or one leg, and, by an unaccountable congruity of mischances, he was uniformly compelled on these occasions to appear in the public thoroughfares of Dublin, where the melancholy spectacle of a beautiful limb in pain never failed to excite the sighs and sympathies of all the interesting persons who passed, as well as to prompt their curiosity to make audible remarks or inquiries respecting the possessor.

The *Times*, during its career, has printed many curious advertisements, but the one which immediately follows is both curious and eccentric, for the writer suffers in no way from bashfulness or modest ideas of his own qualifications. In it he describes himself as

A CHARACTER.—The noblemen and gentlemen of England are respectfully informed that the advertiser is a self-taught man—a “genius”! He has travelled (chiefly on foot) through the United Kingdom of Great Britain and Ireland, in Holland, Germany, Switzerland, Belgium, France, and Italy. He has conducted a popular periodical, written a work of fiction in three vols., published a system of theology, composed a drama, studied Hamlet, been a political lecturer, a preacher, a village schoolmaster, a pawnbroker, a general shopkeeper; has been acquainted with more than one founder of a sect, and is now (he thanks providence) in good health, spirits, and character, out of debt, and living in charity with all mankind. During the remainder of his life he thinks he would feel quite at home as secretary, amanuensis, or companion to any nobleman or gentleman who will engage a once erratic but now sedate being, whose chief delight consists in seeing and making those around him cheerful and happy. Address A.Z. at Mr. —, — street, Regent’s Park.

The next specimen will be of great interest to those people who believe implicitly in appearances, as well as to those who are in the habit of asking what good there is in University education:

ARTICLED ASSISTANT.—If the Gentleman who called at Messrs. — 29 Poultry, on Thursday the 20th February in answer to an Advertisement in that day’s *Times* for an “Articled Assistant” will call again at the office to which he was referred, and where he stated that he was a Cambridge man &c., no doubt satisfactory arrangements can be made, as appearance is the chief object.

Although not strictly a scholastic advertisement, the following effusion is yet worthy of reproduction as showing that the schoolmaster must have been very much abroad indeed when it was composed. It was formerly to be seen over a shoemaker’s shop in the little village of Heallan, near Denbigh, Wales:

Pryce Dyas, Coblar, daler in Bacco Shag and Pig tail, Bacon and Ginarbred Eggs laid every morning by me, and very good Paradise in the Summer, Gentleman and Lady can have good Tae and Crumquets and Strawberry with a scim milk, because I cant get no cream. —N.B. Shuse and Boots mended very well.

Another, in a very similar vein, was years ago exhibited in the window of a small house near the town of Lancaster. It read as under:—

JAMES WILLIAMS, parish clerk, saxtone, town crier, and bellman, makes and sells all sorts of haberdasheries, groceries, &c.; likewise, hair and wigs drest and cut on the shortest notice. N.B.—I keeps an evening school, where I teach, at reasonable rates, reading, riting, and rithmetic, and singing. N.B.—I play the hooboy occasionally if wanted. N.B.—My shop is next door, where I bleed, draw teeth, and shoo horses, with the greatest soil. N.B.—Children taut to dance if agreeable at 6d. per week, by me, J. Williams, who buy and sell old iron, and coats—Boots and shoo cleaned and mended. N.B.—A hat a pr of stockens to be cudgelled for, the best in 5, on Shrof Tushday. For particulars enquire within, or at the horse shoo and bell, near the church, on t’other side the way. N.B.—Look over the door for the sign of the 3 pidgeons. N.B.—I sells good Ayle, and sometimes cyder. Lodgings for single men. N.B.—I teach jograffy, algebray, and them outlandish kind of things. A Ball on Wednesdays and Fridays.

In the year 1688 was issued an advertisement concerning an erstwhile schoolmaster, who cannot by any means be considered a credit to the profession. This regrettable announcement may well be allowed to speak for itself.

WHEREAS Mr. Herbert Jones, Schoolmaster in the town of Monmouth, well known by being several years together Master of the County School, hath of late divers times robbed the Mail coming from that town to London, and taken out divers letters and writs, and is now fled from justice, and supposed to have sheltered himself in some of the new raised troops. These are to give notice that who-soever shall secure the said Herbert Jones, so as to be committed in order to answer these said crimes, may give notice thereof to Sir

Thomas Fowles, goldsmith, Temple-bar, London, or to Mr. Michael Bohune, mercer, in Monmouth, and shall have a guinea’s reward.

Culpable as he undoubtedly was, Mr. Jones appears to have possessed a sense of honour, and probably he served his friends as well as himself by taking the writs from the mail! The reward offered for his apprehension is so extremely paltry in proportion to the outcry raised, that one cannot help hoping that he got clear off, or at all events that he cheated the gallows by earning a soldier’s death “in some of the new raised troops.”

Years ago a certain type of bill or poster was very much in favour for advertising purposes: the type which conveyed a different notion at sight from that which was subsequently given at a close inspection. The ensuing announcement has been carried out with great nicety, the author’s endeavour being to make the notice look like a Government proclamation. It is certainly one of the best of its kind.

V.R.
PROCLAMATION.

WHEREAS, it being Our Royal Will and Pleasure that our well-beloved, trusty and loyal subject Harry Johnson, should for the Amusement of our well-beloved, trusty, and loyal subjects of Hoxton and its Vicinity, give a grand entertainment on Ash Wednesday, the 9th of February, 1842, for the benefit of himself, when he trusts from the talent he has selected on this occasion, and well-known respectability and celebrity of all partes, he cannot fail of securing a Treat.

TO THE
BRITISH PUBLIC.

H.J. feels proud and happy to announce that many Professional Friends have, in the most handsome manner, proffered their valuable services: they are enabled to do this with greater facility as no other place of Amusement in London is open on that Evening. Their names will transpire in future bills. Miss Phillips will on this night sing, in her usual and inimitable style,

WANTED
A GOVERNESS
The Beneficiere will also sing,
FOR THE
First time, the young
PRINCE OF WALES.

A Gentleman has kindly consented on this occasion to sing an Entire New Comic Song, to be called “Comfort is all my view; or,

SALARY
is no object!!” Mr. H. Parker will also sing his much admired ballad of Had I

£1,000 A-YEAR!!!

A Lady will also sing
NO FOLLOWERS ALLOWED.

All Applications to be made (for Tickets) on or before
ASH WEDNESDAY, FEBRU. 9, 1842,

At the Office
Royal Britannia Saloon, Hoxton Old Town.
THE CEREMONY OF IN-STALL-ING TO COMMENCE AT
HALF PAST SIX O’CLOCK PRECISELY.
GOD SAVE THE QUEEN!!!

By way of concluding this brief supplementary article on Scholastic advertisements, a short paragraph from an American Paper may be of interest.

EDMUND MANGER, speaking of the time when he was a boy, says it was the custom for school children, as you passed a school-house, to make you a bow; but in these later days, as you pass a school-house, you must keep your eye peeled or you will get a snowball or a brick-bat at the side of your head.

THE COLLEGE OF PRECEPTORS.

PRACTICAL EXAMINATION FOR CERTIFICATES
OF ABILITY TO TEACH.

THE following candidates were successful at the Examination held in October 1915:—

Class I.
Thomas, T. J.
Class II.
Haviland, Miss N.

THE COLLEGE OF PRECEPTORS.

TEACHERS' DIPLOMA EXAMINATION.—SUMMER, 1915.

THE Summer Examination commenced on the 30th of August, and was held in London and at the following Local Centres:—Belfast, Birmingham, Bristol, Cardiff, Cork, Dublin, Glasgow, Leeds, Liverpool, Manchester; Lahore (India); Lagos (W. Africa).

LIST OF CANDIDATES WHO PASSED IN THE VARIOUS SUBJECTS.

(*hon.*) attached to a name, or to a letter denoting a subject, indicates that the candidate obtained Honours in the subject.

THEORY AND PRACTICE OF EDUCATION.

LICENTIATESHIP.

Benson, J. H. Bonnet, A. E. Clough, R. H.	Hughes, A. J. Johnston, A. Kavanagh, B.	King, W. H. Lorang, J. P. Madden, A. C. Murray, M.	Thomas, E. Trill, H. G. Wright, W. J.
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ASSOCIATESHIP.

Allin, W. E. Barnett, Miss L. M. Benoistel, M. Brassington, S. Clarke, V. C. Dixon, S. E. Garthwaite, Miss K. F. E. Haviland, Miss N.	Hewett, Miss L. J. G. Iremonger, Miss E. J. Jackson, Miss L. B. Jones, Miss E. M. Lester, R. Mann, H. J. Martin, Miss D. G. Merridan, W. J.	Moss, F. J. Nixon, S. J. Nowell, E. W. V. O'Connor, J. Purkiss, H. J. Read, Miss E. K. Richards, H. E. Rungary, Miss F. E. M. Rushton, Miss E.	Sellers, H. Sethi, G. L. Siddall, Miss G. Smith, Miss W. A. Stokes, I. Streeter, E. G. Stripp, Miss N. L. Thompson, A. M. Thornley, H. J.
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ENGLISH LANGUAGE.

Allin, W. E. Aylesbury, J. F. (<i>hon.</i>) Bacon, F. B. Barnett, Miss L. M. Briers, A. E. Brown, W. J. S. (<i>hon.</i>) Clark, P. L. Cochrane, Miss E. Deakin, G. A.	Dixon, S. E. Driver, A. J. Garraway, F. J. Gray, W. Hadden, A. L. Hall, W. Hatch, F. Hewett, Miss L. J. G. Hodgson, Miss F.	Jackson, Miss L. B. Kershaw, W. Kuye, W. B. Lorang, J. P. Mann, H. J. McNabb, H. L. McK. Mellor, Miss I. C. Northey, C. R. O'Connor, J.	Pope, H. J. Purkiss, H. J. Reynolds, J. E. (<i>hon.</i>) Richards, H. E. Streeter, E. G. Stripp, Miss N. L. (<i>hon.</i>) Thompson, A. M. Wright, W. J.
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ENGLISH HISTORY.

Allin, W. E. Aylesbury, J. F. Briers, A. E. Brown, W. J. S. Clark, P. L. Cochrane, Miss E. Cowley, Miss G. M.	Davies, A. E. Dixon, S. E. Garraway, F. J. Hadden, A. L. Hatch, F. Hodgson, Miss F. Kennedy, J.	Kent, J. A. Kuye, W. B. Mann, H. J. McNabb, H. L. McK. Moss, F. J. O'Connor, J. Read, Miss E. K.	Reynolds, J. E. Richards, H. E. Roberts, Miss B. Streeter, E. G. Turner, F. Usher, Miss H. C. Wright, W. J.
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GEOGRAPHY.

Alexander, Miss C. M. Bacon, F. B. Barnett, Miss L. M. Brown, W. J. S. Clough, R. H. Conway, P. Deakin, G. A.	Driver, A. J. Garraway, F. J. Hadden, A. L. Hall, W. Hatch, F. Hewett, Miss L. J. G. Hodgson, Miss F.	Jordan, Miss G. F. Kennedy, J. Leonard, E. A. E. Mellor, Miss I. C. Nangle, M. Northey, C. R. O'Connor, J.	Pope, H. J. Richards, H. E. Sheahan, J. D. G. Staples, Miss G. Thornley, H. J. Walsh, J. J. Wright, W. J.
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ARITHMETIC.

Allin, W. E. (<i>hon.</i>)	Deakin, G. A.	Jackson, Miss L. B.	Moss, F. J.
Aylesbury, J. F.	Dixon, S. E.	Kavanagh, B.	Northey, C. R.
Bacon, F. B.	Driver, A. J.	Kuye, W. B.	O'Connor, J.
Barnett, Miss L. M.	Earnshaw, J. W.	Leonard, E. A. E. (<i>hon.</i>)	Reynolds, J. E.
Benoistel, M.	Garraway, F. J.	Madden, A. C.	Richards, H. E.
Briers, A. E. (<i>hon.</i>)	Hatch, F.	Mann, H. J. (<i>hon.</i>)	Wright, W. J. (<i>hon.</i>)
Brown, W. J. S.	Hodgson, Miss F.	Mellor, Miss I. C.	

MATHEMATICS.

LICENTIATESHIP.

Benson, J. H.	Evans, C. G.	Heppleston, A.	Lorang, J. P.
Boyd, J. S.	Hadden, A. L.	Hill, C. E.	Riley, H. (<i>hon. geometry</i>)
Cooper, L. W. T.	(<i>hon. trigonometry</i>)	Keene, E. T.	Wright, W. J.

ASSOCIATESHIP.

Hodgson, Miss F.	Mann, H. J. (<i>hon. algebra</i>)	Nangle, M.	Samuel, D.
Leonard, E. A. E.	Moss, F. J.	Richards, H. E.	

LANGUAGES.

e. = Higher English. *f.* = French. *g.* = German. *gr.* = Greek. *l.* = Latin.

LICENTIATESHIP.

Benson, J. H. <i>f.l.</i>	Drew, W. P. <i>f.g.</i>	Lorang, J. P. <i>f.(hon.)g.</i>	Reynolds, Miss R. <i>l.gr.</i>
Cahalan, Miss K. <i>f.l.</i>	Kavanagh, B. <i>f.l.</i>	Madden, A. C. <i>f.g.</i>	Scholey, L. <i>e.f.</i>

ASSOCIATESHIP.

Purkiss, H. J. <i>f.(hon.)</i>	Treasure, Miss K. A. (<i>f.</i>)
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SCIENCE.

a. = Astronomy. *ch.* = Chemistry. *p.* = Experimental Physics. *z.* = Zoology.
b. = Botany. *m.* = Mechanics. *ph.* = Physiology.

LICENTIATESHIP.

Boyd, J. S. <i>a.ph.</i>	Hill, C. E. <i>p.ch.(hon.)</i>	Madden, A. C. <i>a.ph.</i>	Riley, H. <i>a.(hon.)ph.</i>
Heppleston, A. <i>a.ph.(hon.)</i>	Keene, E. T. <i>a.ph.</i>	Pridham, H. <i>ch.ph.</i>	Thomas, E. <i>ph.b.</i>

ASSOCIATESHIP.

Arthur, Miss K. <i>m.ph.</i>	Cook, E. T. <i>ph.(hon.)z.</i>	Filmer, S. W. <i>ph.(hon.)b.</i>	Streeter, E. G. <i>m.ph.</i>
Beale, Miss M.A. <i>ph.b.</i>	Dixon, S. E. <i>ph.z.</i>	Stokes, I. <i>ch.ph.</i>	

LIST OF CANDIDATES TO WHOM DIPLOMAS WERE AWARDED.

LICENTIATESHIP.

Benson, J. H.	Evans, C. G.	King, W. H.	Reynolds, Miss R.
Bonnet, A. E.	Heppleston, A.	Madden, A. C.	Riley, H.
Cahalan, Miss K.	Kershaw, W.	Pridham, H.	Trill, H. G.

ASSOCIATESHIP.

Arthur, Miss K.	Haviland, Miss N.	Nangle, M.	Sellers, H.
Benoistel, M.	Jones, Miss E. M.	Nowell, E. W. V.	Siddall, Miss G.
Brassington, S.	Kavanagh, B.	Reynolds, J. E.	Smith, Miss W. A.
Cook, E. T.	Kent, J. A.	Richards, H. E.	Stokes, I.
Cowley, Miss G. M.	Martin, Miss D. G.	Rushton, Miss E.	Streeter, E. G.
Davies, A. E.	Merridan, W. J.	Samuel, D.	Stripp, Miss N. L.

The Prize for Natural Sciences was awarded to Harry Riley.

THE DEATH OF A REPRESENTATIVE LEADER IN ENGLISH EDUCATION.

NATURALNESS of character was the distinctive mark of Francis Elliott Kitchener, a cousin of Earl Kitchener, and for many years the Chairman of the Staffordshire Education Committee, who passed away on July 6. No other man did so much for higher education in the Potteries, a district which Mr. Arnold Bennett has made famous by his novels. Kitchener was a man of great ability, but of greater character. Like his cousin at the War Office, he was a master of detail. But, in addition to this, he had wisdom, patience, and insight in his dealings with men and women as well as with boys. Kitchener was the son of an East Anglian solicitor, and at the time of his death was in his seventy-seventh year. He was educated at Repton, and then at Rugby, where he was the contemporary of Henry and Arthur Sidgwick, of Charles Bowen, Thomas Hill Green, and H. G. Dakyns, all of them men of memorable influence in the Victorian era. At Trinity, Cambridge, he won brilliant distinction both in the Mathematical and in the Classical Tripos, becoming in 1863 a Fellow of Trinity. In 1861 he went as assistant master to Wellington College, under Dr. Benson, afterwards Archbishop of Canterbury. After a year at Wellington he went to Rugby as an assistant master under Dr. Temple, afterwards Bishop of Exeter, Bishop of London, and Archbishop of Canterbury. Kitchener was an assistant master at Rugby for thirteen years. In 1875 he was elected to the Head mastership of the High School at Newcastle-under-Lyme, which is to the Potteries what the *quartier Latin* is to Paris. For nineteen years he laboured in this Head Mastership, a pioneer of first-grade secondary education in an industrial region. A year after his retirement from the Head Mastership he was elected an Alderman of the Staffordshire County Council. In 1895 he became Chairman of the Technical Instruction Committee, and subsequently Chairman of the Education Committee of the County Council. One of his wise acts in that capacity was to join in the appointment of Mr. Graham Balfour to the County Directorship of Education. Mr. Graham Balfour, the cousin and biographer of Robert Louis Stevenson, is one of those gifted, prudent, and far-seeing men who have rendered brilliant, but quiet service to the country as officers of the new County and County Borough Education Committees. Kitchener trusted Balfour, and Balfour Kitchener. They were ideally fitted for common service. It is fortunate that a writer with Mr. Balfour's literary gift and insight into character should have written an appreciation of Kitchener's work as a public man. I quote from the article which appeared in the *Staffordshire Weekly Sentinel* of July 10:—

Kitchener had much of the same mastery of detail as his great cousin, and much of the same power of administration and of getting the best work out of his subordinates. It was no light task to be Chief of Staff to him, but what a leader he was! Those who served him to the best of their ability knew that he would support them to the utmost and accept the whole responsibility if things went amiss. He was too strong a man not to cause occasional opposition; but he was strong enough to change his view without hesitation if he were once convinced that his view was not the best under the circumstances. After a matter had been fully discussed, he would suddenly launch out and take a new departure, with wider views and higher aims than we had been contemplating. He would see a new opening where we were stumbling on in an old rut, and suddenly there was a great opportunity grasped and realized. His sense of justice was absolute, and he was exceptional in his power of seeing the justice of his opponent's cause and of keeping an open mind without losing his own impetus.

There is a certain type of man in whom each generation seems to find the best and most solid virtues of the preceding age. To this class, for all his zeal for progress and all his interest in new methods, belonged the man we have lost. By a certain austerity and self-abnegation, by the unsparring devotion of himself and unflagging hard work, and by his rather stern enthusiasms, he belonged to the Rugby of sixty years ago and of his dear friend and master, Frederick Temple.

But he had a very tender heart, and many of his personal gener-

osities and kindnesses will never be known. One of his great assets as a schoolmaster was his understanding of boys and his knowledge of what they were like. To see him with children was a revelation. Robert Louis Stevenson has somewhere said that courage is the principal virtue, for all the others presuppose it. To this great touchstone Kitchener did not fail to respond. His courage was absolute in doing the thing that he thought right, and, as usual, such fearlessness always met with its reward.

A man of deeply religious nature, and a constant worshipper in his parish church, he never raised any hostility among those who differed from him. Religion was his inner life and seldom received outward expression. But no one who heard it will, I think, forget the close of his speech at the first meeting of the County Education Committee, when with deep feeling he paused abruptly in his peroration and said: "With this great weight of responsibility on us, I feel that you will all think that it is not out of place to ask the blessing of Almighty God upon our work, that He may give us wisdom and strength to do as He will have it done, for the children which He has given into our charge."

This is finely said—said with tears in the voice and with exulting pride in happy memories of service. It is to Kitchener and to men like him that England owes the high principle of character which, on the whole, governs our public life. He was never on the make. He had great ambitions, but they were not personal. He had large visions, but they were not fantastic. He was unselfish, unsparring of himself, unmindful of public honours, a patriot, and a good man. Alfred Lyttelton said, a few months before his death, that, in the course of his experience, he had noticed the great difference in power of growth among men after reaching the age of fifty. Some men between fifty and sixty seemed to grow in largeness of purpose and effectiveness of service. And some from sixty to seventy still grow, and become greater and more useful than they were before. Kitchener was one of the men who thus rise from strength to strength. And it is in men and women of his type that the moral strength of England abides.—M. E. SADLER in *Indian Education* for September.

A NOVEL ARITHMETIC.

By W. DRAYTON ROBERTS.

A RECENT charge against mathematics is that it does not teach morality. It is doubtful if it was ever intended to do so, but wonders have been done even in that as in other directions. In fact, a certain William Butler so far succeeded that in 1853 they were able to issue a fourteenth edition of his famous book, entitled "Arithmetical Questions, on a new plan intended to answer the double purpose of Arithmetical Instruction and Miscellaneous Information designed chiefly for the use of Young Ladies." In a somewhat lengthy preface he explains his predilection for the fairer sex by stating that his "department of teaching" was solely confined to them; but he adds, most grandiloquently, that "a youth capable of working through the whole book, and of delivering a satisfactory account of each operation, would be qualified for almost any of the common concerns of business."

Poor youth! seeing that the generality of the questions are too long for the learner's transcription, and hence are all numbered up to 791 inclusive, with an additional 619 brief queries for examination purposes. Addition occupies some thirty-two pages: the first six sums are ordinary tots, while Question 7 is typical of those that follow. It reads thus: "Creation of the World. Man, as the pious Hervey remarks, being greatly beloved by his Creator, is constituted master of this globe. The fields are his exhaustless granary, the ocean his vast reservoir. The animals spend their strength to dispatch his business, resign their clothing to replenish his wardrobe, and surrender their lives to provide for his table." Then follow appropriate quotations from Shakespeare and Pope, with an added exhortation to the "ingenuous youth to remember their Creator."

"The common opinion is," adds the writer, "that the Creation took place in the spring," adducing Milton in con-

firmation of the statement, and artfully referring to some exercises on the globes by William Butler aforesaid. This heterogeneous mass of morality and hotch-potch of mainly erroneous information paved the way for the purely mathematical part of the question: "According to most chronologers, the world was created 4004 B.C. How old is it this present year 1853? Ans.: 5,857 years."

Fortunately, the author is not equally verbose everywhere. For example, Question 37 reads: "Alexander Cruden, a native of Aberdeen, and author of an Admirable Concordance—i.e. an index to find any passage in the Scriptures—was born in 1701 and lived to the age of sixty-nine. What was the year of his demise?" Let one question on Subtraction suffice: No. 110, Merchants.

Our isle to Commerce owes her splendid state,
The source of all that makes her truly great.

Merchants are persons who traffic to foreign countries, and there are not, as Addison justly remarks, more useful members in a commonwealth than merchants. They knit mankind together in a mutual intercourse of good offices, distribute the gifts of Nature, find work for the poor, augment the wealth of a nation, and increase the comforts and conveniences of life. Our English merchant converts the tin of his own country into gold, and exchanges his wool for rubies. The Mohammedans are clothed in our British manufacture, and the inhabitants of the frozen zone warmed with the fleeces of our sheep. Suppose a merchant, commencing business with £10,000, gains £1,099. 15s. 6d. in the course of a year, and at the expiration of that period distributes, in 'meek-eyed, heaven-descended charity,' the sum of £114. 16s. 4d.; what is the balance remaining in hand? Ans.: £10,984. 19s. 2d."

Question No. 170: Find the value of as many pairs of Buckles, at a guinea and a half a pair, as there were years of plenty in Egypt in the time of Joseph."

Question No. 190: Lampreys, a kind of eel, are caught in the Severn, near Gloucester. Henry I died in consequence of eating too freely of them. Pay for a dozen and one-third of a dozen of potted lampreys at three half-crowns a pot, and find the change out of six sovereigns."

Question 202: Dr. Johnson, who was born at Lichfield, and died in 1784, received £1,575 sterling for his admirable dictionary. Deduct a farthing from this sum, and multiply the remainder by as many years as all the kings in the illustrious house of Brunswick had reigned years over England in the year 1852."

Even at the risk of wearying the readers (who will bear in mind that the book was written chiefly for young ladies), we must give them the following on Castor Oil and Rhubarb:—

No. 235. Castor Oil is the product of a shrub called by some Palma Christi, which grows in the West Indies. It is variously prepared; the preferable method is by expression, as oils of all kinds have their acrimony heightened by the action of fire. It seems particularly adapted for the common complaints of infant children and the cure of bilious disorders, and is a very valuable medicine. What are 947 ounces of castor oil worth at 8½d. per ounce? Ans.: £32. 11s. 0½d."

No. 221. Rhubarb. . . . The taste of rhubarb is sub-acrid, bitterish, and somewhat styptic; the smell is highly aromatic. Rhubarb is a mild cathartic, and commonly considered as one of the safest and most innocuous substance of this class. It has also mild astringent virtue, is found to strengthen the tone of the stomach, and is frequently given with a view to this corroborating virtue. Find the value of. . . ."

The following is more concise:—"No 273. Divide the square of the number of counties contained in England and Wales by the number of signs in the zodiac." But this fades into insignificance besides a further request to divide a given sum into "as many parts as there are zones on the earth, added to the number of Muses and Graces in fabulous history."

Some unconscious humour is evinced by placing, in the section headed Reduction, a question on Corpulence, wherein is described a certain monstrosity who was so enormous that

"7 persons of the common size were with ease enclosed in his waistcoat: and a stocking which, when sent home to him was found too little, was large enough to hold a child of four years old."

Simple Proportion or the Rule of Three is said, from its vast extent, both in common life and the sciences, to be frequently called "The Golden Rule."

The book runs to nearly five hundred pages, and concludes with an index of subjects ranging from Alexander the Great to Stingo ("a cant name for strong beer, which is also designated by the term 'October'). The latter item, like several others in the volume, seems of little educational value: yet the book, as a whole, is merely the expression of the Mid-Victorian utilitarian, who obviously overreached himself. Fortunately, his modern representative is more reasonable in his demands and suggestions.

EARLY EDUCATION.

[A paper read by Miss Leahy, at the Annual Conference of the Association of Head Mistresses, June 12, 1915, when moving the following resolution:—"That this Conference, being convinced that the sound education of children under ten years of age is of vital importance to their further progress, regrets that many children attending neither public elementary nor secondary schools receive no efficient education in early years, and recommends that preparatory departments be attached to secondary schools wherever this is possible, and that pupils in such preparatory departments be eligible for grants from the Board of Education."]

It may seem, at first sight, that a resolution from this Association affirming the importance of education in early years is an unnecessary statement of the obvious. Yet at the present time there appears to be need for a clear statement of the faith that is in us, in the words of the resolution that we are "convinced that the sound education of children under ten years of age is of vital importance to their further progress."

In the matter of physical development it is generally agreed that care in early years will lay a foundation for future health, while neglect in infancy and early childhood may mean lifelong lack of vigour and even suffering.

In moral and spiritual development the thought of all ages bears witness to the sense of the importance of impressions in early years. "Train up a child in the way he should go, and when he is old he will not depart from it"; "As the twig is bent the tree is inclined"; "The child is father of the man." But in intellectual development, and for the purpose of future progress in school work, there is a lack of general realization of the importance of early years. Children are often left to drift, parents even in some cases thinking that the acquisition of knowledge may be harmful to their physical health, and there is no thought of the vital necessity of securing good habits. Yet there is health of mind as well as health of body, and the child who has not been trained to use mental power before the age of ten is too often handicapped in after years by apathy and mental paralysis.

Let me say clearly that I am not pleading for more knowledge than is usually in the possession of an average child of ten. I do not feel alarmed at the idea that before that age time may be wasted by hastening slowly. With all respect to the marvellous standard which may be reached in the future by the child who has learned to write a year earlier than usual through the aid of the Montessori or other sense-training system, or the child of the future who will scamper through the school curriculum unhampered by the trials of spelling, I am simply pleading for good training of the ordinary normal child of the present. Good methods in the teacher should produce a keen eager desire for knowledge, power of observation, love of independent work, joy in doing it and in making discoveries, combined with good habits of neatness and order. How often do we find these powers in the children who enter the middle forms of our schools?

Do not children often enter our schools between the age of ten and twelve without power of observation and of independent work and without any notion of neatness and method? The reason is that their intelligence has not been awakened because they have been taught by people without sympathy and understanding. The younger children who attend elementary schools nowadays are more favoured than were those of a past generation, and each year adds to the ranks of teachers who have spared no pains to study the needs of young children. In many infant schools and lower standards of elementary schools excellent training is given and children who have passed from it into secondary schools have shown the results by their after progress. There are other children who are fortunate in their home environment. They have good nurses, mothers with leisure, and governesses with such qualifications as are given by the National Froebel Union Higher Certificate or the training of the Ambleside House of Education. All this gives them excellent preparation for the school life of later years. Other children attend excellent preparatory schools with adequate staff and good equipment, but these schools are necessarily expensive.

But many of the children who ultimately attend public secondary schools do not come from homes providing special teaching, nor from the elementary schools, nor from excellent private preparatory schools. How, then, are they taught? Too often by an inexperienced and untrained young teacher without qualifications for her work. There are schools which profess to provide a kindergarten or a junior department, but have neither the requisite staff nor equipment. There are young girls who have not received sufficient education to be accepted as teachers in any public school, elementary or secondary, who are placed on the teaching staff of certain schools "to help with the little ones," or, in other words, to attempt the most vital and most difficult task of laying an educational foundation. There are households in which an inexperienced young girl fresh from school has a morning engagement to teach children who require the most skilful direction if justice is to be done to their intelligence and future development. The results of such a poor educational start for the children are often seen throughout school life. In such cases there is evidently a lack of "grounding"—that most expressive term, with the result that there are no clear ideas. Many a child is handicapped in some subjects, notably in arithmetic, through lack of good teaching in early years. This lack of advantageous environment also is evident in the absence of habits of independent work, absence of real interest in work, and a general lack of discipline, which is alike a hindrance to mental and moral progress. No national scheme of education can afford to neglect this problem. Yet so far there has been apparent indifference to it. The special training of teachers for younger children in secondary schools has been little encouraged, and no grants are given for preparatory departments though these are costly. They must necessarily be costly in maintenance because an ideal preparatory department must have plenty of space, small classes, and an adequate supply of well trained teachers. Great things are expected from the child of to-day in our secondary schools. The general standard of school work is much higher now than it was in the past, and there is constant talk of raising the level in the future and of not wasting time. If more rapid development is to be expected, then there must be more attention given to the soil for the growing plant and intensive culture must begin early.

Considering the few moments at my disposal, I have spent as much time as I can venture to occupy on consideration of the needs of the younger children, who ultimately form the large majority of the pupils in our secondary schools. There is much more that might be said on the ideals of training for them and for the specially qualified teachers who should have charge of them during the most impressionable years of their life. But I must pass on to a brief consideration of the economic conditions which affect the position of preparatory departments attached to secondary schools. As I have said, they *must* be expensive if they are really efficient. Yet no State aid is at present given in the form of grants. This

places the preparatory department in the position of a costly luxury in schools without endowments, with low fees, which depend chiefly on State aid for their maintenance. The result is that some secondary schools transferred to Local Education Authorities have been arbitrarily bereft of their junior departments, and other new schools started under the same government are not allowed to receive pupils under ten years of age. So the children must wait until this age before they receive efficient education, for their parents cannot afford to pay the fees of good private preparatory schools, nor can they pay the salary of an efficient governess. It will be said that these children could attend the elementary schools until they were ten years old. In some cases, perhaps, they could, and one wishes they would rather than be left to drift, as they do at present, into an unsatisfactory educational environment. But the fact remains that they do not attend elementary schools, and it is doubtful whether they could be admitted in a mass unless a very great addition were made throughout the country to the number of places available in the junior classes of public elementary schools. From the point of view of national economy it would seem desirable in most cases to allow their parents to pay the moderate fees charged in the preparatory departments of the secondary schools.

In the resolution the words "wherever this is possible" are intended to cover the special cases where it is obvious that a preparatory department is unnecessary or even undesirable—for instance, the cases of certain public boarding schools. There may also be local circumstances or the terms of an endowment scheme which render it impossible to establish preparatory departments in connexion with certain schools. But these are merely the exceptions, and I earnestly hope that this Conference will testify to its sense of the importance of education in early years, and will emphasize the necessity of adequate provision for the children who will attend secondary schools after they reach the age of ten.

CORRESPONDENCE.

SCHOOLS AND MILITARY TRAINING.

To the Editor of "The Educational Times."

SIR,—I was present at the meeting of Section L of the British Association when Dr. David and Mr. Paton read their papers on this subject, and I have read with interest your leading article in last month's issue. I think that most of Mr. Paton's critics have missed the principal educational point. It is the old story of early specialization. Some of us are old enough to remember the time when engineers claimed that a boy must enter the works at fourteen, or certainly not later than fifteen, if he were ever to become a successful engineer, and that a University course was a sure means of making a boy for ever useless in practical work.

Now we have changed all this, and even the theory that a cotton piecer must enter the mill as a half-timer is beginning to be discredited. There is much high-sounding talk about broad foundations of general education by those who do not recognize that the successful diner-out is a specialist; but, even among those who do not accept the broad foundation theory, it is generally admitted that specific trade teaching, or even a high degree of technological specialization, should not begin until the boy is approaching his entry upon his trade or profession, and the higher the position which he aims at occupying the longer should this specialization be deferred. It has been urged, with some show of reason, that a boy who has attended a pre-apprenticeship school from fourteen to sixteen or seventeen, and then entered a works, though at first he may compare unfavourably in respect of pure workshop technique with the boy of the same age who entered the shop at fourteen, will at the end of a year be well in advance of other apprentices of his age. Only to-day I was talking with a representative of one of the largest armament companies in this country, and he was pointing out the great readiness with which volunteer munition makers who had been barristers.

journalists, or otherwise engaged in professional work, mastered workshop principles, and adapted themselves to the requirements of production.

Now let us assume that it is desirable that every boy of sound physique should learn to be a soldier, and, if a soldier, then necessarily the best possible soldier. If we apply the principles shadowed forth above, what should be the character of his training if he is actually to join the colours at twenty or twenty-one? I have some knowledge of military drill, and there is in my possession, though somewhat discoloured by age, a sergeant's certificate, while I have distinct memories of returning from parade at the double while the hall bell was ringing, and of our worthy captain handing over the command to the lieutenant after the first quarter of a mile; but, if it should be contended that my experience is altogether out of date, I reply that I am not without opportunities of learning something about the training now given to sub-lieutenants. With these qualifications, I unhesitatingly say, in reply to my question, that the training of the boy as a scout up to the age of eighteen is far more likely to make a good soldier at twenty or twenty-one than membership of a cadet corps from the age of fifteen or sixteen. The present War has proved the value of the scout in many capacities. He swarms in the Government Offices, and the Sea Scouts have made excellent sailors in the R.N.R. In modern warfare self-reliance and resourcefulness are sovereign qualities, and in addressing teachers it is hardly necessary to compare the training of the scout with that of the cadet in developing them.—I am, &c.,

October 6, 1915.

EX-SERGEANT.

RESULTS OF RATIONAL AND CONVENTIONAL SPELLING COMPARED.

To the Editor of "The Educational Times."

DEAR SIR,—In your last issue you gave an account of an experiment in teaching reading, in which a section of children who had been taught first on the Simplified Spelling system and later from the current spelling, for fourteen months in all, were pitted against children who for nineteen months had been occupied with the conventional spelling only, the result being a balance in favour of the simplifiers. Such experiments serve a very useful purpose in supplying data on a subject where data are still rather scanty. Individual teachers could do much to set such experiments in motion, and the Simplified Spelling Society will gladly assist any effort in this direction by supplying free to any *bona fide* inquirer a copy of the "Furst Reader," from which the experiment was made. Teachers are invited to send a post card to the Secretary, Simplified Spelling Society, 44 Great Russell Street, London, W.C. The first experiment showed that the transition from simplified to current spelling is easy, and that, even with the additional labour of making the transition, a gain of several months' time, as well as a distinct improvement in articulation, is the result of beginning the teaching of reading with a rational spelling.—Yours, &c.,

CHRISTINA JUST, Secretary.

Simplified Spelling Society,

44 Great Russell Street, London, W.C.

October 2, 1915.

PROPOSED LIST OF SECONDARY SCHOOL EDUCATION SOCIETIES.

To the Editor of "The Educational Times."

SIR,—You will be doing a useful service for many of your readers if you will publish the addresses of the following societies:—The Modern Language Association, the Classical Association, the Mathematical Association, the Historical Association, the Geographical Association, and any others which have for their objects the improvement in the methods of teaching secondary-school subjects.—I am, Sir, yours faithfully,

LEONARD C. MILLER.

Barnfield, Marlborough.

October 11, 1915.

[The addresses asked for are: Modern Language Association, G. F. Bridge, 7 South Hill Mansions, Hampstead, London, N.W.; the Classical Association, W. H. Duke, Jesus College, Cambridge; the Mathematical Association, C. Pendlebury, 39 Brandenburgh Road, Gunnersbury, London, W.; the Historical Association, Miss M. B. Curran, 22 Russell Square, London, W.C.; the Geographical Association, Miss E. J. Richard, Maria Grey Training College, Brondesbury, London, N.]

PHYSICAL GYMNASTICS.

To the Editor of "The Educational Times."

DEAR SIR,—In view of C. S. Bremner's timely and well merited résumé of the late Mme Osterberg's life work, and, having re-

gard to the thousands of trained women teachers who have graduated from Dartford and other centres during the past two decades, it would be interesting to learn why certain Educational Authorities still persist in engaging foreign teachers in preference to English teachers. Up to the present we have failed to elicit anything from the Authorities in justification of such a procedure, and we are equally in the dark respecting the gymnastic qualifications and teaching experience of those actually responsible for this distinction.

From a professional standpoint the whole thing appears to us deplorable, since it is an indirect reflection on the intelligence and capabilities of our English gymnastic teachers and the training colleges from whence they graduated.

G. L. MELLO,

Hon. Secretary, Gymnastic Teachers' Association.

October 14, 1915.

CURRENT EVENTS.

OWING to the need for increased office accommodation, the Teachers' Registration Council have removed to 47 Bedford Square, London, W.C. Applications for registration or for information should be addressed to the Secretary.

THE rooms in the College, vacated by the Registration Council, are now occupied by the Royal Society of Literature.

LIFE members and subscribing members of the College may now insert in *The Educational Times*, free of charge, advertisements of posts vacant, the free space allowed not to exceed one inch in narrow column.

AT the invitation of the Board of Education, the Council have considered Circular 849, and they have sent to the Board a number of comments and suggestions.

WE are asked to state that Sir Robert Baden-Powell no longer lives at Prince's Gate, and that his only address in London is: The Boy Scouts Association, 116 Victoria Street, London, S.W.

DURING the session 1915-16, Prof. John Adams, M.A., B.Sc., LL.D., Professor of Education in the University of London, will give two courses of lectures, which will be open without fee to teachers. The lectures will be delivered on Saturday mornings, at 11.30, at the London Day Training College, Southampton Row. The first course began in October. The second course will be given during the Lent Term on the following dates:—January 15, 22, 29; February 5, 12, 19, 26; March 4. Subject—"The Psychology of Explanation." Application for cards of admission should be made to Prof Adams, London Day Training College, Southampton Row, W.C., giving full name and address, and also the name and address of the school in which the applicant teaches.

TOYNBEE HALL has moved to its new home in Poplar. In future there will be two Toynbee Halls—the original building in White-chapel, where the institutional side of the work will be carried on, and Toynbee Hall, Poplar, where the warden and residents will make their home.

PROF. JOHN FERGUSON has resigned the Chair of Chemistry at Glasgow University, which he has held for forty-one years. He is the oldest member of the Senate, and his connexion with the University as undergraduate and teacher has lasted sixty years.

THE Higher Education Sub-Committee of the London County Council recommends that no further action in the matter of the site for the University of London should be taken during the period of the War. The recommendation has been adopted by the Council.

IN July the London County Council decided to suspend for the duration of the War the award of medals in the elementary and special schools, and now the Elementary Education Sub-Committee recommends that the award of prizes, the cost of which is approximately £10,000 a year, should also be suspended.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, Ulverscroft, High Wycombe, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

THE OCTOBER COMPETITION.

The most amusing communication sent from a parent to a teacher.

Perhaps our readers felt it necessary to make good their previous promise that they could send plenty of amusing communications from parents if there were no limitation of subject. In any case, we have had probably the largest number of competitors that we have ever had in any one month. No condition was laid down regarding originality, so that no competitor is disqualified merely on the ground that the communication had been in print before. In point of fact, in most cases of this kind the communication has been sent from more than one quarter. For example, no fewer than three competitors sent in the not altogether pointless reply of the indignant parent whose teacher sent home the suggestion that the boy would be improved by a little attention to personal cleanliness: "Our Bill ain't no rose. Larn him, don't smell him." In duplicate comes the parent's objection to instruction in physiology: "Please, teacher, don't you tell my girl no more about her inside. 'Tain't good for her, and it's rude."

A good many of the communications may fairly claim to be interesting, but are certainly not amusing. This is particularly true in the case of those sent to teachers of elementary schools in poor neighbourhoods. Many of them cannot be described as other than pathetic. At present it is fashionable for the person who is hit to refer to a nasty attack in the newspaper correspondence column as an "amusing" letter. This is to show that his withers are quite unwrung. Some of the communications submitted are amusing only in this sense. The foibles of foolish parents are exploited with some skill in three different communications submitted by competitors from the same town on the South Coast. The following are gems from this collection of parental folly:—"Helen has been taught for several years by a private governess, therefore you will probably find that her knowledge is considerably above the average." "I told the dear child that you were her aunt (forgive the fib), so that she will be quite at home with you." "I find that she has to go for two walks a day. This I really cannot allow, as she is only accustomed to motor driving, and anything else exhausts her to a painful degree." To the same class belongs the communication that we regard as the best, its special merit being its verisimilitude. It would be difficult to find a more convincing example of surprised and outraged dignity keeping itself well in hand, and willing to forgive an unaccountable oversight. It is translated from the French, in which it was presented to a class teacher in a Belgian school:

"Dear Mr. X.—I was very much surprised yesterday when the Head Master of our school told me that my Willy, who is in your room, obtained such a low number of marks in the competitions of last week. I can only think that you really did forget who I am.

"Would you be so kind as to come to dinner with us on Sunday?"

"THE MAYOR."

Several of the communications bear all the traces of being genuine. The following, for example, does not seem to be particularly amusing:—

"Dear Miss —.—As Hilda proposes to go to school in the afternoon as well as in the morning, I enclose an additional 10s. 6d. to the amount of a/c. Kindly let me know if this is not correct, and oblige, yours faithfully, &c."

It is only when one realizes that Hilda is aged six that her proposal takes on a humorous air, as one pictures the obedient father writing at her command.

Illiterate women have a habit of signing their communications with their full marriage title, and curious results come from their simple way of running on the signature as if it were part of the text. The following is vouched for as genuine by its sender, who guarantees his good faith by declining to put in a claim for a prize. At the time he was head master of a school in a rural district. The communication was from a farmer's wife, and was meant to explain how farming needs had demanded the absence of the boy from school: "Pleas excus John for he was thrashing Mrs. Scott."

Two variants are sent in of the lamentable mistake of the parent who desired his son to drop Scripture in favour of a double dose of arithmetic, on the ground that "in his future life he would not find the former of much use."

One competitor sends in a longish letter from the antipodes to a schoolmistress in the old country. It is difficult to make out whether the letter is genuine or not, but it contains a good deal of excellent educational criticism. Some of it is certainly amusing, but the letter, as a whole, is serious. Though it is not eligible for a prize, it contains passages that are worth quoting. The interesting point is that the colonial is sending his little girl to the schoolmistress who educated his own wife, now dead. He writes: "You taught her to sew, and to cook, and not to giggle. She never argued, and she sneezed like a lady. The only thing you overdid was her sense of humour: she found us all so funny in Australia. Don't overstrain Mary in that direction. She is only seven, but already I see signs of it in her, . . . and for any favour don't let her waste her time learning any game played with a ball, large or little. But if you'd like to rent a baby for her to play with, to dress and undress, to wash and brush and feed, hire one and a woman to oversee it. She'll get more fun out of a live baby than out of a dead doll, and you can draw on me for the baby's future. You can't teach her too much religion; but don't squeeze it all into Sunday, and a ghastly ten minutes after breakfast daily. Let it soak right into her, but don't let her know she's getting damp."

A Half-guinea prize is awarded to "Belga," who will please send name and address for publication.

SUBJECT FOR NOVEMBER.

A sensible business man of good abilities, but of no great education, has been appointed to a Municipal Education Committee, and is put on a Sub-Committee that has the duty of appointing a head master. Forty-seven applications and sets of testimonials have been sent in. This member of Committee writes to a teacher friend, asking for advice as to how to estimate the testimonials, which, however, the teacher friend is not to see. The prize is offered for the best letter of advice. Competitors may make it a head mistress-ship if they prefer that, and may make the school either elementary or secondary, so long as they make it clear which they have in view.

In view of the large proportion of the teaching staff of Corpus Christi College, Cambridge, who are serving with the Forces, the Master and Fellows do not desire to have any fresh scholars before the end of the War. There are, however, a number of possible competitors who intend to take commissions after trying for scholarships, and an examination will be held on December 14, 15, and 16 for scholarships and exhibitions to begin after the War.

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1915.

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SYLLABUS.

I. (Sept. 30.) *The so-called New Education.*—The characteristic modern note: no real novelties: method cycles from Plato onward: professional conservatism: quickened consciences of present-day teachers: danger of falling behind the times: each generation demands its own educational presentation: impossibility of eliminating theory: *via media* between fads and tradition: the doctrinaire and the empiric: the pedagogic type of mind: means of keeping in touch with new developments: canons of educational criticism.

II. (Oct. 7.) *Certain New Movements on their Trial.*—Heuristic Method has now reached its limits: Montessorianism a disturbing influence not merely at infants' stage: Mr. McMunn's development: general revolt against "bookishness" merely a revival of the old "realist" controversy: "one child one desk" principle: Superintendent Wirt's protest: the Gary scheme: tendency to lengthen school hours and eliminate school holidays: spread of specialism among teachers: teaching by relays: the open-air school: the school journey: the "big brother" attitude: the Renaissance of Play.

III. (Oct. 14.) *Experiment in School Work.*—Every teacher must experiment while learning his business: modern educators are systematizing experiment: desire to put education on a scientific footing: two main kinds of educational experiment: dangers of the "brass instrument" methods: the attraction and the danger of statistical and quantitative methods: correlation formulæ and their application: intelligence tests of Binet and others: the Meumann School: the conservation of the interests of the pupil: the literature of experimental education.

IV. (Oct. 21.) *The Class.*—Origin of class teaching: nature of the class as an educational organon: element of compromise: contrast between class teaching and private coaching: "sympathy of numbers": the psychology of the class as part of general collective psychology: disintegration and reintegration: teaching the class through the individual and the individual through the class: basis of classification of school pupils: the class a homogeneous crowd: size of class in relation to the work of teaching: reaction against class teaching: the probable future of the class.

V. (Oct. 28.) *Class Control.*—Excessive importance attached to mere control: basis of teacher's authority: "the nature of things": discipline and its various meanings: power of control as innate: personality of the teacher: fabled power of the eye: different ideals of class control: "talking" in class: possibility of teaching on the control maintained by another: the old "discipline master": class leaders and their manipulation: the Honour System: indirect aids in maintaining control.

VI. (Nov. 4.) *The Pupil's Point of View.*—Textbooks on Method tend to treat everything from the teacher's point of view: modern demand for more consideration of the pupil's rights: excessive demands for freedom of the pupil: Madame Montessori's system: Count Tolstoy's anarchic school: Froebel's "a passivity, a following": these views are reconcilable: caprice *versus* freedom: self-realization *versus* self-expression: subjective limitations of freedom increase with the age of the pupil: corresponding regulation of school control: from educand to educator.

VII. (Nov. 11.) *Abnormal Pupils.*—Ninety per cent. of pupils may be regarded as normal: the exceptionally dull are probably slightly more numerous than the exceptionally brilliant: nature of dullness: its relativity to age and subject of study: the temporary dunce and the precocious pupil: the permanent dunce: the all-round dunce: scale of dullness: the "defective" point: problem of the segregation of dull pupils: the treatment of the exceptionally gifted pupils: slow, omnibus, and express classes in school.

VIII. (Nov. 18.) *The Teacher as Knowledge-monger.*—Popular view of the teacher's work: teacher's own view: comparison with the Greek Sophists: communication of knowledge always an essential part of teacher's work: knowledge for its own sake, and knowledge as discipline: current controversy: technical meanings of *information* and *instruction*: present reaction in favour of importance of knowledge of subject matter: difference between *knowing* and *knowing how to*: temporary and permanent knowledge: the case for cram.

IX. (Nov. 25.) *The Teacher's Tools.*—Textbooks and books of reference: the school library: use and abuse of the blackboard: special appeal to visual pupils: kind of writing suited for the blackboard: coloured chalks and turbid media: the optics of the blackboard: eye-strain and how to avoid it: mechanical aids to blackboard drawing: the optical lantern: graphic illustrations, temporary and permanent: models and their manipulation: maps and globes: the use of the pointer: the supply and care of general apparatus: advantages and disadvantages of home-made apparatus.

X. (Dec. 2.) *Written Work.*—Need for written work as a means of training in expression: progress from transcription to independent essay-writing: three stages—reports, criticisms, creation: difference between having to say something and having something to say: difficulty in giving sufficient practice in writing: excessive demand on teacher's time for "corrections": the pupil's responsibility and the class teacher's: schemes of conventional signs for correction: advantage of throwing on the pupil the burden of writing-in corrections.

XI. (Dec. 9.) *The Teacher's Manipulation of Vocabulary.*—Meaning of vocabulary: connexion between words and thinking: mental content and vocabulary: extent of vocabulary of young children, illiterate people, and educated people: methods of increasing deliberately the vocabulary of pupils: dynamic and static vocabularies: vocabularies of great writers: use of the dictionary and of lists of words in learning a foreign language: the three vocabularies we all possess in our mother tongue: manipulation of these by the teacher.

XII. (Dec. 16.) *The Teacher's Relation to Adults.*—Popular notion of the teacher as a sprat among minnows: need for intercourse with equals and superiors: implication of the phrase *in loco parentis*: true relation to parents: "foster parent" view: conflicting influences of fathers and mothers on school attitude of children: teacher must moderate between them: teacher's relation to officials: the official mind and how to manipulate it: the teacher's many masters: need to study adult psychology: legitimate and illegitimate external restrictions of the teacher's freedom of action in school.

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Communications intended for the Editor should be addressed to THE EDITOR OF THE EDUCATIONAL TIMES, Ulverscroft, High Wycombe.

THE LAWS OF PRESENTATION IN TEACHING.

MAN seeks after Method in all things. The conduct of Life is improved by a system. Time is economized; labour is economized, and the mind can run along the lines of a method with comparative ease. Without this irresistible tendency "to methodize," Life would be a weary round of drudgery. There would ensue intellectual stagnation, for the mind would be fettered by overmuch attention to mere existence, and flights into higher realms would be impossible. All kinds and conditions of mankind are alike "methodizers." The nursemaid dresses and undresses her charge, following a system that changeth not, and, the while, thinks of other things. The savant, striving for the advancement of learning, calls the rules of logic to the aid of his reasoning. "To methodize" is a law of man's nature, and a most valuable provision for his progress.

Teachers are not exempt. From the beginning they have laid down rules in the attempt to secure clear exposition. They have sought a universal method in teaching. Ratke thought *he* had found it; Herbart thought *he* had found it. The first-named was not burdened with modesty, for he promised some startling performances—he would teach young or old any language without any difficulty; he would establish throughout the German Empire a uniform speech and—a uniform religion. The World may be thankful that his method failed. Herbart, coming after, laid down a program at which most teachers think it heresy to tilt. The Herbartian psychology is extremely gratifying to teachers—it makes them of much importance; in fact, of paramount importance. In consequence, even though philosophers have demolished Herbart, yet is he still supreme in the teaching heart. Perhaps, too, this is justifiable, for, once in a way, a philosopher has given a system that can be followed in practice. Reference is made to the celebrated "five steps." Of these "five steps" the present essay has to do only with the second—Presentation, and, exemplifying the universal tendency, it endeavours to formulate the rules which, if followed, lead to successful presentation. It seeks a method. "Presentation should generally proceed in the form of waves" shall be the first law.

The child is not capable of sustained attention. It can attend but for moments at a time. A thing presented, then,

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must have its big parts and its little, its high lights and its low. A series of great and important ideas piled one above the other, without intermission, is, for the child, completely futile. There is no gradation of values. All is monotony. In colour a vivid red is only adequately realized against a suitable background. In a procession of kings one king more or less is of little account. In teaching there must be the crests and the hollows. One important idea on the summit of a wave must be followed by a hollow of relatively unimportant ideas. The important idea is given a background. One king is seen alone, and, in consequence, strikes the imagination as a personage. Presentation should generally proceed in the form of waves. What is the force of the "generally"? It opens the door to an exception—or rather, to an apparent exception. There is a place for abruptness in presentation.

There once existed a class which was just about to enter the intricate ways of trigonometry. The hour of the first lesson arrived. The master sat at the desk silent—the boys were before him listless. The master still sat silent, and the boys became slightly perturbed, turning over their consciences for past and unpunished sins. The silence became oppressive, and still more oppressive, and yet more oppressive. The boys were fixed to their forms; there was neither movement nor murmur. The silence became suffocating. "Sin Cos Tan! Sin Cos Tan! Remember Sin Cos Tan, boys!" called the master, leaping to his feet. The class never forgot the cabalistic terms. Trigonometry was entered into with zest, for, under the stress of that novel introduction, the trigonometric brier patch had acquired an interest which rapidly developed into an interest for the sake of the subject itself.

The writer is not advocating buffoonery in teaching. He is simply trying to show the utility of occasional abruptness. After all, it readily merges into the first law, for an idea propelled thus at a class is simply occupying an isolated crest. Having determined that presentation is a matter of waves, attention is directed to the "make-up" of the waves, and from this follows the second law: The wave hollows should consist of "connective tissue." This "connective tissue" (we owe the figure to Prof. Adams) has a most important function to fulfil; it is that which fixes the idea in the mind. It is its duty to weave bonds of association for the entering idea, and the more bonds are woven, the better chance the idea has of being retained. It is its duty also to present the idea in as many ways as possible so that all the members of the class shall have an equal chance to grasp it, for some learn most readily by seeing, others by hearing, and others by touching, if touching is possible. Again, its function is to provide the scenery, the footlights, and the stage effects, that the idea may stand centrally to full advantage. Also the "connective tissue" gives the idea "massiveness." The teacher may tell the class that the distance from London to Leicester is one hundred miles. This may be considered his theme. If it be wished it can be stated at once. The idea will then quickly enter the pupil mind, and will as quickly make its exit. Let the teacher, however, take a map and trace the course of the railway line from London to Leicester, following it through Luton, Bedford, Wellingborough, and Market Harborough, adding short interesting notes about these towns and the surrounding country. The idea of "London-Leicester, 100 miles" has acquired "massiveness" and lives.

An example, too, can be given from the realm of science. It is eminently desirable that the pupils should get some of the feeling-tone that accompanies the laborious quest of truth. By working through several experiments themselves the feeling-tone is obtained. The mere fact required could have been "hurled" from a manual in a very few minutes, but it would not have been "taught." A real appreciation of the labours of scientists is better worth attainment than a multitude of textbook facts. Moreover, once the pupil has caught a glimpse of the scientific spirit, the textbook facts cease to be mere ink on paper and become living realities. This side of the "connective tissue" question demands much time, but the result is real knowledge, and not the sham "knowledge" now so common.

Having dealt with the wave hollows, the crests now provide

the third law. Each wave crest should be occupied by one important idea, which idea should stand in a certain opposition to other ideas possessed by the pupil. The advent into the mind of an idea that is not in harmony with the remainder of the ideas there causes mental unrest. It is a law of Nature that the mind must be at peace with itself. Hence there goes on action and reaction amongst the ideas present in the mind until the strange idea is either made harmonious by the re-organization of the mental content or is ejected altogether. Incidentally this mental rearrangement takes time, which is yet another argument in favour of an idea on a crest being followed by a hollow of connecting matter. This mind disturbance, and the inevitable readjustment for peace, is the teacher's best friend. If an idea is presented that is either in complete contrast to the pupil's previous experience or is the familiar in a strange guise, attention is at once focused upon it. The pupil is uneasy and becomes really anxious to find a way out of his dilemma, and hence listens eagerly to the teacher. If he can follow the explanation of the difficulty, he accepts it and reorganizes his mental content accordingly. If he cannot he, perforce, ejects the hostile idea, but retains a feeling of uneasiness. The second of these alternatives should never be allowed to happen. Nothing should be advanced to the pupil that the teacher cannot explain in a manner that shall satisfy him. The teaching of a subject has been stated to be a series of waves. The question now arises: How does the series start? This leads to the fourth law. The first impression of a subject should occupy the summit of a crest.

The teacher introducing a subject to a pupil has a great responsibility. He may so bring it to their notice that they are seized with a longing to know more, or it may be that his inspiration is so little that they fall into a lethargy with regard to that particular subject from which they shall nevermore be moved. The career of many a man has been opened for him by reason of a brilliant lesson heard in youth. The historian came to woo history because of that morning far back when, under the spell of magic words from an enthusiastic teacher, his soul was opened to the drama of the past, and he was held in wonderment. Another has had permanently placed within him a desire to read the mighty works of the great authors because, away there in his first literature lesson, he heard the teacher read with bewitching sweetness and pathos some tiny extract. A bad beginning is often beyond repair. The pupil sticks fast in the mud and is inextricable. The giving of first impressions is of supreme moment.

The teaching of the subject having been begun, the later ideas now claim attention. The fifth rule is: Ideas should be allowed to glide into the mind. This rule, at first sight, appears in some measure to contradict the third law, which stated that an important idea should occupy a wave crest. In reality, there is no contradiction whatsoever. Imagine a crest with its idea upon it. The wave trace proceeds to go down into its hollow. This part of the curve may be said to be occupied by the weaving of association chains and the representation of the idea in varying ways. The hollow is reached and the curve then begins to ascend to the next crest. This part may be looked upon as preparatory to the next important idea. Using the ideas which have gone before, it should be the aim of the teacher so to handle them, presenting them in various combinations, showing this phase and then that one, that the pupil imperceptibly is led to frame for himself the next idea—the curve of preparation—and then the pupil crowns the crest.

In this indirect bringing up of an idea, the pupil often believes that it originated with himself. The self-esteem of the pupil causes him to adopt the idea with alacrity, and ideas so gained are generally held tenaciously in the mind. The direct introduction of an idea often sets up in the mind a reaction. There is set up what Keatinge terms "a contrariant idea." This is exemplified time and time again in everyday life. The child is told "Thou shalt not." Immediately the prohibited act is performed. He transcribes the command into "Thou shalt." The teacher has to learn that "a contrariant idea" is a strong foe to direct teaching.

Thus, five laws have been formulated. Briefly summarized they are these: (1) presentation should generally proceed in the form of waves; (2) the wave hollows should consist of "connective tissue"; (3) each wave crest should be occupied by one important idea, which idea should stand in a certain opposition to other ideas possessed by the pupil; (4) the first impressions of a subject should occupy the summit of a crest; and (5) ideas should be allowed to glide into the mind.

WILLIAM H. PICK.

THE COLLEGE OF PRECEPTORS.

MEETINGS OF THE COUNCIL.

A MEETING of the Council was held at the College of Preceptors, Bloomsbury Square, W.C., on September 25.

Present: Mr. R. F. Charles, Vice-President, in the chair; Prof. Adams, Dr. Armitage-Smith, Mr. Bain, Mr. Barlet, Mr. Bayley, Rev. J. O. Bevan, Rev. J. B. Blomfield, Miss Crookshank, Mr. Eagles, Mr. Hardie, Mr. Hawe, Mr. Hay, Miss Lawford, Rev. R. Lee, Mr. Longsdon, Mr. Maxwell, Mr. Millar Inglis, Rev. Dr. Nairn, Miss Punnett, Mr. Ritchie, Mr. Rushbrooke, Rev. Canon Swallow, Mr. Thornton, Mr. Whitbread, Mr. White, and Mr. Wilson.

The Secretary reported the death, on the 2nd of July last, of the Very Rev. Dr. Jex-Blake, who was a member of the Council of the College for forty years, and President of the Council from 1876 to 1902. The President had sent a letter of condolence to Mrs. Jex-Blake.

He reported that the Royal College of Veterinary Surgeons had recently revised the conditions for the preliminary examination of intending veterinary students, and that such students might now qualify by obtaining an ordinary Junior Pass Certificate, provided that the certificate included English Composition, Analysis and Grammar, English History, Geography, Arithmetic, Algebra, Geometry, and two Foreign Languages (ancient or modern).

Diplomas were granted to the following candidates, who had satisfied the prescribed conditions:—

Licentiate: Edward Harold Williams Ashman, Cecil Francis Tidman.

Associateship: John Udall, William Ernest Whatley.

Dr. F. A. Sibly was re-elected a member of the Council.

Mr. R. F. Charles was appointed one of the representatives of the College on the Committee of the Conference of Educational Associations, to fill the vacancy caused by the retirement of Mr. Longsdon.

The Dean was appointed one of the representatives of the College on the Committee of Management of the Joint Agency for Women Teachers, to fill the vacancy caused by the temporary retirement of Mr. Pendlebury.

A grant of £5 from the College Benevolent Fund was made to the widow of a former Life Member of the College.

A contribution of £2. 2s. was made towards the funds of the Imperial Union of Teachers, and a contribution of £1. 1s. towards the funds of the Educational Kinematograph Association.

The following persons were elected members of the College:—

Mr. W. R. Patterson, 241 Kingston Road, Merton Park, Wimbledon.

Mr. W. L. Thompson, St. George's, Gosforth, Newcastle-on-Tyne.

The following resolutions were adopted:—

1. That Life Members and Subscribing Members of the College be allowed to insert in *The Educational Times*, without charge, advertisements of posts vacant and posts wanted, up to a limit of one inch in narrow column for each advertisement.

2. That it is highly desirable for the College to come into closer touch with the various educational bodies to which it sends representatives, and that with that end in view, such bodies be invited to supply the Council with all reports and documents it may be fitting to communicate.

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

By DR. ARMITAGE-SMITH.—Kirkaldy and Evans's History and Economics of Transport.

By A. & C. BLACK.—Tales from Aesop (Fairy Realm Readers); Folk-Stories (Supplementary Readers); History Pictures (Tudor Period); Curr's Commercial Geography; Reynolds's Beginner's Regional Geography of Asia.

By the CAMBRIDGE UNIVERSITY PRESS.—Alexander's North-West and North-East Passages, 1576-1611; Archer's Stories of Exploration and Discovery; Chouville's En Douce France; Edwards's Tacitus' Annals IV; Frazer's La Maison au Panonceaux; Macgregor's Demosthenes Olynthiacs; Naylor's More Latin and English Idiom; Roberts's Picture Book of British History, Vols. I and II; Robertson's Introduction to Greek Reading; Varnish and Hanley's Junior Graphic Grammar; Wilson-Green's Sainte-Beuve's Franklin et Chesterfield; Winstanley's Spenser's Faerie Queene, Book I.

By GINN & Co.—Carson and Smith's Elements of Algebra, Parts I and II, and Plane Geometry, Parts I and II; Judd's Psychology of High-School Subjects; Lincoln's Everyday Pedagogy.

By HACHETTE & Co.—Haltenhoff's Modern German Course, Part I. By MACMILLAN & Co.—Carey's First Geography of the British Isles; Lister's First Book of Arithmetic; Logan's First Book of School Gardening; Webb's English Poetry for Young Students.

By MILLS & BOON.—Armitage's Francis Chantrey; Baron's Mémée's Tamango; Laws and Todd's Introduction to Heat; Smith and Ball's English Grammar, and English Composition.

By the OXFORD UNIVERSITY PRESS.—Appleton and Jones's Puer Romanus; Cavenagh's Landon's Imaginary Conversations, and Tennyson's Oenone and Lotos Eaters; Christie's Dryden's Annus Mirabilis; Davis's The Great War; Dent's Exercises in Prose Literature and Composition; Du Pontet's Oxford Latin Course, Part I; Forbes's Russian Grammar; Garrod's Book of Latin Verse; Gordon's Shakespeare's Julius Caesar, Macbeth, and Twelfth Night; Hamilton's Outlines of Roman History; Johnson's Life of Gray; Kelsey's School History of Leicestershire; Longfellow's Evangeline; Lucas and Cavenagh's Lowell's Fireside Travels; Lucy's Exercises in Laboratory Mathematics; Macan and Cavenagh's Dufferin's Letters from High Altitudes; Mémée's Tamango; O'Regan's The German War of 1914; Page's Anthology of Patriotic Prose; Sleight's Educational Values and Methods; Spenser's Faerie Queene, V; Ward and Wheeler's Marlowe's Doctor Faustus, and Goethe's Faust, Part I; Wheeler's Milton's Paradise Lost, Book III; Wilson-Green's Quatre Contes par Perrault.

By RIVINGTONS.—Borchardt's Revision Papers in Algebra; Edwards's Macaulay's Lays of Ancient Rome.

By the UNIVERSITY TUTORIAL PRESS.—London Matriculation Directory June 1915; Drennan's Piers Plowman, Prologue and Passus I; Dumville's Teaching—its Nature and Varieties; Haler and Stuart's First Course in Engineering Science.

Calendar of Edinburgh University.

Calendar of Glasgow University.

Calendar of National University of Ireland.

Calendar of St. Andrews University.

Calendar of University of Manitoba.

Calendar of University College, Reading.

Calendar of Birkbeck College.

Calendar of London School of Economics and Political Science.

A meeting of the Council was held at the College, Bloomsbury Square, W.C., on October 23. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Dr. G. Armitage-Smith, Mr. Bain, Mr. Barlet, Mr. F. Charles, Mr. R. F. Charles, Miss Dawes, Mr. Eagles, Mrs. Felkin, Mr. Hardie, the Rev. R. Lee, Mr. Maxwell, Mr. Pendlebury, Miss Punnett, Mr. Rawlinson, Mr. Rushbrooke, the Rev. C. J. Smith, Mr. Thornton, Mr. Vincent, Mr. Whitbread, and Mr. Wilson.

Diplomas were granted to the successful candidates at the recent Summer Examination. (For list see page 401.)

The Secretary reported that 78 students had taken tickets for Prof. Adams's Course of Twelve Lectures on "Present-day Teaching."

At the request of the Newfoundland Council of Higher Education, the Council of the College undertook to conduct two additional examinations on behalf of the Newfoundland Council—viz., a Senior Associate in Arts Examination and a Licentiate in Arts Examination.

Mr. Pendlebury was appointed one of the College representatives on the Committee of Management of the Joint Agency for Women Teachers, to fill the vacancy caused by the retirement of Miss Dawes.

Mr. Somerville was re-elected a member of the Council.

The following persons were elected members of the College:—

Mr. J. Ferguson, L.C.P., 41 Welldon Crescent, Harrow.

Mr. J. G. Hale, 15 Chiswick Road, High Road, Chiswick, W.

The following resolution, which had been adopted by the Teachers' Registration Council on October 15, was communicated:—

That the Council desires to place on record its appreciation of the great help which it has received in the early stages of its work from the Council, Secretary, and Staff of the College of Preceptors.

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

By MACMILLAN & Co.—Gregory and Hadley's Manual of Mechanics and Heat. By the UNIVERSITY TUTORIAL PRESS.—Goggin and Weekes's Anthology of English Prose.

Calendar of University of Bristol.

Calendar of University of Leeds.

Calendar of University of Liverpool.

Calendar of University College, London.

Calendar of University College, Reading.

Calendar of Armstrong College, Newcastle-on-Tyne.

Calendar of King's College, London.

Calendar of Royal College of Surgeons of England.

THE COLLEGE OF PRECEPTORS.

HALF-YEARLY GENERAL MEETING.

THE ordinary Half-yearly General Meeting of the Members of the Corporation was held at the College of Preceptors, Bloomsbury Square, W.C., on Saturday, October 23.

Sir PHILIP MAGNUS was appointed Chairman.

The minutes of the last meeting were confirmed.

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

REPORT OF THE COUNCIL.

The Council beg leave to lay before the members of the College the following Report of their proceedings since the issue of their last Report:—

1. A Course of Twelve Lectures to Teachers on "Psychology and its Educational Applications" has been delivered by Professor John Adams, and a Course of Twelve Lectures on "Present Day Teaching" was begun on the 30th of September.

2. (a) The entries for the College Examinations have been adversely affected by the War. Nevertheless there are signs of growing appreciation of the Examinations, and we may hope for an increase in the entries after the War is ended.

(b) The Summer Examination of Teachers for the College Diplomas was held on the 30th August to 4th September. It was attended by 133 candidates—38 for the Licentiate and 95 for the Associateship. Since the issue of the last Report the Diploma of Licentiate has been conferred on two candidates, and that of Associate on five candidates, who had satisfied the prescribed conditions.

(c) A Practical Examination for Certificates of Ability to Teach was held in May; the number of candidates examined was 2.

(d) The Midsummer Certificate and Lower Forms Examinations were held on the 28th June to 3rd July, and were attended by 3,247 candidates.

(e) The Professional Preliminary Examination was held in the second week in September, and was attended by 265 candidates.

(f) The Council have conducted the Examination and Inspection of four Schools.

(g) The Council have recently revised certain of the Science Syllabuses for the Diploma Examinations and the Certificate Examinations, and the Geometry Syllabuses are now under revision.

3. (a) The Examination which was conducted by the Council on behalf of the Newfoundland Council of Higher Education was held at 164 Centres on the 21st to 26th of June. The total number of candidates examined was 3,260, viz., 94 for the Associate Grade, 619 for the Intermediate Grade, 1,252 for the Preliminary Grade, and 1,295 for the Primary Grade.

(b) On behalf of the Grenada Board of Education the Council have conducted an Examination of Teachers in Grenada in School Management. There were 14 candidates—5 for the Second Class and 9 for the Third Class.

(c) At the request of the Governors of Sir Robert Hitcham's School, Coggeshall, the Council have conducted an Examination for Secondary School Exhibitions and Junior Technical Exhibitions.

4. Since the issue of the last Report nine members have been elected, and seven have withdrawn from membership. The Council regret to have to report the death of the following members:—Dr. J. Donaldson, Rev. W. Ireland, the Very Rev. Dr. Jex-Blake, F.C.P., Mr. F. E. Kitchener, F.C.P., Miss E. Leicester, Mr. R. Rodman, the Rev. W. Taylor Jones, L.C.P., and Miss W. Vie. Dr. Jex-Blake was a member of the Council for forty years, and was President of the Council from 1876 to 1902.

5. Life-members and subscribing members of the College may now insert in *The Educational Times*, free of charge, advertisements of posts vacant and posts wanted, subject to certain limitations in size.

6. Copies of the College Calendar for 1915-1916 have been sent, without charge, to all life-members and subscribing members.

7. Grants amounting to £38.0.0. have been made from the Benevolent Fund.

8. The Council have concluded a satisfactory Agreement with the Postmaster-General with regard to the Post Office Underground Railway which is to pass under the main College building. Under the Agreement the College will be entitled to receive compensation in case of damage to the building.

9. The Teachers' Registration Council have vacated the offices they have occupied for the past three years in the College build-

ing; and the larger of the two rooms has been let to the Royal Society of Literature of the United Kingdom.

10. At the invitation of the Board of Education, the Council have considered Circular 849, and they have sent to the Board the following comments and suggestions:—

I. Whilst the Council of the College approve of the principle that an examination should be held for boys in a class the average age of whom is about 16 years, they think it probable that the conditions suggested, which would enable Universities to accept this Examination as exempting or partially exempting a pupil from the ordinary Entrance Examinations of the Universities, might induce some pupils to leave the higher grade Secondary Schools at a lower age than would be likely if the First Examination carried with it no such qualification.

II. The proposal in clause (xiii) seems open to objection on the ground that it might encourage pupils to leave school before the age of 16. The Council think it would be better to provide that a successful candidate of the kind referred to in that clause may receive a school certificate (or testamur).

III. With regard to clause (x) the Council recognize the importance of endeavouring to secure equivalence of standard among the several examinations of the same grade which are to be conducted by a number of Examining Bodies; but they fear that in practice it would be extremely difficult to secure such equivalence by prescribing a uniform pass-minimum. They suggest that the expression "determine" in clause (x) should be qualified by the addition of the words "as far as possible."

IV. It appears to the Council that the meaning of the second sentence in clause (vi) would be clearer if that sentence were amended so as to read thus:—"These subjects are not, in the same way as some others, capable of being tested by a written examination only."

V. With regard to the last sentence of clause (vi) the Council suggest that other conditions besides those attaching to examination should be taken into account in determining the efficiency of a School. In connexion with the same sentence the Council point out that in the absence of any clear definition of the term "Form," and having regard to the present practice in many schools of grouping pupils differently for different subjects, it appears desirable that the head master should be at liberty to select for examination those candidates whom he may consider fit to be subjected to such a test.

VI. The absolute prohibition in clause (xvi) with regard to the taking of the Preliminary and Junior Examinations appears to be undesirable. It is suggested that individual pupils should be allowed to enter for such examinations provided that in the opinion of the Inspector the arrangements made for the preparation of such pupils do not interfere with the ordinary school work. A large measure of freedom should be left to Schools in the selection of Examinations most suitable to their pupils.

VII. The Council welcome the proposals in clause (ix) to provide for the co-operation of Teachers in the conduct of Examinations. But they feel that those proposals might with advantage be strengthened. They therefore suggest that clause (ix) (a) should be amended so as to read thus:—"By ample representation on the Examining Body, and by direct consultation with the teachers of the schools to be examined."

VIII. The Council are entirely in sympathy with the proposal to set up a co-ordinating authority. They doubt, however, whether anything would be gained by including representatives of Local Education Authorities in the Advisory Committee which it is proposed to constitute in clause (xi). They suggest that the Advisory Committee should consist of (a) a representative of each approved Examining Body, (b) an equal number of members of the Teachers' Registration Council, and (c) two representatives of the College of Preceptors.

IX. The Council desire to point out that the alleged difficulties in connexion with the multiplicity of examinations arise not from the number of Examining Boards, which is, in fact, to be increased under the proposals of the Circular, but from the diversity of the requirements of Professional Bodies. They observe that these difficulties do not appear to be adequately met by the proposals of the Circular, although a remedy for such difficulties was understood to be one of the main objects the Consultative Committee had in view. The acceptance of the proposed First Examination by Professional Bodies would not relieve schools from the necessity of sending in boys for the qualifying examinations of those Bodies, some of which may be of a lower grade than that suggested in the Circular, or may include other subjects.

X. Having regard to the fact that the College of Preceptors has for more than fifty years shared the field of work with the

Oxford Local Examination Delegacy and the Cambridge Local Examination Syndicate, and was the first Body to undertake the examination of pupils in Schools, the Council submit that the College should be included among the Examining Bodies recognized for the purpose of the Circular. Accordingly, they suggest that in clause (i) of the Circular the words "by the College of Preceptors or" should be inserted in line 4 after the word "School," and that a similar amendment should be made in clause (ii) after the word "conducted" in line 1 of that clause.

11. (a) Representatives of the Council have taken part in the work of the Teachers' Registration Council, the Federal Council of Secondary School Associations, the Teachers' Training Committee, the Joint Scholarships Board, the Committee of the Conference of Educational Associations, the League of the Empire, the Educational Kinematograph Association, the Joint Scholastic Agency, and the Joint Agency for Women Teachers.

(b) *Teachers' Registration Council.*—The number of applicants for admission to the Register of Teachers up to the 9th of September was 11,694. Of these 5,288 were teachers in Secondary Schools. The Council has arranged to admit to registration, without further payment, all teachers who were registered in Column B of the previous Register and who did not recover the fee then paid. This arrangement is subject to proper application being made and to the Council's being satisfied as to the claim for admission to the present Register. The new Council for the triennial period beginning 1st July, 1915, has been duly formed, and at its first meeting Dr. Michael E. Sadler, Vice-Chancellor of the University of Leeds, was elected Chairman.

The Council has recently made inquiries concerning the teachers who have given up school duties to take up War service of any kind. Lists of names have been prepared, from which it is seen that up to the end of the summer term of 1915 the number of such teachers was 8,268. A large number of military honours are recorded, and one teacher, Lieutenant Forshaw, of the North Manchester Grammar School, has won the Victoria Cross.

The War continues to impede the progress of the Register, but the Council hopes that teachers will recognize that the conclusion of peace will bring into prominence the necessity for many changes and adjustments in our system of education. These should be made with the co-operation of the united body of teachers, and to this end it is urgently desirable that the Council should be strengthened and encouraged by the loyal support of all teachers.

(c) *Federal Council.*—Representatives of the College have attended the meetings of the Federal Council of Secondary Schools Associations for the detailed consideration of Circular 849 of the Board of Education (School Examinations). The Associations represented on the Federal Council are apparently unanimous as to the desirability of full representation of teachers on both the examining and the advisory bodies, but the conditions of the examinations proposed in the Circular failed to gain the approval of all the representatives. The Federal Council has also considered the question of conditions under which private schools might be recognized as efficient, and has expressed the desire that the Board of Education should prepare a return of such schools with a view to inspection. The Federal Council asks the federated Associations, including the College of Preceptors, to urge their members to register themselves as teachers.

(d) *League of the Empire.*—Representatives of the College attended the Annual General Meeting of the League of the Empire, when the Right Hon. the Earl of Meath occupied the chair. The subject of discussion was "The influence of Education on our national character, with special reference to the great international and imperial events of the past year." The excellent speeches of distinguished members of the League from various parts of the Empire sustained the interest of all present throughout a very successful meeting.

(e) *Joint Scholastic Agency.*—In spite of the dearth of Assistant Masters and the fact that many posts in Boys' Schools have been filled by women, the Joint Scholastic Agency has been successful in supplying nearly three hundred vacancies. It may be of interest to mention that a large proportion of the posts filled were of a temporary nature, the duration of the appointments depending on the length of the War. The sum on deposit against any possible deficiency of receipts is now nearly £200.

(f) *Women's Agency.*—The business of the Joint Agency for Women Teachers has been satisfactory. Considerably more posts have been filled this summer than in the corresponding months last year. The new and more central premises at Oakley House, Bloomsbury Street, W.C., give much satisfaction. The amount on deposit against contingencies is £500.

The CHAIRMAN said that, in spite of the War, the activities of the College had not been lessened, and the Report showed

that the College had been able to accomplish a large amount of useful work. Many teachers and students who in normal times might have entered for the College examinations had loyally joined His Majesty's Forces. Nevertheless, the numbers of entries were still considerable. The College had also conducted examinations on behalf of important public bodies, including the Newfoundland Council of Higher Education, and it had now been asked by the latter body to conduct two additional examinations. The Council had been much occupied during the past six months in considering Board of Education Circular 849. He did not think that there was any educational body that had approved of that Circular in its entirety, while some had expressed greater dissatisfaction with it than others. He believed that nearly all the bodies were agreed with regard to one special form of criticism suggested by the Circular, and that was that the secondary schools of the country ought not to be brought too closely under the jurisdiction of the Board of Education. There seemed to be a strong indication in the Circular of a desire to exercise too much control over secondary schools, and it was felt that the schools ought to retain the freedom which they had enjoyed in the past. It was very desirable that the secondary schools should not be compelled by the Board of Education to send their pupils in to any special examination or be prevented from sending them in to any examinations which they thought would be most serviceable in the interests of their own scholars.

The Report was adopted.

The DEAN presented the following Report:—

THE DEAN'S REPORT.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you some details concerning the Midsummer Certificate and Lower Forms Examinations, together with extracts from the reports of the Examiners.

The Examinations were held on the 28th of June to the 3rd of July at the following places in the United Kingdom:—Aberdeen, Bath, Battersea, Belfast, Bentham, Birmingham, Blackburn, Blackpool, Bounds Green, Brighton, Bristol, Bruff, Cardiff, Carmarthen, Carnarvon, Cheltenham, Chester, Cork, Croydon, Dumfries, Ealing, Eccles, Edinburgh, Exeter, Farnborough, Forest Hill, Glasgow, Glasnevin, Goudhurst, Grove Ferry, Hereford, Highgate, Huddersfield, Kingstown, Leeds, Leicester, Lincoln, Littlestone-on-Sea, Liverpool, London, Lostock Gralam, Manchester, Margate, Mayfield, Merthyr Tydfil, Mountmellick, Newcastle Emlyn, Newcastle-on-Tyne, New Quay (Cardigan), Nottingham, Ongar, Pencader, Plymouth, Pontypridd, Portsmouth, Richmond (Surrey), Rugeley, Scorton, Sheffield, Skegness Southampton, Southport, Sunderland, Taplow, Taunton, Waterford, Wem, Westcliff-on-Sea, West Hartlepool, Weston-super-Mare, Wicklow, Wigton, York. The Examinations were also held at the following Colonial Centres:—Cairns (St. Lucia), Cape Coast Castle, Cape Town, Colombo, Georgetown (British Guiana), Gibraltar, Mandeville (Jamaica), Nassau (Bahamas).

The total number of candidates who sat for the Certificate Examination was 2,497—1,846 boys and 561 girls.

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

	Examined.	Passed.	Percentage.
BOYS. Senior.....	174	109	63
Junior.....	700	471	67
Preliminary.....	503	380	76
GIRLS. Senior.....	137	55	40
Junior.....	219	161	74
Preliminary.....	233	187	80

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (531 in number) who entered for certain subjects required for professional preliminary purposes.

The number of candidates who sat for the Lower Forms Examination was 750—494 boys and 256 girls. Of these, 386 boys and 197 girls passed, or 78 and 77 per cent. respectively.

EXTRACTS FROM EXAMINERS' REPORTS.

Scripture History.

Senior.—The Old Testament questions were answered well on the whole. Details of incidents were given correctly, but candidates seemed to want a more clearly marked outline of the succession of events; some, for instance, confused the Assyrian invasions of Israel with the Babylonian conquest of Judah. Only one or two candidates took the questions on the Maccabean period; these had a satisfactory knowledge of it. The Gospel answers showed careful teaching; and the Examiner's only criticism is that the meaning of the expression "tempt the Lord thy God" in Matt. iv 7 was not well understood. The Book of Acts, i-xvi 10, was thoroughly known by those who made it their principal subject of study, though some lost marks by not noticing the exact point of the questions.

Junior.—The questions on the Gospel were well answered, except those on the last two chapters, where many attributed to the leaders of the Jews what was done by the Roman soldiers. Acts, i-xvi 10, showed careful study. In Old Testament some excellent answers were written to Section A, and Section B (II Kings) was treated well. There were few lapses from good taste in style and expression.

Preliminary.—Considering the unsettlement there has been in the teaching staff of many schools, it is satisfactory to report that in point of average merit these papers were distinctly good. There were but few very bad mistakes. Most candidates took Section D (the New Testament) and, as a rule, showed accurate knowledge of the text, while the answering was to the point and the handwriting, spelling, and style very fair. Candidates especially who took the Douay Version did good work, and the reverent tone of their answering made their papers pleasant reading. Some papers were rather spoiled by a literary fault—tawdry rhetoric, such as "One bright afternoon the same eleven brothers returned, happy, no longer sorrowful as before. 'Father!' they cried. . ." (verbatim extract). The well known remark of Coleridge, that no man who reads his Bible regularly can have a vulgar style, has its bearing even in the case of the youngest pupils. Nothing can be better for them than the reading of selected narratives in the simple beauty of the English version.

Lower Forms.—The work was generally good, and in some cases excellent. There was evidence of much patient and careful teaching: though here and there came a set of bad papers, where the pupils evidently wanted guidance or stimulus.

English.

Senior.—The general character of the work was satisfactory. Most of the essays reached a creditable standard of efficiency. The analysis and syntax were rather poor, except in the case of the best candidates. The answers on the plays were generally fuller and more satisfactory than those on the novel and the poem. The last two subjects seem to have been read rather cursorily.

Junior.—The Essays were not written with much system or arrangement, and were often done last of all, in a hurry. The Grammar paper was well done, except the Parsing and the question on Metaphor, &c. The Analysis was intelligent: much ingenuity was (successfully) employed in discovering a single word to express the sense of a phrase; and nearly all were able to show how the same words may serve as different Parts of Speech. Both plays of Shakespeare had been studied with care, and the answers showed some appreciation of dramatic or literary skill. The candidates were, however, too loyal to the notes in their textbook, often reproducing these verbatim: their memory would have done better work had it been trained to give the context and name the speaker of selected passages.

Preliminary.—The knowledge of the set books displayed by the candidates was, on the whole, very good. The easy metre of "The Lay of the Last Minstrel" made its retention by memory an easy matter, so there were remarkably few failures and a good percentage of excellent papers. Second in popularity was "Treasure Island." The result in this case was hardly so satisfactory, though the story had evidently been thoroughly enjoyed by all. Candidates showed a disposition to "ramble" instead of dealing succinctly with the points in question, and to use slang instead of correct English, especially in their description of the pirates. "The Call of the Homeland" was taken by few, and in the majority of these cases the knowledge of details connected with the poems was somewhat thin. This, however, was of less importance than the enjoyment of the poems.

In the Grammar paper there was a tendency to deal in vague

generalities where specific facts should be given. It is not enough to say that a noun is in the nominative case "because it answers the question 'who' or 'what' before the verb," nor even "because it is the subject of the sentence." A more definite reason is needed—connecting it with the particular *word* in the sentence which determines its case. The Parsing was better than at the last examination, but there are still candidates who think the Objective and the Accusative are quite different cases, and that "clause" and "phrase" are convertible expressions.

The Composition was very fair on the whole, but there were few really good essays. The weakest features were lack of arrangement and slipshod punctuation: moreover, it should be remembered that quality is of infinitely greater importance than quantity. The letter-writing showed improvement; but, even so, the address and conclusion were frequently omitted. Colloquial phrases were too common: in particular, "a lot of" (for "much" or "many") seems especially difficult to eradicate. The Handwriting was in nearly every instance satisfactory: the spelling was not so good.

Lower Forms.—Grammar: The Grammar papers oscillated between the admirable and the absurd. In many cases there was a firm grasp of principles, and the power to apply them. In other cases there were the vaguest guesses in what has apparently never been studied or practised—for instance, analysis. Some candidates tried to specify the part of speech of every word in Q. 4, instead of confining their attention to the words italicized. But this question was, on the whole, well answered, though too many candidates evaded the word *if*. The sentences composed to exemplify the meanings of words were often far from furnishing the required evidence of understanding; and the word *serene* was curiously misunderstood. In Q. 5 the adjectives were supplied much more correctly than the verbs. The adverbs, from Q. 2, were satisfactorily recognized.

Dictation: The passage chosen contained many words that are often misspelt; but the papers were, on the whole, accurate, and many were without a single error.

Reproduction: This was as a rule very good, although the composition often broke down badly, candidates remembering facts and details and words, but presenting them in breathless rushes of unpunctuated, or ill-punctuated, prose. A little practice in the minor machinery of composition would have helped some candidates, who had excellent memories, to gain higher marks.

Handwriting: A very few candidates wrote an admirable copperplate hand; but many others wrote shakily and with that disregard of uniformity in slope which is a glaring defect even in handwriting otherwise commendable.

Literature: Almost all took Scott's "Lay" as their subject. There was a fair proportion of creditable papers, showing a good knowledge of the subject-matter; but, as usual, many lost marks by their extreme brevity. In some cases a superficial reading of the whole "Lay" had evidently taken the place of a more careful study of the selected part, with the result that answers were given dealing with matter outside the scope of the Examination. "Palmer" was very commonly explained as a kind of dress. The passages written from memory showed many traces of an unintelligent dependence upon sound rather than sense.

English History.

Senior.—The average standard of work showed a slight improvement. There is some evidence that more attention has been given to the connexion between facts in teaching history, and less to the bare enumeration of events. The period before the Norman conquest was very little known; not a single good answer was written on the political and social influence of the Danes. "Constitutional" questions on any period were a stumbling-block. The Model Parliament was frequently confused with that of Simon de Montfort. Colonial history was badly known, and the American War of 1812 was often confused with that of American Independence. It was satisfactory to find that the interest of England in the Balance of Power was generally understood, and British Sea Power properly valued. "But for our Navy," wrote one boy, "the Germans would have been here, and this would not have been written." Some German teachers of history would have been surprised to find that the papers proved that English students are taught to value highly the alliance of Prussia in the eighteenth and nineteenth centuries. The answers on our modern domestic history were vague, showing lack of interest and grasp. One is worth quoting: describing the position of the working-classes at the end of Victoria's reign the student wrote: "The working-man was a magnate in himself. He had a big wage, and if he wanted more he had only to strike and he generally got what he wanted."

Junior.—In a few centres there had been obviously inadequate preparation. On the other hand, most of those who passed showed

a quite satisfactory acquaintance with the subject, though in some centres the bad habit of learning by rote whole paragraphs from some manual on particular persons or events was painfully evident—e.g. an account of the career of Archbishop Laud.

Lower Forms.—As usual, many showed the vaguest ideas of chronology—e.g. several who quoted the correct date of Alfred described him as the best king between 1066 and 1399. To young children dates are meaningless collections of figures, and they often do not realize that 1000 is later than 900, unless it has occurred to some painstaking teacher to explain that a century is equivalent to three generations of family history. A different kind of confusion was shown by the answer, "Sluys was fought in 1340, in the reign of Henry IV, and won by Nelson." Very few had been taught anything about the importance of sea-power beyond the fact that Great Britain is an island. The best known personages were Julius Caesar and Joan of Arc. A confusion that occurred with puzzling frequency was between Simon de Montfort and Thomas Becket. The Black Monks and Black Friars were beyond the ken of most: the first were described in one paper as "the men from the Black country," and the second in another paper as "pirates who lived in caverns and pounced upon travellers on the roads." The sketch-map of the Low Countries was rarely attempted, and, except in two cases, very badly done. Some papers were admirable for such young scholars, and testified to excellent teaching.

Geography.

Junior.—The results were very varying; on the whole they were good. There are manifold signs that the latter-day teaching of Physical Geography and its interrelation with the whole life and progress of Man is bearing good fruit. The great general defect throughout the papers was the paucity of illustration—whether sketch-map or diagram. The fault probably lies with the teachers. It is a common experience to find sketch-maps in school notebooks, but made altogether too elaborate, and the result is that—even if remembered—they take too much time to reproduce in examination.

As regards the questions in detail—the compulsory map of the World (Section A) and the contour map (Section D) were poorly done, especially the latter. Those of Europe (Section B) and of Africa (Section C) were, on the contrary, very satisfactory. Numbers of candidates, however, still consider they have "located" a town if they have written in its name, forgetting that the indicating dot is absolutely essential. The three other questions of Section A were well done, though the causes of rain-distribution in Chile were the subject of much guess work. The five other questions of Section B (Europe) were also satisfactory, especially No. 8, which bore on the European War (a popular question)—a good sign of up-to-date practical teaching. The five of Section C (Africa) were well done, except No. 8 (the Uganda Railway) which was seldom attempted and never with success. The five of Section D (Physiography) were answered successfully enough to counterbalance the pitiful failures of the contour map.

Preliminary.—The papers on the whole were above the average. In the special Sections, those who presented the British Empire as their subject were distinctly behind those who took Europe—probably owing to the more extensive range and consequent greater difficulty of the subject. The compulsory map (British Isles) was filled in as a rule creditably. The main defect was one of method: there was a tendency throughout to indicate special districts by different shadings, which was praiseworthy enough, but the effect was spoiled by the constant omission of any tablets explanatory of the shadings, and the Examiner was left to guess their meaning. The voluntary maps (Baltic Sea, Mediterranean Sea, South India, British West Africa) were poor. Though many attempted, for example, South India and its chief physical features, not one may be said to have produced a reasonably good sketch map. The other questions were impartially distributed, and were satisfactorily attempted. It was pleasing to note that young students are really beginning to understand the reasons for the site of a town and to deduce some of the resulting commercial advantages.

Lower Forms.—There were a number of really very good answers, and the whole result was better than usual. As is natural with young examinees the instructions, though printed at the head of the paper in italics, were constantly neglected. The compulsory outline map (British Isles) was really very well filled in. The old defect, however, was still very much in evidence—i.e. the absence of dots of indication, e.g. "Manchester" would be neatly (most of these maps were very neat) printed in, but without a sign as to whether the town was situated at the "M" or the "r." The other questions were done with varying merit. Two defects were very common—(i) very few could

explain why "the higher you go up a mountain the colder it is" (Q. 8 (d)); and (ii) many considered "climate" (Q. 3) as equivalent to "soil," and said so. It was interesting to see the excellent response to the demand for a diagram, or picture, to illustrate certain geographical terms in Q. 2.

Arithmetic.

Senior.—Some of the easier questions were done well and accurately, but there was a distinct absence of style or method in the majority of the papers. The answers were set out so badly that mistakes could not possibly be avoided. Of the faults which were general, perhaps the most important was the inability to approximate to a required degree of accuracy. In finding the result of a division the numerator was frequently given to one place of decimals, where at least three were required to obtain the correct result. Again, in finding interest correct to a penny many candidates who used decimal notation worked to the millionth of a pound. The work on area and volume was very poor, and, in finding the quantity of material in a box, the very simple method of subtracting the internal from the external volume was seldom used. The question on proportion proved too difficult for the majority. The question on percentage was usually done well, but very few were able to find the correct proportions in which two grades of tea should be mixed in order to obtain a mixture of a specified value. Very few indeed saw that the result followed at once from a consideration of the fact that what is lost on one is gained on the other. The questions on compound interest and average percentage were done very badly. Most attempts were based on rules imperfectly understood instead of being efforts to treat the questions in a practical manner based directly on the lines indicated in the questions.

Junior.—The work was, on the whole, satisfactory. Many of the candidates did not know the meaning of "to the nearest farthing," were careless about the complete remainder when short division is used, and were not adept at contracted multiplication of decimals. Frequently and unsatisfactorily, when the divisor was a digit, or ten, or a simple multiple of ten, the process of long division was used. The calculations to be made in answering the questions need not be long, in a majority of cases they may be quite short, and it was disappointing to find only a very few candidates employing short calculations. A pleasing feature was the large number of correct, not concise, answers to the last three questions.

Preliminary.—A good many candidates showed a very imperfect knowledge of decimals—obtaining the figures correctly but being unable to place the decimal point. Q. 3 on the paper gave most trouble, and was rarely attempted successfully.

Lower Forms.—The general results were good, and the work was, as a rule, neatly done and well arranged. Mistakes not infrequently arose from the misreading of a question, and time was commonly wasted in working the supplemental questions in Nos. 3 and 4 independently, instead of using the previous results. A common mistake was to treat a price *per doz.* as that of each article. The working of the "bill" sometimes consisted of a cloud of untidy figures from which it was extremely difficult to extract anything intelligible. More attention should be paid to the instructions given in the paper.

Algebra.

Senior.—The results were very unsatisfactory. With very few exceptions there was no sound knowledge of the subject. Judging by the very general failure to work correctly an easy quadratic—Q. 2 (i)—and the bad blunders in elementary processes shown in many of the other questions, many of the candidates would probably have failed in a Junior Paper. Some candidates had a knowledge of indices, some of surds, some of ratio, some of progressions, but no general grasp of the range prescribed by the Syllabus. A few tried the graphs; very few with any success. The impression produced on the Examiner was that on a very unsound basis of elementary algebra an attempt had been made hurriedly to cram up the special subjects of the Syllabus—indices, &c.

Junior.—The work was, as a rule, satisfactory, and a good proportion of the candidates did really excellent work. Large groups of candidates wrote out the work in very good style and showed a good acquaintance with the subjects set. Some improvement was apparent in the treatment of the question on graphs, and correct solutions were given by many candidates. Too large a number of papers showed a weakness in fractions.

Preliminary.—There was much inaccuracy and carelessness in the use of signs in substitutions. In division the majority did

not arrange in order before dividing. Factors were fair, equations good, and multiplication was accurate.

Geometry.

Junior.—Generally speaking, greater care is required in the presentation of the answers—in the lettering of the Section taken (in more than one case examples were picked out of two Sections), in the numbering of the question dealt with, in the careful drawing and distinct lettering of the figure (in some cases, one set of letters was written over another set, making a perfect blotch), e.g. in Q. A 4, in many cases, the figures made no pretence to be rectangular. The neglect of these precautions leads to loss of marks. In Q. A 3 (a) and Q. A 7 (a) the wrong propositions were frequently written out—the question evidently having been carelessly read and not referred to again for verification. In Q. A 5 (b) there was a tendency to interpret the words *coinciding in position* to mean coinciding also in *length*. For similar reasons a considerable number of answers to Q. B 7 (a) were wrong. Practical Geometry was taken by a large proportion of candidates. As a rule the figures were poor, and the explanation of procedure lacking. In Q. C 1 many candidates failed to obtain the easy result of the area of the rhombus, thus failing in their estimate of the side of the corresponding square. In Q. C 4 several took *AC* to be the side of the hexagon instead of the length of the line joining the extremities of two adjoining sides.

Preliminary.—A very large number of the candidates showed almost complete ignorance of the subject. In many cases a mere jumble of words and letters was written down, which apparently represented an effort of memory as it was usually devoid of all logical reasoning. The style of writing out the propositions was frequently poor. A common fault was to leave out the data, the particular enunciation, &c., and sometimes even the construction, and plunge straight into the proof. Another fault was the omission to justify the various steps in the proof: or, equally bad, to refer as justification to "Theorem 5," &c. Owing to the vast number of textbooks this is no longer permissible, and the only acceptable justification is a brief enunciation of the Theorem to which reference is made. In Paper B the Practical Geometry was fairly well done.

Lower Forms.—The paper was well worked by the majority of the candidates, and the diagrams were generally neat and fairly accurate. All the questions were well answered, except Q. 5.

Trigonometry.

The work of a few candidates was good, and that of a greater number of candidates very moderate. Only a small number of candidates tried to answer the first question, and only two or three of them seemed to know how to construct an angle whose cosine was given. The rest of the questions were fairly well answered by the better candidates.

Mechanics.

Senior.—Few candidates took this paper, and no really good sets of answers were received. But, roughly speaking, two-thirds of the candidates had a fair knowledge of the principles of the subject, and their methods of presenting their work showed an improvement on those of previous years. The question on the percentage efficiency of a machine was badly answered, as were also the question on the average force of recoil of a rifle, and the question concerning the thrust of water on a reservoir wall.

Book-keeping.

Senior.—The papers were, on the whole, very good. One question only was not well done—viz. No. 4, Reconciliation Statement, the meaning of which seemed unknown to most of the candidates. Q. 2 (Simple Ledger Accounts) proved to be beyond the capacity of many. The last question (Trading, Profit and Loss Account, and Balance Sheet) was generally very well done.

Junior.—These papers were of uneven merit, some sets being distinctly well done while others were weak. Candidates were unfamiliar with the meaning of "Bank Deposit Account" in the exercise, and some continued to journalize every transaction after entering up the Cash book, &c. The Ledger posting was generally improved.

Preliminary.—On the whole the papers were not so good as usual. The simple calculations to be made in the one invoice (19th inst.) were badly done, the results ranging from 30s. to £1,300 odd. Very few candidates knew the meaning of "interest on capital." Entries such as "Bank Dr. to Bills Payable Cr." showed lack of intelligence. The definitions resulted in the usual

"wild shots"—e.g. "R/D" was interpreted as "Rent due," "Railway delivery," or "Return daily," &c.

Mensuration.

Senior.—There were a few good sets of papers, but most of them were unsatisfactory and did not show much intelligence. Formulae were sometimes remembered, sometimes not—and often misapplied. Such Questions as 1, 5, 6, which require a little geometrical imagination, were done particularly badly or not at all.

Junior.—The general results were very satisfactory and the subject seems to have been carefully prepared, except that not enough attention seems to have been given to the geometrical side. Surprisingly few candidates were familiar with the idea of Q. 3—the diagonal of a rectangular solid. The drawing and measurement in Q. 5 were often inaccurate.

French.

Senior.—Some of the candidates had not advanced sufficiently far in the study of this language to justify presentation at the Senior Stage; but the majority showed a satisfactory grasp of French construction and a satisfactory knowledge of vocabulary. The improvement in writing French, which has been noted in recent years, still continues, though many candidates made mistakes due either to carelessness or want of practice rather than to lack of knowledge. The translation of French passages into English was far less satisfactory. It would appear that in the effort to improve the composition too little time is given to reading French. Few candidates were able to make out the general sense of either passage.

Junior.—The French passage was generally well understood. The weak point in the Grammar was the irregular verbs. In Composition the great majority chose the translation. The failures were due to wrong concords, ignorance of the verbs, and lack of vocabulary.

Preliminary.—The Translation into English was well done by the great majority. The Grammar was somewhat weak at many points, but the verbs seemed fairly well known. The Translation into French was the weakest part. Many did well, but many also showed little idea of turning their knowledge, or the material at hand, into practical use.

Lower Forms.—On the whole the results were promising and there was a large number of very good papers.

Welsh.

Senior.—Candidates at this stage are easily divided into two large classes—those who depend solely on a colloquial knowledge of the language and those who are trained to study it as seriously as any other modern language. A colloquial and everyday knowledge of the language should not be made an excuse for not paying serious attention to the grammar of the language. The latter needs to be more seriously studied by several of the candidates, and in no single case could it be dispensed with. The Essay and Translation into Welsh were better done than the Translations into English. In this department also students need to be trained to translate by adequate acquaintance with some good Welsh classic in poetry and in prose, and should read and translate such in class, instead of depending on their knowledge of the language as spoken and rendered every day.

Junior.—The work was uniformly good and generally adequate. The grammar of the noun and adjective was usually correct, but that of the pronoun and the verb was incomplete and deficient, showing the need for a fuller attention to a wider range of the accidence and syntax of the language at this stage. The translation from English into Welsh was idiomatic, but that from Welsh into English showed a lack of grasp of the general setting of the passage. Pupils should be taken in class through something more than detached sentences and should be assisted to master a book of good Welsh prose from year to year.

Preliminary.—The work of the candidates was uniformly good, both in the translations and in the grammar, although in the translation from Welsh into English idiomatic English was at times lacking. The translation from English into Welsh was well and idiomatically rendered. Several candidates showed they were able to reproduce correctly portions of poetry committed to memory.

Latin.

Senior.—The set books had been carefully prepared by the majority of the candidates, the translations being accurate, and, in-

the case of the better candidates, given in good English; questions on subject-matter were often well answered. The Grammar was, on the whole, satisfactory, though in some cases the questions on Syntax were less satisfactorily answered than those on Accidence. The Unprepared Translation and the Translation of English sentences into Latin were much less satisfactory, there being very few really good versions. Many candidates, where they knew the meaning of the Latin words, were unable to give translations which made sense. In the English into Latin Translation the vocabulary was generally weak, and bad mistakes in both Accidence and Syntax were common.

Junior.—The general results were fairly satisfactory: many gained high marks for very creditable work, and many more were very promising.

Set Books: The preparation of the translation of both authors had been careful at most centres. A few candidates reached a high standard of excellence as regards accuracy, and showed a good command of English. The rest were fairly correct on the whole, but were apt to take liberties with the tenses and moods of the original. It was gratifying to find on this occasion few traces of memorized translation. The Virgil had been read with interest, and the subject-matter was generally well known. Difficult phrases and words in Caesar were often well explained. But as a rule the questions on both authors were treated somewhat perfunctorily.

Unprepared Translation: The average mark was low, both in the easy and more difficult passages, and there were very many failures. But the work as a whole was marked by more intelligence than in the past. There was less random guessing, and greater appreciation of the grammatical structure. An endeavour should be made to strengthen the vocabulary of the candidates, which was often very defective.

Grammar: Great carelessness was shown in the answers to questions on noun-accidence; the knowledge of verb-accidence was, as a rule, satisfactory, and the parsing reached a good standard. The explanations of case-constructions and subjunctive usages were often sensible, but this part of the work was generally weak, and the need of very careful and judicious drilling was obvious.

Composition: The renderings of the short sentences were in many cases correct in accidence and good in constructions. The greater number, however, betrayed an imperfect acquaintance with elementary syntax and were marred by glaring errors. A few copies of continuous prose were promising, and indicated well directed teaching, but it was evident from the general results that the candidates had had insufficient practice.

Preliminary.—The work showed a slight improvement in some respects, but the Grammar questions were generally not well answered. It would be a great gain if some means could be devised for discouraging such answers as the following: "— is in the accusative because it is the object of the sentence"; "— is in the accusative because it is *after the verb*." The second example is less objectionable than the first, but it seems to encourage the view that the case of a noun is determined by its position in the sentence; moreover, the object is *not*, as a rule, placed after the verb in Latin.

Greek.

The work was rather better than usual, and a fair proportion passed. Two of the Senior papers were really good, but in the rest the grammar was very weak, and therefore the translation into Greek also. And, as is usual, there was much paraphrasing rather than translation, and cases where the translation had been more or less imperfectly committed to memory.

Light and Heat.

Senior.—The answers on the whole were satisfactory. In Q. 2, on the convex mirror, both the calculation sign of the focal length) and the graphical construction were done badly. Q. 4 was set for the purpose of drawing attention to the difference between the different types of lenses and also to the distinction between a mirror and a lens. It received very few answers. The purpose of the different parts of the optical lantern was not well understood; for example, the objective was frequently labelled "condenser." Nothing was known of the lines in the solar spectrum. The experiment described in Q. 7, on the expansion of water in a glass thermometer, should have been shown in class. No one pointed out that apparently the minimum volume occurs at about 10° C. and not at 4° C. The equation for the specific heat was written down correctly, but the arithmetic that followed was deplorable. Very few candidates seemed to have heard of the mechanical equivalent of heat.

Junior.—The general standard was fair, but one large batch of candidates knew practically nothing about the subject. The formation of multiple images by inclined mirrors was evidently new to many, and even when the diagram was drawn correctly no reasons or explanations were given. There is still some doubt as to the difference between a lens and a mirror, and in Q. 4 the signs that should be attached to u and v were generally muddled. Candidates should have verified the accuracy of the fixed points of a thermometer for themselves; the answers were lacking in exact detail, and the graphical representation of results has been completely neglected. The distinction between heat and temperature gave considerable difficulty, and there was no good description of any experiment to measure a latent heat. Black's calorimeter scarcely merits the attention that is, evidently, given to it; the simplification of the calculation being so very slight, and, even then, undesirable.

Magnetism and Electricity.

Senior.—The answers to the questions on current electricity were, as a rule, quite good. Very few touched the electrostatics, in spite of the fact that the numerical question was the simplest on the whole paper. The work in magnetism was unsatisfactory. In Q. 1 not a single diagram showed a *uniform* magnetic field, and, as usual, the definition of "strength of magnetic pole" was not known. The question on the voltaic cell was generally answered very well; but all save one of the candidates who attempted Q. 10 described an electric bell instead of a Bell telephone receiver.

Junior.—The answers were distributed more evenly over the three sections of the paper than is usually the case; but still too little attention was given to the current electricity. Few failed though the general standard was rather low. The Mariner's Compass was almost unknown; one candidate explaining very carefully the manner in which the instrument was shielded from the earth's magnetic field. The replies to the questions on electrostatics were disappointing, the descriptions of the electro-scope being surprisingly bad. Very few diagrams were given, the insulation of the leaves was entirely overlooked, and the essential feature seemed to be the tinfoil pasted on the side of the cover. The descriptions of the mirror galvanometer also were not very successful; it is important even from the point of view of the elementary student, and some simple notion as to the manner in which the instrument is controlled might easily be given. Q. 8, on the arrangement of cells in series and parallel, showed that the conventional way of drawing an electric circuit was not known.

Chemistry.

Senior.—The papers on the whole were fairly well done; but in many cases the experiments were described in an unconvincing manner, as though learned from textbooks without the essential practical details being understood.

Junior.—The work on the whole was creditably done. The answers of many candidates, especially in Section B, showed that they had done careful experimental work, but the sketches of apparatus were in some cases very poorly done; moreover, from the impractical arrangement of the apparatus it was apparent that the candidates lacked experience in manipulation.

Practical Chemistry.

The work on the whole was rather weak. The simple exercise in volumetric analysis was not attempted by any candidate. In the qualitative work the use of dry tests was generally neglected. In the analysis of the salt, zinc was often reported as aluminium; this error arises from careless work. The reports on the analysis of the mixture were generally fairly satisfactory.

Physiology.

Senior.—Some of the papers were quite satisfactory, but a considerable number of candidates showed an incomplete acquaintance with portions of the syllabus. Thus many appeared to have only a vague knowledge of the functions, and even of the existence, of the sympathetic nervous system, while others were similarly ignorant as regards the semicircular canals. The arrangement of answers was fairly good, but on the whole the candidates did not present such good work relatively as did those in the Junior grade.

Junior.—The papers were, on the whole, of very good quality. The answers were full and well arranged, and the system of classifying the answers under headings was satisfactory. Candidates could, with advantage, utilize diagrams to a still greater extent than is at present the case.

Botany.

In both grades there is urgent need for better diagrams. These may be constructed by any well taught student, and no special artistic ability is required. Much of the work on the flower was nearly worthless, owing to the very poor diagrams by which it was illustrated.

Drawing.

Senior.—There is a continued improvement in Model Drawing. Not only were the laws of perspective better understood and obeyed, but the construction of the chair was generally fairly accurately observed. The management of the sieve was not so satisfactory. There were too many cases of circles with corners, and of shapeless curves having no relation to an ellipse. On the other hand, there was commendable and rather unexpected reticence and absence of scribble in treating the mesh of the sieve. Memory Drawing was not nearly so well done on the whole, though one centre showed how much can be done by good practice and teaching. Both the laws of appearances and the special form and construction of the basket were, on the whole, poorly remembered. Pupils should be encouraged to practise visualizing objects with eyes closed, and drawing from the mental picture rather than from an attempt to abstract and reproduce mere outline.

Junior.—A gratifying proportion of the exercises showed understanding of the construction and purpose of a camp stool, and there were few ridiculous or foolish failures in this respect. The treatment of horizontal surfaces continues to improve. On the whole the results were satisfactory, though many candidates would gain much by perceiving that an ellipse is not only an accurate representation of a circle but a beautiful form in itself. Except in one large centre, the Memory Drawings were generally unsound in perspective and weak in memory of characteristic details. In Drawing from the Flat the French Dragoon's Helmet evidently proved interesting; and while defects of proportion were common and considerable, the characteristic dignity of the helmet, the "swing" of its curves, and some sense of its representation being in perspective, were missed only by the feeblest candidates.

Preliminary.—Freehand from the Flat: The systematic planning out of the whole and then of the larger features should precede the drawing of detail, and it is to be regretted that more general attention is not paid to this fundamental requirement. The essential consideration in drawing the given example (an Anchor) was that the line joining the tips of the flukes was at right angles to the stock, and in the perspective drawing it is so nearly at right angles that the assistance gained by its use is very great. Many candidates had no idea that it was advantageous to work on the basis indicated, and by starting haphazard handicapped themselves from the outset.

Drawing from Models: The representation of flat surfaces was definitely better than in the Summer Examination of last year, the remark applying both to circular and rectilinear forms. The apparent convergence of receding straight lines calls for some improvement. The proportion of height to width in plates, bowls, basins, is a familiar stumbling-block, the tendency of beginners in model drawing being always to make the height too great.

Lower Forms.—As at previous examinations, there was a large number of papers in which proportion was not sufficiently studied; e.g. many, even of those who could draw good curves, made the height of the cap about twice that of the example, whilst almost no increase was given to the width. Another fault was a tipping-up of the whole drawing. This generally results from not sitting square to the desk. It should have been observed by all candidates that the lower band (where the cap would fit the head) is horizontal.

NOTE BY THE DEAN.

I desire to emphasize the last comment of the English Examiner on the Junior papers, and generally to extend its application. An annotated edition is a snare to teachers and pupils alike, and it is far more important that pupils should know the text of the play and the living characters from whose lips alone such and such a line can come than the details of information which made up so much of the editions published "for the use of schools." Such details, or a fractional part of them, may still hold their subordinate place in the teacher's mind; but the essential object in reading the play is to extend the reader's knowledge of human character and human motive and to create a taste for high and wholesome literature.

Perhaps the one great apparent exception that should be made in the teaching of an English author is persistently to teach the

meaning and use of metaphor, and the expansion of its vivid but false terseness into the tame veracity of the tedious simile. For language is built on metaphor, and the influence of metaphor on human thought and human action is of incalculable importance.

The Report was adopted.

The proceedings terminated with a cordial vote of thanks to the Chairman for presiding.

REVIEWS.

The Psychology of High School Subjects. By Charles H. Judd. (6s. net. Ginn.)

It is with a full knowledge of the dangers of his task that Prof. Judd has set himself to the writing of this book. In his preface he points out what is in store for the man who ventures to apply general psychological principles to the specific work of any given type of school. The psychologists will tell him that he is deserting his legitimate business and the specialist teachers will more or less gently recommend him to mind his own business and not dabble in Latin or English or Science, with all of which he cannot by any possibility be familiar. The English writers on method for secondary schools have respected the feelings of the specialists, and have put the subjects into commission, so that each subject is treated by a specialist, though the whole is under the control of a general editor. The Americans, on the other hand, are taking the opposite line. Several works have appeared in which the author takes the whole of secondary school knowledge to his province. It is, of course, open to discussion whether such authors have justified this assumption of wide authority, and we venture to say that few authors have thrown out such a vigorous challenge as has Prof. Judd in these pages.

His chapters cover such diverse subjects as Mathematics, English, Foreign Languages, Manual Skill, Industrial Courses, Science, the Fine Arts, History. Teachers in England will be surprised to note the absence of geography from a list that is otherwise exhaustive, since it includes, directly or by implication, all the subjects of our ordinary secondary curriculum. The English complaint, however, will not take the form of demanding more subjects. Our readers will probably question whether one small head can contain enough to warrant an attack on such a wide field. Honesty compels us to say that, in spite of whatever prejudices we may have started with, we are compelled to admit that Prof. Judd has made good his claims. To be sure he approaches all the subjects from the one standpoint—that of psychology—and therefore introduces a unifying element that simplifies his problem. But it would manifestly be impossible to deal with the different subjects at all satisfactorily unless the author had at least a competent knowledge of each. He does not shelter himself behind mere generalities. In his treatment of mathematics, for example, he begins with psychological problems, proceeds to the psychology of space, the psychological analysis of geometry, the psychology of number and abstraction. But, after a chapter on each of these subjects, he gives us another on the Reorganization of Mathematics. One might suppose, from this elaborate treatment of mathematics, that we have here Prof. Judd's specialty, but he writes with equal freedom on all the other branches of the curriculum. No doubt the experienced specialist will miss in his own subjects some of those useful devices that experience develops. But we have to remember the aim of the book, and we must not demand what the author does not set out to supply.

Prof. Judd makes an ingenious use of the tantalizing problem of formal training to gather up a great number of his psychological principles in his chapter entitled Generalized Experience. There is nothing new in the chapter, but the presentation is admirably made, and a somewhat hackneyed subject is used most effectively in correlating what has been dealt with in the earlier parts of the book. The chapter on Teaching Students to Study will be welcomed by all

teachers gifted with insight. They will realize that our author is here bringing into the limelight a greatly neglected part of the teacher's work. McMurry, in his "How to Study," has led the way, but there is room for many more chapters such as Prof. Judd has here supplied. The final chapter deals with General Problems of Secondary Education, and at first sight may seem to go beyond the scope of the book. But he is a cunning man who can discover any nook of knowledge to which the psychologist cannot make a plausible claim, and we are willing to own that our author has, even in his final pages, gathered matter of high importance to all secondary teachers.

Everyday Pedagogy. By Lillian I. Lincoln.
(4s. 6d. net. Ginn.)

This is a sort of up-to-date version of a kind of book for young teachers that used to be popular in this country. It is meant specially for the teachers of rural schools. "No claim is made that the ideas here set forth are new. The best of them are very old. Some of them are told more than once in this book, but those are the ones it has been found necessary to tell many times to student-teachers." Here, surely, Miss Lincoln makes the mistake of confounding written with oral teaching. Repetition in a lesson is permissible, while in a book it is not. In any case, the repetitions in the book are neither frequent nor irritating.

There is the usual introductory matter about the teacher and her equipment—for Miss Lincoln the teacher is feminine, but the pupil masculine—though this is treated in a very bright way. Then follow the School Building and Grounds and Apparatus. Next come two characteristically American chapters, Starting In and Going On. The remarks on the physical comfort of the child are familiar enough in English textbooks, but the chapter on Morning Exercises contains matter that will be fresh to many rural teachers on this side of the Atlantic. The rest of the chapters are devoted to the various subjects of the elementary curriculum, but are interlarded with matters that do not often find a place in English textbooks. Dictionary Study, for example, deserves more attention than it usually receives in our books of method. Desk Work introduces elements that must give Superintendent Wirt, of Gary, Indiana, something to think about when advocating his plan of reducing the desk accommodation in schools. But, whatever may be true of town schools, it is certain that in the rural one-teacher schools there is room for just the kind of work that Miss Lincoln describes. Most of the chapters are followed by bibliographies, but these are not always strictly relevant to the matters dealt with in the text. Very often the chapters themselves contain information of great practical use to the teacher. For example, in the chapter on The Story we have nearly five pages devoted to a list of stories, the value of which has been tested in many schools. The references are naturally to American sources, but so many belong to world literature that the list is of practical use to our English teachers. This remark may be generalized so as to apply to the whole book. Its transatlantic flavour increases its interest without diminishing its usefulness.

In Caesarem Gulielmum Oratio. By Douglas Simmonds.
(2d. Heffer, Cambridge.)

This speech, in which the Kaiser is arraigned in Ciceronian form, is the work of a Perse School boy aged fourteen years four months, who has studied the language three years and one term, and has been trained throughout on the direct method. The speech was composed as a holiday task at the teacher's suggestion, and, except for a few corrections noted in the text, is entirely the boy's own work. The results attained as evidenced by this speech are so remarkable that they must give any teachers who oppose the use of direct methods in Latin from mere prejudice furiously to think. Of course the speech is not a model of Latin style; to judge it from such a standpoint would be ridiculous. Apart from the few actual errors which have been corrected by the editor (and *solo* as a dative which has been overlooked) the Latin halts a little here and there, and the eye of the scholar is

naturally quick to detect occasional un-Ciceronian words and phrases, such as *impossibile*, *facta abominanda*, and the like. But such phrases hardly amount to half-a-dozen in as many pages, and were they twice as numerous would still be comparatively unimportant in estimating the value of this achievement and the methods which have made it possible. The plain fact is that this speech represents a level of attainment which even in the case of a talented pupil, such as the author of this speech evidently is, could only be reached in such a short time by methods inherently sound. Not only does the author show a good knowledge of the technique of Latin, its form, syntax, and idiom, but, and this is even more important, it is evident that to him Latin is a real language, a vehicle of thought and a natural mode of expression. There is not a trace of that attitude of mind so common among schoolboys, and not unknown among more advanced students, which regards a Latin sentence as a sort of jigsaw puzzle to be laboriously constructed or painfully unravelled; that gropes its way through a maze of ablative absolutes and gerundial attractions, battling with a conviction that the Romans were a perverse people who spent their lives devising syntactical pitfalls to the confusion of an unwary posterity. This is to our mind the value of the direct method, to impart to the pupil the realization of Latin as a language in which people not only wrote epic poems but also bought cabbages or sold slaves. How far teachers should use the method is, we think, a matter for their own discretion, but it cannot be too often pointed out that it makes very large demands upon the teacher, and should only be used by those who are thoroughly familiar with Latin and competent to handle it. Personally, we favour a *via media*, and consider that it is a mistake to regard a method which uses English at any stage as necessarily inferior. On these and other grounds, which we have often stated in these columns, we do not welcome those "all Latin" vocabularies which enthusiasts for the method have lately affixed to their publications. Nevertheless, we do not wish these personal views to obscure the fact that the extremely able masters of the Perse School have clearly shown that, by a whole-hearted adherence to direct methods, results can be achieved which it would be extremely difficult to rival, and as this speech is printed as a "plea for the direct method of teaching Latin" we can only add that it is a very eloquent and convincing one.

Einhard's Life of Charlemagne. The Latin Text, edited, with Introductions and Notes, by H. W. Garrod and R. B. Mowat. (2s. 6d. net. Clarendon Press.)

At the present time, when we see, as it were, the birth throes of a new era in the history of Europe, there is a special interest in the lives of men like Charlemagne, who have profoundly influenced the course of European development. It is, indeed, almost difficult to put aside one's anti-Teutonic prejudices, and to do justice to the great figure of the Middle Ages "under whose vigorous hand Europe came nearer than ever before or since to the ideal of Christian unity." Yet though the enforcement of baptism at the point of the sword is little to our way of thinking, and savours somewhat of the methods of a more modern "kultur," none could deny Charlemagne his place as "one of the supreme figures of history," to borrow once more the language of our editors. The re-establishment of the Western Empire, the building up of a vast state, "governed explicitly through principles of morality, peace, and Christianity," the spread of art and learning, form for Charlemagne, in spite of the scandals of his private life, a solid basis to fame. Nor was it remarkable that in the troubled times of his less able successors he should pass into a legendary figure as the Hero King of Romance and Chivalry. Written by a thoroughly competent, if somewhat biased, observer, against whom his detractors can allege nothing worse than what the editors neatly term "a talent for *suppressio veri*," the "Vita" of Einhard holds the first rank as an historical document. Moreover, as "the literary masterpiece of the Middle Ages," the work claims the attention of the student of literature. Modelled though it is upon the style of Suetonius, the "Life" has a vigour and character of its own, and is easily acquitted of the charge of servile imitation. The present edition, which is primarily designed to meet the needs of students reading for the Previous Examination in Modern His-

tory, deserves the highest praise, and we cordially endorse the editors' hopes that it may reach a wider public. It is evident that no pains have been spared to make the book complete from the textual and linguistic as well as from the historical point of view, and those who use the book will find the commentary in every way adequate. The introductions on "The Good Faith of Einhard," on "German Culture in the Early Middle Ages," and "The Limits and Administration of the Carolingian Empire" are packed with sound scholarship, and indexes and a map facilitate reference.

Madame. By A. K. Pritchard. (1s. net. Alexander Moring.)

This is a tribute by a teacher to a trainer of teachers. Perhaps we should know who Madame is, but the ordinary reader will be in doubt whether he is perusing a work of art or an appreciation of a real person. Apart from the mystification, the sketch is well done. Madame certainly gets full justice at the hands of her old pupil.

OVERSEAS.

In view of the questions raised in the two supplements to the *New Statesman* dealing with the professional organization of teachers in England, it is interesting to read in *School and Society* for September 11 that, "By a vote of 11 to 9, the Chicago Board of Education voted, on September 1, to adopt the resolution of Jacob M. Loeb, Chairman of the Rules Committee, calling for abolition of the Chicago Teachers' Federation. The edict prohibits any teacher from membership in the Federation or any kind of so-called labour organization. Teachers now members of the Federation, or any organization affiliated with the American Federation of Labour, must withdraw immediately, and at no time in the future establish a similar association." Naturally, the American Federation of Labour objects, and its President, Mr. Samuel Gompers, protests "against the wanton, and I might say brutal, action of the School Board of Chicago in attempting to crush the independence and the right of organization of the school teachers." The non-professional press does not seem very enthusiastic for the teachers. It appears that the Vice-President of the Board of Education says that "the school system of Chicago is in the grip of Margaret Haley, Business Agent of the Federation." It is maintained that this Federation is "an assassin of reputation," and that "it turns the minds of the teachers from their work and makes them politicians." The *New York Times* takes a strong line against the Federation, and concludes a vigorous article with these words: "More salary, more salary, more salary! The schools run by a secret society through a walking delegate, their object forgotten; teachers in politics, other teachers terrorized, extravagant and demoralized education, mental loss to the pupils, bigger bills for the poor devil of a taxpayer! That is 'the spirit and practice of democracy' to be expected of unionized teachers. Will the strike and boycott be added?" We, on this side of the Atlantic, are not in a position to pass an opinion, but we do well to keep an eye on what is going on over there.

Education (Boston) for September has a strong indictment of the elementary schools of America, by Emma Townsend Wilkinson. It is of a type with which we are fairly familiar on this side. Starting from the popular American view that the future of the world is to be "determined not by battle-ship, but by citizenship," Miss Wilkinson proceeds to argue for the direct teaching of general and civic morality. She takes no note of the claims of indirect moral instruction that bulk so largely with our secondary teachers. Indeed, she takes it for granted that direct moral instruction is the only reasonable way of improving the fibre of the nation. It is curious to note the inversion of the popular view as found in England. Here we are inclined to admit that, for the elementary schools, direct moral instruction is, perhaps, the right thing, while for the secondary schools something more recondite is required. Miss Wilkinson tells us that the 7 per cent. of the school population that reach the secondary stage do get some instruction in morals, while the remaining 93 per

cent. are starved of all direct moral instruction in the elementary schools. But not morals alone are in danger; everything is bad. At home we are not unaccustomed to an outburst like the following: "The time has come for a radical change in the curriculum, the methods of teaching, the use of books, school hours, and in the purpose of training. Instead of training the young idea how to shoot, the schools nip the idea, discourage all individuality, and foster an artificial growth productive of little value." It is cheerful to find, as the indictment advances, that we in England actually come in for a little mild commendation. "What unpardonable extravagance it is to waste the time of a thousand pupils over a study for the benefit of one or two hypothetical boys who may make use of it. The English learned the folly of this ten years ago." Miss Wilkinson sometimes weakens her case by overstatement. Surely she cannot seriously believe that "vocational selection should begin in the first year of school life, not in the last." Further, she appears to have a low estimate of the difficulty of thinking, as indicated by the word "even" in the sentence dealing with our present pupils in elementary schools: "They do not sit, stand, walk, breathe, or even think rightly." She is on firm ground when she deprecates the lust of publicity that has crept in even among elementary-school pupils, though English readers will hardly approve, as she does, of the action of the judge in the juvenile court at Utica, who himself took a culprit over his knee and administered a spanking in open court. Miss Wilkinson should be careful of her Latin if she wishes to impress English readers.

The *English Journal* (Chicago) for September has a belligerent article on punctuation under the title "Punctator Gingriens." It is described as a call to arms, Mr. C. H. Ward's (its author's) aim being to get teachers to take an interest in the science of punctuation, and to teach it in schools. He maintains that punctuation has hitherto been entirely in the hands of the compositors, and tells us that "authors have never made the least contribution to the art." He is afraid that readers may think this too sweeping a statement, so he urges us to "ponder the statement calmly for several months before denying it." Personally, our experience with compositors has been such that we are not at all unwilling to assent to it on the spot. An author can get his own way in a great many things in the setting up of his books, but if he is well advised he will, in his own interest, give up punctuation as a lost cause. It will be news for most English readers that American punctuation, when traced patiently back from textbook to textbook, is found to originate in a certain "Treatise" published by John Wilson in 1871. "Punctuation," says Wilson, "has not received that attention which its importance demands." Mr. Ward concurs, and asks his readers to "think five times" before they call arrogant the claim that all should study the principles of punctuation. The final paragraph of Mr. Ward's article is a pæan extolling the glorious results that will follow on the exaltation of this subject to its proper place in the curriculum. The lawyers, on the other hand, ignore the very existence of the art. Let the schoolmaster and the lawyer fight it out between them. Meanwhile the compositor will go on in his obstinate way.

GENERAL NOTICES.

ENGLISH.

"English Grammar and Composition."—Part III: *Middle School English Composition.* By G. A. Twentymen, B.A., Assistant Master at the Manchester Grammar School. (2s. 6d. Rivingtons.)

This book is the third of a series, of which the first two provide a first-year and a second-year course respectively. The present volume consists of four parts; the first is a recapitulation of the work of the previous books, the other three deal with grammar, composition, and prosody respectively. The grammar is dealt with on sound principles, and the various discussions of common diffi-

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culties and hints as to possible pitfalls are sensible and to the point. In the section on composition a prominent place is given to summarizing a given passage and expanding a given outline; chapters follow on explanation, on the various ways of beginning and ending a composition, and on paraphrasing. The section dealing with prosody is simple, clear, and full of interest. The whole book is, in fact, interesting and practical. The numerous extracts in each section, from standard writers, are well chosen and are such as to appeal to boys and girls, while the treatment throughout is calculated to make them feel the value and interest of the study of their own language.

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HISTORY.

The Study of Nineteenth-Century Diplomacy. By C. K. Webster, M.A., Professor of Modern History in the University of Liverpool. (1s. net. Bell.)

An inaugural lecture, full of pointed criticism and suggestion. It indicates the difficulties of access to the contents of documents even when the door is thrown open, the deficiency of State assistance, and the failure of historians—especially English historians—to utilize adequately the stores of the archives. Bookmaking is one thing, real history is another. The historian needs a laborious training; his materials need systematization. Both needs are costly, and their value is little recognized.

A Short History of the Sikhs. By C. H. Payne, M.A., late of the Bhopal State Service. (1 rupee 8 annas net. Nelson.)

Though primarily intended for use in India, this little volume should be of great interest to us in England, not only on historical grounds, but also because of the part the Sikhs are taking in the present War. Mr. Payne gives an excellent account of their religious system and of the series of gurus, of the early struggles of the Khalsa, of the remarkable personality and administration of Ranjit Singh, of the succeeding periods of decline and anarchy, and finally of the two Sikh wars and the resulting annexation. Some useful matter is thrown into appendices, and there are four maps and fourteen illustrations. The volume is well written, and the matter is most carefully compiled. A thoroughly sound piece of work.

"Oxford County Histories."—*Leicestershire.* By Charles E. Kelsey, M.A. (1s. 6d. net. Clarendon Press.)

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and weaving, and railways and engineering works, and the first Thomas Cook, printer and village missionary and beneficent inventor of excursions. An admirable volume, of extraordinarily varied interest, with 6 maps and 51 illustrations.

GEOGRAPHY.

"Questions and Exercises on Mackinder's Elementary Studies in Geography."—(1) *Our Own Islands*, (2) *Lands Beyond the Channel*, (3) *Distant Lands*. By E. G. R. Taylor, B.Sc. (3d. each. Philips.)

Each book is of about thirty pages and contains some 160 exercises. They form worthy supplements to the popular textbooks on which they are based, and Miss Taylor has evidently been at considerable pains to ensure that nothing is included which is not likely to be of distinct educational value.

"The Cambridge Geographical Readers." Edited by G. F. Bosworth, F.R.G.S.—(1) *The World and its Wonders* (1s. 3d.); (2) *England and Wales* (1s. 4d.); (3) *The British Isles* (1s. 8d.). (Cambridge University Press.)

This series of modern readers has been produced by unnamed, but highly qualified, writers. It is a most successful attempt to carry out the excellent "suggestions" of Board of Education Circular 834. The three books cover First and Second Stages in that Circular, and the texts have been carefully graded. It is difficult in the course of a line or so to deal with the many merits of these well illustrated and entertaining Readers, and teachers in consequence are advised to make an early examination of them, but reference might be made to an interesting test of Book I. This volume was casually shown to a Standard II boy, who, after being attracted by the pictures, voluntarily left his outdoor play and eagerly read a full quarter of the text at one sitting.

"Cambridge County Geographies."—*Staffordshire*. By W. Bernard Smith, B.Sc. (1s. 6d. Cambridge University Press.)

The author has produced an entertaining book for the general reader, and one which contains much well arranged and accurate material for the teacher. Mr. Smith has dealt particularly well with industries (printer's error, page 56, in spelling of Baggeridge), communications, and chief towns and villages. The chapter on Monasticism, by the Rev. F. A. Hibbert, is a very sound piece of work.

Commercial Geography. By Alex L. Curr, B.A. (3s. 6d. Black.)

Although several textbooks dealing with this branch of geography have recently been issued, yet there still remained a gap for a suitable intermediate book. Mr. Curr's book will prove eminently suitable for the senior classes in secondary schools, and the use of the book can be strongly recommended to the teacher of geography interested in modern methods. The following features deserve special notice: Excellent statistical diagrams based on recent figures, careful tracing of physical influence on the distribution of commodities, and well reasoned political considerations of commercial development. The arrangement of the land areas is partly regional and partly political, and proves very satisfactory: in fact, the only adverse criticism which we are inclined to level against the book is in connexion with the sketch-maps, usually excellent, but occasionally destitute of both latitude and longitude lines.

MATHEMATICS.

The Cambridge Elementary Arithmetics. By J. H. Webster, Inspector of Schools to the Leeds Education Committee. (Cambridge University Press.)

A carefully graduated course arranged in seven books. Prices range from 3½d. to 6d. paper covers, 5d. to 7d. cloth. Books V, VI, and VII are also supplied with answers at an additional cost of 2d. each. Teachers' books—of which No. 4 is ready and costs 1s. 6d. net—contain, in addition to the questions set in the pupils' books, answers, notes, oral and other additional exercises. The practical nature of the course, the abundance of diagrams, and the clear type are excellent features. The whole set can be strongly recommended.

"Longmans' Explicit Arithmetics."—Arranged in five books, prices ranging from 2d. to 4d. paper, 3d. to 5d. cloth. Corresponding teachers' books 8d. to 1s. paper. These latter contain the pages of the pupils' books, answers, notes for typical lessons, oral exercises, and additional practical exercises. All numerical data and important points are printed in heavy type, which easily catches the eye. A useful series of books for elementary purposes.

Descriptive Geometry. By Henry F. Armstrong, Associate Professor of Descriptive Geometry and Drawing, McGill University. (8s. 6d. net. Chapman & Hall.)

Students studying engineering and architecture must acquire the power of reading and thoroughly understanding drawings representing solid objects. This faculty can be as easily acquired in the

higher branches of secondary-school work as in the University colleges themselves, and it is a pleasure to read a book which puts the whole essentials of the subject in so concise, and yet so complete, a manner. A special point is made of fundamental principles and their practical applications. Complex work is avoided. The use of simple models is strongly advocated as a means of clearing up difficulties which are otherwise obscure. Exercises on the various sections of the book are frequently inserted, and students would be well advised to draw out for themselves many of the diagrams given in the text, following the descriptive matter closely step by step. In this way a perfect grasp of all the principles involved should be assured, and the value of the book, from a practical point of view, soon make itself evident.

The Laws of Algebra. An Elementary Course in Algebraic Theory. By A. G. Cracknell, M.A., B.Sc., F.C.P. (1s. University Tutorial Press.)

A small book of sixty-eight pages providing an elementary account of the laws of algebra. The statements are clear and simple, and do not involve more than the ordinary arithmetical concepts of number, integral, and fractional. The laws of signs have received special attention, and applications of positive and negative numbers to mechanics and co-ordinate geometry are briefly discussed. A useful supplement to the ordinary textbook.

CLASSICS.

Latin Verb Paradigms. By W. Lobban, M.A. (1s. net. Oxford: B. H. Blackwell.)

In these paradigms, intended for the use of junior Latin classes, the forms of the Latin verb are arranged on the principle of stem groups. This does not supersede the traditional classification into four conjugations, but brings out very well the underlying identity of the conjugations, and the fact that the differences are mainly due to the variations in the stem, and the presence, absence, or modification of the thematic vowel. Thus, the three types of stem of the third conjugation are conjugated in full in the examples *regere*, *tribuere*, and *capere*. A column of remarks is added, calling attention to peculiarities, and there are exercises giving practice in verb forms.

First Lessons in Numismatics. For Junior Students of Latin and Greek. By Henry Browne. (6d. Bell.)

These First Lessons, prepared for the Association for the Reform of Latin Teaching by the Chairman of the *Realien* Committee, consist of short descriptions and catalogues of trays of coins circulated among its members by the Association. In all, five cabinets are catalogued, which are classified as follows:—Roman Republican Cabinet (originals), Cabinet of Casts, Roman Imperial Cabinet (originals), Roman Imperial Portraits (casts), Cabinet of Greek Coins (originals). The Lessons are intended mainly for those using the cabinets, but form an excellent little introductory manual to Greek and Roman numismatics. We are sure that all teachers of classics who see the book will feel a desire to use these collections with their classes, and will want to know how they may be obtained. Unfortunately, Prof. Browne has omitted to give this information, presumably through an oversight.

An Introduction to Greek Reading. By George Robertson, M.A. (2s. 6d. net. Cambridge University Press.)

This book contains much useful material and many sound hints to teachers on the best methods of employing it. The author lays chief stress upon the importance of word building and the systematic acquisition of vocabulary. The plan of the book is as follows:—Part I consists of the essentials of Greek grammar, Part II of passages for translation, and Part III of notes. The latter contain many interesting remarks linking up Latin and English derivatives with their Greek originals, and good use is made of proverbs and well known phrases in consolidating vocabulary. The passages for translation are well chosen from Lucian, Herodotus, Anacreon, and other Greek writers, and difficult words and forms are explained at the foot of the page. The book is a very good introduction to the study of Greek authors.

SCIENCE.

Experimental Electricity and Magnetism. By M. Finn, M.Sc. (4s. 6d. Bell.)

A notable feature of this book is that, in practically all the experiments in the sections dealing with Voltaic electricity, the electric-lighting supply is used as a source of current. The same circuit is employed to provide charges in the electrostatics experiments. Doubtless, a considerable economy of time is thus effected, and a greater diversity of experiments can be performed, but the beginner—for whom the book is intended—will be confronted at the outset by many difficulties in connexion with lamps, resistances

in parallel, &c. The author assures us, however, that the system has been tried successfully with large classes, and advances several good reasons for adopting it. As regards the arrangement of the instruction, one chapter is devoted to the dynamics required in the course, and it has been the aim of the author to connect, as far as possible, the subjects of magnetism, electrokinetics, and electrostatics. The ground covered is more than that required for the London Matriculation and Senior Locals. The book is well illustrated, and provides examples taken from the papers of various examining bodies.

Elementary Experimental Statics. By Ivor B. Hart, B.Sc., F.R.A.S. (2s. 6d. Dent.)

This book is intended for beginners, and approaches the subject from a purely experimental point of view, the mathematics required being of a very elementary character. It is not claimed that the treatment is complete, the aim being rather to use the subject as a means of training pupils to think systematically, and to make their own deductions. The first chapter is entirely devoted to a discussion of common sources of error in practical work. This specially deserves commendation as leading to a right conception of the relation between theory and practice. Of course, careful exposition of this chapter on the part of the teacher is very desirable. About thirty experiments are outlined in the book, whilst examples and exercises (with answers) are provided in connexion with each section.

BOTANY.

The Families of British Flowering Plants. By W. B. Grove. (1s. net. Longmans.)

"This synopsis is intended primarily to facilitate the determination of the families of British Plants," says the preface. It is difficult to say how far it would be useful, since those who are still at the stage of beginning to determine families can scarcely grasp such technical descriptions, and those who wish to study a philosophic outline of the evolution of flowering plants usually want something fuller. However, it is the latter who can probably make most use of it.

Visual Botany. By Agnes Nightingale. (6d., paper covers. Black.)

This book would be useful as a record of Nature-study lessons for quite young children, as the outlines of flowers, &c., being given, attention could be concentrated on the colouring. The directions for this which are given appear unnecessary, since it would be unpardonable to use the book without the actual specimens, and even then originality would be discouraged by the fixed outlines.

PUBLICATIONS RECEIVED.

PEDAGOGY.

- Readings in Vocational Guidance. Edited by Meyer Bloomfield. Ginn, 10s. 6d.
- The Industrial and Commercial Schools of the United States and Germany: A Comparative Study. By Frederick William Roman. Putnam, 6s. net.
- A Student's History of Education. By Frank Pierrepont Graves. Macmillan, 5s. 6d. net.
- Rural Denmark and its Schools. By Harold W. Foght. Macmillan, 6s. net.
- The Foundations of Normal and Abnormal Psychology. By Boris Sidis. Duckworth, 7s. 6d. net.
- Some Results of Research in the History of Education in England, with Suggestions for its Continuance and Extension. By Arthur F. Leach. Milford (for the British Academy), 2s. 6d. net.
- The Use of the Kinematograph in Education: A Scheme for India. By Bulchand Karamchand and Morley Dainow.
- Fatigue. By A. Mosso. Translated into English by Margaret Drummond and W. B. Drummond. Allen & Unwin, 2s. 6d. net.
- Teaching of History: In Elementary and Secondary Schools. By Henry Johnson. Macmillan, 6s. net.
- Child Training: A System of Education for the Child under School Age. By V. M. Hillyer. Duckworth, 5s. net.

CLASSICS.

- Some Parallels and Differences in Greek and Latin Syntax. Compiled for the use of Examination Victims. By Rev. C. Annacker. Blackie, 9d.
- The Fall of Troy: Adapted from Virgil's Aeneid. Edited, with Introduction, Notes, and Vocabulary, by W. D. Lowe. Clarendon Press, 1s. 6d.

Horace and his Poetry. By J. B. Chapman. Harrap, 1s. 6d. [The Text was published at the end of 1913; the Companion and Glossary is about to appear.]

A First Latin Grammar for Schools. Based on the Recommendations of the Joint Committee on Grammatical Terminology. By E. A. Sonnenschein. Also, A Latin Syntax for Schools. By the same writer. Clarendon Press, each 1s. 6d.

FRENCH.

Contanseau's Pocket Dictionary. New Edition. Longmans, 1s. 6d. net.

- (1) Méthode Directe. English Edition. Première Année. By Charles Schweitzer, Emile Simonnot, and E. G. Brauholtz. 2s.—(2) La Petite Fadette (George Sand). Edited, with Notes, &c., by F. W. M. Draper. 2s.—(3) La Dette de Jeu (Maxime du Camp). Edited, with Notes, &c., by H. E. Berthon. 2s.—(4) Graduated Practice in Free French Composition: for Elementary and Intermediate Forms. By E. T. S. Schoedelin. 2s.—(5) Elementary French Composition. Compiled by Jules Lazare. New edition, 1s. 6d.—(6) Les Exploits de Maître Renard. Ulrich's Reform Method. 1s.—(7) Nouveaux Contes Faciles. Compiled and edited, with Notes, &c., by Marc Ceppi. 1s.—(8) Easy French Poems. Compiled by F. Duhamel. 6d.—(9) La Dernière Classe (Daudet). Edited by H. N. Adair. 6d.—(10) Tamango (Mérimée). Edited by F. Lejeune. 6d.—(11) Fais ce que Dois (Coppée). Edited by H. E. Berthon. 8d.—(12) La Lettre Chargée (Labiche). Edited by Henri Testard. 8d. Hachette.

GERMAN.

- Ein Praktischer Anfang. By M. E. Manfred. Heath's Modern Language Series, 2s. 6d.
- Deutsche Lektionem nach der Gouin Methode. By F. Thernoin and R. O. Gercke. First Book for Children, with Illustrations. Hachette.
- Modern German Course. First Part. By A. G. Haltenhoff. Hachette, 2s. 6d.

RUSSIAN.

Russian Self-Taught. By C. A. Thimm and J. Marshall. Marlborough, paper, 2s.; cloth, 2s. 6d.

ENGLISH.

- Anglo: Being English Simplified. With numerous examples. By Immo S. Allen. Revised edition. Bell, 1s. net.
- Les Misérables. By Victor Hugo. Translated, abridged, and edited by Douglas Gordon Crawford. Macmillan, 1s. net.
- Principles of Composition. By Percy H. Boynton. Ginn, 4s. 6d.
- Robert Louis Stevenson. By Amy Cruse. Harrap, 1s.
- Selections from Malory. Edited by Agnes M. Mackenzie. Harrap, 1s. 3d.
- Gray: Poems published in 1768. Edited by Arthur F. Bell. Clarendon Press, 3s. 6d.
- The Prioresses Tale and the Nonne Prest his Tale. Blackie's English Classics, 2d.
- The New Atlantis. By Francis Bacon. Edited by Alfred B. Gough. Clarendon Press, 1s. 6d.
- Peter Schlemihl (Chamisso). Introduction by Joseph Jacobs. Allen & Unwin, 1s. net.
- Evangeline (Longfellow). Edited by Alfred B. Gough. Clarendon Press, 1s. 6d.
- Romeo and Juliet. Edited by Robert Adger Law. Heath's Shakespeare, 1s. 6d.
- Here and There Stories.—Senior: Africa. Macmillan, 5d.
- Under the Rainbow Arch. Rambler Nature Books. Blackie, 6d.
- Lime and Cement. Rambles among Industries. Blackie, 9d.
- English Literature for Schools.—(1) The Seven Champions of Christendom. By Richard Johnson. (2) Selections from Plutarch (North). Dent, 6d. each.
- The Carmelite Shakespeare.—(1) Julius Caesar. Edited by C. L. Thomson. (2) The Merchant of Venice. Edited by D. M. Macardle. H. Marshall, 9d. each.
- Gulliver's Travels. Edited by A. B. Gough. Clarendon Press, 2s. 6d.
- A Book of English Poetry. Edited by George Beaumont. Jack, 3s. 6d. net.

HISTORY.

- The Drama of Three Hundred and Sixty-five Days: Scenes in the Great War. By Hall Caine. Heinemann, 1s. net.
- The Social and Industrial History of England. By F. W. Tickner. E. Arnold, 3s. 6d.
- The Danger of Peace. By J. W. Allen. Bell, 1s. net.
- A Brief History of the French Revolution. By F. W. Aveling. Allen & Unwin, 2s. net.

The Children's Story of the War. By Sir Edward Parrott. Vol. II. Nelson.
 A Short History of Modern England: From Tudor Times to the Present Day. By Frederick Bradshaw. University of London Press, 3s.
 Louvain, 891-1914. Par L. Noël, Professeur à l'Université de Louvain. Clarendon Press, 3s. 6d. net.

GEOGRAPHY.

An Industrial Geography of Britain. By William J. Claxton. Harrap, 9d.

MATHEMATICS.

A First Book of Arithmetic. By S. Lister. Macmillan, 1s. 6d.
 A Review of High School Mathematics. By William David Reeve and Raleigh Schorling. Cambridge University Press.
 A Twentieth-Century Arithmetic. By C. S. Jackson, F. J. W. Whipple, and (the late) Lucy Roberts. Dent, 4s. 6d.
 An Introduction to Applied Mechanics. By Ewart S. Andrews. Cambridge University Press, 4s. 6d. net.

SCIENCE.

Laboratory Exercises. Arranged to accompany "First Course in Chemistry." By William McPherson and William Edwards Henderson. Ginn, 2s.
 Introduction to Magnetism and Electricity. By E. W. E. Kempson. E. Arnold, 3s.
 A Manual of Mechanics and Heat. By R. A. Gregory and H. E. Hadley. Macmillan, 3s.
 Chemistry: First Stage. By F. P. Armitage. Longmans, 1s.
 Qualitative and Volumetric Analysis. By W. M. Hooton. E. Arnold, 3s. net.
 Botany for Senior Students. By D. Thoday. Cambridge University Press, 5s. 6d. net.

RELIGION.

The Book of Joshua. By Rev. G. E. J. Milner. Oxford University Press, 1s. net.
 Miscellanea Evangelica (II): Christ's Miracles of Feeding. By Edwin A. Abbott. Cambridge University Press, 3s. net.
 School Bible Readings. Milford, 2s. 6d.

ARTS AND CRAFTS.

Elementary Embroidery. By Mary Symonds. Hogg, 2s. 6d. net.
 The Book of School Colour Work. By E. A. Branch. Evans.

KINDERGARTEN.

More Song Games. Adapted for School Use by Kate F. Bremner. Accompaniments by F. H. Bisset. Philip, 3s. 6d. net.

UNCLASSIFIED.

The Essentials of Agriculture. By Henry Jackson Waters. Ginn, 5s. 6d.
 The Belgian Cook Book. Edited by Mrs. Brian Luck. Heinemann, 2s. 6d. net.
 The War and Life Assurance. By A. H. Swain. The Insurance Press (Leicester), 2s. net.
 Views on Some Social Subjects. By Sir Dyce Duckworth. Allen & Unwin, 7s. 6d. net.
 The Artistic Anatomy of Trees. By Rex Vicat Cole. Seeley, 7s. 6d. net.
 Commercial Theory and Practice. By W. Abbott. Murray, 3s. 6d.
 War and Christianity: From the Russian Point of View. Three Conversations by Vladimir Solovyof, with an Introduction by Stephen Graham. Constable, 4s. 6d. net.
 Essentials of Exposition and Argument: A Manual for High Schools, Academies, and Debating Societies. By William Trufant Foster. Houghton Mifflin, 6s. net.

GIFT BOOKS.

Missionary Knights of the Cross. By John C. Lambert. Seeley, 2s. 6d.
 Ian Hardy, Senior Midshipman. By Commander E. Hamilton Curry. Seeley, 5s.
 The Story of the Golden Fleece. Adapted by M. W. Jennings. Blackie.
 True Stories about Horses. By Lilian Gask. Harrap, 3s. 6d. net.
 The Grand Duchess Benedicta. By A. E. Burns. Longmans, 3s. 6d. net.
 The Stars and their Mysteries. By Charles R. Gibson. Seeley, 3s. 6d.
 The School of Arms: Stories of Boy Soldiers and Sailors. By Ascott R. Hope. Routledge, 3s. 6d.
 Adventures of Missionary Explorers. By R. M. A. Ibbotson. Seeley, 5s.

MATHEMATICS.

Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

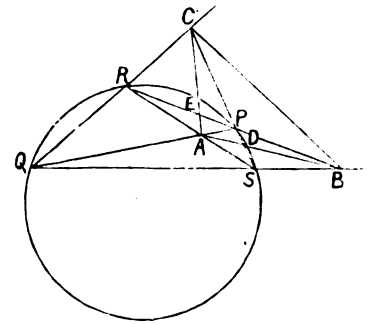
17949. (W. F. BEARD, M.A.)—P is any point on the polar circle of a triangle ABC; PA, PB, PC meet the polar circle at Q, R, S. Prove that RAS, SBQ, QCR are straight lines.

Solutions (I) by the PROPOSER, W. J. MARTYN, M.A., and MAURICE A. GIBLETT, B.Sc. (Lond.); (II) by W. N. BAILEY.

(I) Let AC, AB meet BPR, CPS respectively, at E, D.

(PR, EB) = -1
 (because AC is the polar of B)
 = (PS, CD)
 (because AB is the polar of C);

therefore RS, EC, BD are concurrent;
 therefore RAS is a straight line, and similarly SBQ, QCR are straight lines.



(II) Let AD, BE, CF be the altitudes of the triangles and H the orthocentre.

Take any point P on the polar circle, and join PB, PC to meet the polar circle again at R, S, and join SB, RC to meet at P'.

Then CP.CS = CH² - HE.HC = CE.CH = CD.CB;
 therefore PSBD are cyclic, so that ∠PSB = ∠PDC.
 Similarly PRDC are cyclic, so that ∠PDC = ∠PRC;
 therefore ∠PSB = ∠PRC, so that PSP'R are cyclic.

Hence P' is on the polar circle.
 Now R and S are in (1, 1) correspondence, and if SP, PR pass through C, B or through B, C respectively, we get the same point R to correspond to S.

Hence R and S trace ranges in involution on the polar circle, and therefore RS passes through a fixed point. Now suppose that the polar circle cuts AC at K.

Then HK² = HF.HB,
 from which it follows that HKF, HBK are similar, and hence that ∠HKB is a right angle.

Therefore BK is the tangent at K to the polar circle.
 Now let P be at K. RS becomes the line AC.
 Similarly another position for RS is AB, and therefore the fixed point through which RS passes is A.

12732. (G. H. HOPKINS.)—Obtain integral values of N and n which will satisfy the equation $\frac{1}{3}n^3 + \frac{1}{2}n^2 + \frac{1}{3}n = N^2$, having given one set of values, viz., N = 70, n = 24. [The equation is

$$\frac{(n+1)n(2n+1)}{2.3} = N^2,$$

which means that the value of n requires $1^2 + 2^2 + 3^2 + \dots + n^2$ to be a square number. It is possible that there is no other solution:

$$1^2 + 2^2 + \dots + (73)^2 = 70^2 + (357)^2.]$$

Solution by NORMAN ALLISTON.

Completed Solution of Question 12732, proving that, when n > 24, the sum of the first n squares is never a square (vide Reprint, Vol. xxvi, p. 339).

The equation in question is $(n)(n+1)(2n+1) = 6N^2$.

Assumed factors	{	(1) ... k^2 $6q^2$ p^2 .	(4) ... $6k^2$ q^2 p^2 .
		(2) ... $2k^2$ $3q^2$ p^2 .	(5) ... k^2 $2q^2$ $3p^2$.
		(3) ... $3k^2$ $2q^2$ p^2 .	(6) ... $2k^2$ q^2 $3p^2$.

Assumptions (1), (2), (3), (6) are inadmissible for the following reasons: (1) makes $6q^2 - 1 = k^2$, (2) makes $6q^2 - 1 = p^2$, (6) makes $3p^2 - 1 = (2k)^2$; but -1 is a non-residue of 6 and 3. (3) makes $(2q)^2 - p^2 = 1$, of which there is no solution in integers.

Disposition (4) gives $2q^2 - 1 = p^2$; also $12k^2 + 1 = p^2$, or $3k^2 = [\frac{1}{2}(p-1)][\frac{1}{2}(p+1)] = (3s^2)(t^2)$,

the factors being prime to one another.

$\frac{1}{2}(p-1)$ may not be t^2 , for it would make $3s^2 - 1 = t^2$, and -1 is a non-residue of 3. Therefore $\frac{1}{2}(p+1) = t^2$; that is, $p = 2t^2 - 1$.

Consequently $2q^2 - 1 = (2t^2 - 1)^2$.

By a theorem of Fermat, this equation has no further solutions in integers than $q = 1$ or 5 ; $q = 5$ leading to $n = 24$. Fermat's own proof is not extant; but one has been given by M. Genocchi (*Nou. Ann. de Math.*, 1883).

Arrangement (5) remains. And since $n(n+1)(2n+1)$ represents the area of a rational right-angled triangle formed from (n) and $(n+1)$, the sides of this triangle in the present case will be

$$a = 4q^4 + k^4, \quad b = 4k^2q^2, \quad c = 4q^4 - k^4.$$

Again, because $(2n+1)^2 = 4n(n+1) + 1$, we have $(3p^2)^2 = 8k^2q^2 + 1$;

so that the same sides may also be thus expressed

$$a = \frac{1}{2}(9p^4 + 1), \quad b = \frac{1}{2}(9p^4 - 1), \quad c = 3p^2.$$

Further, by the ordinary rules of formation, the triangle being a primitive one, the sides must in any case have these forms

$$a = \frac{1}{2}(u^2 + v^2), \quad b = \frac{1}{2}(u^2 - v^2), \quad c = uv.$$

Now $3p^2 = (2q)^2 - 1 = (2q+1)(2q-1)$, odd inter-primary factors. Therefore we may set

$$(2q+1)(2q-1) = uv = (3s^2)(t^2).$$

Here, if $2q+1 = t^2$, there follows $3s^2 + 2 = t^2$, which may not be, since 2 is a non-residue of 3. Hence

$$u = 2q+1 = 3s^2, \quad v = 2q-1 = t^2, \quad \text{and} \quad 3s^2 - 2 = t^2.$$

Consequently

$$\text{side } b = \frac{1}{2}(u^2 - v^2) = \frac{1}{2}(9s^4 - t^4) = \frac{1}{2}(9p^4 - 1) = \frac{1}{2}(9s^4t^4 - 1).$$

Thus $9s^4 - t^4 = 9s^4t^4 - 1$; or $9s^4 + 1 = t^4(9s^4 + 1)$, and $t = 1$ determinately, $s = q = p = k = 1$ follows perforce. There being no alternative solutions, all the assumptions are now exhausted, and the theorem is proved.

Note.—Any number of rational triangles may be found having the same area as that of a given rational triangle. Hence there will be any number of fractional values for n which make the expression $\frac{1}{2}n(n+1)(2n+1)$ square, $n = \frac{2209}{1658}$ is one such value.

16877. (J. H. M.)—If $a, a'; b, b'; c, c'$ are pairs of opposite edges of a tetrahedron, show that angles λ, μ, ν can be found so that

$$\begin{aligned} aa' : bb' : cc' &= \sin \lambda : \sin \mu : \sin \nu, \\ aa' + bb' \cos \nu + cc' \cos \mu &= 0, \\ aa' \cos \nu + bb' + cc' \cos \lambda &= 0, \\ aa' \cos \mu + bb' \cos \lambda + cc' &= 0, \end{aligned}$$

and find the geometrical meanings of λ, μ, ν .

Solution by Professor E. J. NANSON.

Let OABC be the tetrahedron, and let $BC = a, OA = a', \dots$, and take points A', B', C' on OA, OB, OC , so that

$$k.OA' = b'c', \quad k.OB' = c'a', \quad k.OC' = a'b',$$

so that the triangles $OB'C', OC'A', OA'B'$ are similar respectively to the triangles OCB, OAC, OBA , and therefore

$$k.B'C' = aa', \quad k.C'A' = bb', \quad k.A'B' = cc'.$$

Thus the sides of $A'B'C'$ are proportional to aa', bb', cc' , and the results stated follow, λ, μ, ν being the exterior angles of the triangle $A'B'C'$. It follows that any two of the three aa', bb', cc' are together greater than the third, a result proved by Cayley, *Reprint*, O. S., Vol. VIII, p. 86, and *C.M.P.*, Vol. VII, p. 585. Reference may also be made to *Reprint*, Vol. XX, p. 32, Vol. XXII, p. 29.

17889. (C. E. YOUNGMAN, M.A.)—If three normals to a tricusp meet at N, the corresponding tangents cut the curve at six points on a conic; and this, when N is on the tricusp, is a parabola whose axis is perpendicular to the tangent at N. When the conic consists of two lines, those lines meet at a constant angle, and at a constant distance from the centre of the tricusp.

Solution by W. N. BAILEY.

Using circular co-ordinates with the centre of the tricusp as origin, and the diameter through one of the cusps as the real axis, the co-ordinates of any point P on the tricusp are $(2t + 1/t^2, 2/t + t^2)$.

(The radius of the inscribed circle is taken as the unit of length.) The equations of the tangent and normal at P are

$$t^2 - t^2\xi + t\xi_0 - 1 = 0 \quad \text{and} \quad 3t^3 - t^2\xi - t\xi_0 + 3 = 0.$$

The latter passes through N, (X, X_0) if

$$3t^3 - t^2X - tX_0 + 3 = 0 \dots \dots \dots (1).$$

The conic $at^2 + 2ht\xi_0 + 3\xi_0^2 + 2g\xi + 2f\xi_0 + c = 0$ meets the tricusp where

$$a(2t + 1/t^2)^2 + 2h(2t + 1/t^2)(2/t + t^2) + 3(2/t + t^2)^2 + \dots = 0,$$

i.e., where $3t^6 + 4ht^5 + 2t^6(2a + f) + 4t^3(3 + g) + t^4(10h + c)$

$$+ 4t^3(a + f) + 2t^2(6 + g) + 4ht + a = 0 \dots \dots (2).$$

Now the tangent at " t_1 " is easily found to meet the tricusp again where

$$t^2 = 1/t_1 \dots \dots \dots (3).$$

Hence the tangents to the tricusp at the points given by (1) meet the curve again where

$$3t^6 - X_0t^4 - Xt^2 + 3 = 0.$$

This equation multiplied by $(t^2 + pt + q)$ is the same as (2) if

$$\left. \begin{aligned} 4h &= 3p \\ 2(2a + f) &= 3q - X_0 \\ 4(3 + g) &= -X_0p \\ 10h + c &= -X_0q - X \\ 4(a + f) &= -Xp \\ 2(6 + g) &= -Xq + 3 \\ 4h &= 3p \\ a &= 3q \end{aligned} \right\} \dots \dots \dots (A).$$

Since two of these equations are identical, we have seven equations to find the seven unknowns. Hence the tangents at the feet of the normals from N cut the curve at six points on a conic.

By solving the equations (A), we find that the equation of the conic is

$$\begin{aligned} 3(X_0^2 - 3X)\xi^2 + 3(XX_0 - 9)\xi\xi_0 + 3(X^2 - 3X_0)\xi_0^2 \\ - (XX_0^2 - 27X_0 + 6X^2)\xi - (X^2X_0 - 27X + 6X_0^2)\xi_0 \\ - (X^3 + X_0^3 + 9XX_0 - 185) = 0. \end{aligned}$$

This is a parabola if

$$(XX_0 - 9)^2 = 4(X^2 - 3X_0)(X_0^2 - 3X),$$

which is easily found to be the equation of the tricusp (by eliminating t between the expressions for ξ, ξ_0 in terms of t).

The parameters of the other two points of intersection are given by

$$t^2 + pt + q = 0,$$

or $t^2(X^2 - 3X_0) + 2t(XX_0 - 9) + (X_0^2 - 3X) = 0$.

Hence the conic touches the tricusp if

$$(XX_0 - 9)^2 - (X^2 - 3X_0)(X_0^2 - 3X) = 0,$$

i.e., $X^3 + X_0^3 + 27 - 9XX_0 = 0$,

or $(X + X_0 + 3)(\dots)(\dots) = 0$.

It follows that, if N lies on one of the lines joining two cusps, the conic goes through the other cusp.

From (1) and (3) we see that the six particular points on the conic are those which have parameters $\pm t_1, \pm t_2, \pm t_3$, with the condition that

$$t_1^2 t_2^2 t_3^2 = -1 \dots \dots \dots (4).$$

Now the line $\xi_0 = m\xi + c$ meets the tricusp where

$$(2t + t^2) = m(2t + 1/t^2) + c,$$

i.e., where $t^4 - 2mt^3 - ct^2 + 2t - m = 0 \dots \dots \dots (5).$

The line joining t_1, t_2 , and t_3 will therefore be the line $\xi_0 = m\xi + c$, if t_1, t_2 , and t_3 are roots of (5).

Similarly the line joining $-t_1, -t_2, -t_3$ will be the line $\xi_0 = M\xi + C$, if $-t_1, -t_2, -t_3$ are roots of

$$t^4 - 2Mt^3 - Ct^2 + 2t - M = 0,$$

i.e., if t_1, t_2, t_3 are roots of

$$t^4 + 2Mt^3 - Ct^2 - 2t - M = 0 \dots \dots \dots (6).$$

From (5) and (6) we see that t_1, t_2 , and t_3 are the roots of

$$2(M + m)t^3 - (C - c)t^2 - 4t - (M - m) = 0.$$

This expression must therefore be a factor of (5). Therefore

$$\begin{aligned} \{2(M + m)t^3 - (C - c)t^2 - 4t - (M - m)\} (t - T) \\ \equiv 2(M + m)\{t^4 - 2mt^3 - ct^2 + 2t - m\}, \end{aligned}$$

which gives $2T(M + m) + (C - c) = 4m(M + m)$

$$\left. \begin{aligned} T(C - c) - 4 &= -2c(M + m) \\ 4T - (M - m) &= 4(M + m) \\ T(M - m) &= -2m(M + m) \end{aligned} \right\} \dots \dots \dots (B).$$

The last two equations give

$$(M-m)^2 + 4(M+m)^2 = 0 \dots\dots\dots (7),$$

which is also the condition (4).

Now, if the lines composing the conic cut at an angle α , we have

$$\tan \alpha = \left(\frac{m-1}{i(m+1)} - \frac{M-1}{i(M+1)} \right) / \left(1 - \frac{(M-1)(m-1)}{(M+1)(m+1)} \right) = \frac{m-M}{i(m+M)}$$

Hence $\tan^2 \alpha = 4$, so that the two lines meet at a constant angle $\tan^{-1} 2$.

From the equations (B) and (7) we find that (ξ, ξ_0) , the point of intersection is given by

$$\xi_0 = 2mM/(M+m), \quad \xi = 2/(M+m),$$

so that

$$\xi \xi_0 = 4Mm/(M+m)^2 = 5$$

[using (7)]. Therefore the point of intersection lies on a circle with its centre at the centre of the tricusp.

18010. (MAURICE A. GIBLETT, B.Sc. Suggested by Question 17985.)—A circle, passing through two fixed points A, D, cuts two fixed straight lines through A at B and C. Find the locus of the orthocentre of the triangle ABC.

Solution by F. GLANVILLE TAYLOR, M.A., B.Sc., W. F. BEARD, M.A., and F. H. PEACHELL, M.A.

If H is the orthocentre, DH is bisected by the pedal line of D, which is a fixed line; hence the locus of H is a straight line.

17626. (W. N. BAILEY.)—Show that there are in general four pairs of confocal conics which are such that one of the conics circumscribes a given triangle, and the other is inscribed in another given triangle. In particular, if the two triangles coincide, the points of contact of the inscribed conics with the sides are the points of contact of the inscribed and escribed circles, and the tangents to the circumscribed conics at the vertices are the bisectors of the angles.

Solution by PHILIP T. STEPHENSON, B.A.

The inscribed triangle being the triangle of reference, and the sides of the other being $(l_1, m_1, n_1), \dots$, the circumscribing conic is (suppose) $S \equiv a^2 l^2 + b^2 m^2 + c^2 n^2 - 2bcmn - 2canl - 2ablm = 0 \dots\dots (i)$, and the inscribed confocal is

$$S = k(l^2 + m^2 + n^2 - 2mn \cos A - 2nl \cos B - 2lm \cos C) \equiv \Sigma \dots\dots (ii)$$

Substituting $(l_1, m_1, n_1), \dots$, for (l, m, n) ,

$$k = S_1/\Sigma_1 = S_2/\Sigma_2 = S_3/\Sigma_3 \dots\dots\dots (iii),$$

which gives four sets of values for a, b, c .

If the triangles coincide, the equations (iii) give $k = a^2 = b^2 = c^2$, and the circumscribing conic (i) is

$$l^2 + m^2 + n^2 \pm 2mn \pm 2nl \pm 2lm = 0,$$

wherein, as the L.H. is not to be a perfect square, two or none of the ambiguities are to be positive.

Putting $l = 0$ for the tangent at A, we have the property in the Question. The inscribed confocal (ii) is

$$(\cos A \pm 1) mn + (\cos B \pm 1) nl + (\cos C \pm 1) lm = 0,$$

with the same sign-restrictions as before.

Its point-equation is

$$\sqrt{[(\cos A \pm 1)/\alpha]} + \sqrt{[(\cos B \pm 1)/\beta]} + \sqrt{[(\cos C \pm 1)/\gamma]} = 0.$$

Putting $\alpha = 0$, for D the point of contact with BC, we can identify D as one of the four points of contact of an in- or ex-circle with BC.

18058. (Professor R. SRINIVASAN, M.A.)—If $x + y + z = xyz$, show that $\Sigma s [\sqrt{(1+x^2)} - 1] [\sqrt{(1+y^2)} - 1] = xyz$.

Solutions (I) by Lieut.-Col. ALLAN CUNNINGHAM, R.E., and others; (II) by F. G. W. BROWN, F.C.P., B.Sc.

(I) Write $x = \tan \alpha, y = \tan \beta, z = \tan \gamma$ (which is always admissible). Then $\tan \alpha + \tan \beta + \tan \gamma = \tan \alpha \tan \beta \tan \gamma$, which involves $\alpha + \beta + \gamma = \pi$.

Let $A = x [\sqrt{(1+y^2)} - 1] \cdot [\sqrt{(1+z^2)} - 1]$,

with similar notation for B, C (interchanging x, y, z as required). Then it has to be shown that $A + B + C = xyz$.

Now $A = \tan \alpha (\sec \beta - 1)(\sec \gamma - 1)$
 $= \tan \alpha + \frac{\sin \alpha - \sin \alpha (\cos \beta + \cos \gamma)}{\cos \alpha \cos \beta \cos \gamma}$

$$A + B + C = (\tan \alpha + \tan \beta + \tan \gamma) + \frac{\sin \alpha + \sin \beta + \sin \gamma}{\cos \alpha \cos \beta \cos \gamma} + \frac{(\sin \alpha \cos \beta + \sin \alpha \cos \gamma) + (\sin \beta \cos \gamma + \sin \beta \cos \alpha) + (\sin \gamma \cos \alpha + \sin \gamma \cos \beta)}{\cos \alpha \cos \beta \cos \gamma}$$

$$A + B + C = \tan \alpha \tan \beta \tan \gamma + \frac{\sin \alpha + \sin \beta + \sin \gamma}{\cos \alpha \cos \beta \cos \gamma} - \frac{\sin(\beta + \gamma) + \sin(\gamma + \alpha) + \sin(\alpha + \beta)}{\cos \alpha \cos \beta \cos \gamma}$$

Herein $\sin(\beta + \gamma) = \sin \alpha, \dots$, so that all terms vanish except $\tan \alpha \tan \beta \tan \gamma$, which = xyz ; therefore $A + B + C = xyz$ as required.

(II) Let $a^2 = 1 + x^2, b^2 = 1 + y^2, c^2 = 1 + z^2$, then the left-hand expression becomes

$$\Sigma z(a-1)(b-1) = \Sigma z(ab - a - b) + \Sigma z = \Sigma zab - \Sigma a(z+y) + xyz.$$

But $(\Sigma zab)^2 = \Sigma z^2 a^2 b^2 + 2abc \Sigma ayz = \Sigma z^2 (1+x^2)(1+y^2) + 2abc \Sigma ayz$
 $= \Sigma z^2 + 2\Sigma x^2 y^2 + 3x^2 y^2 z^2 + 2abc \Sigma ayz.$

And $[\Sigma a(z+y)]^2 = \Sigma a^2(y+z)^2 + 2\Sigma ab(y+z)(z+x)$
 $= \Sigma (1+x^2)(y+z)^2 + 2\Sigma ab(xyz - x)(xyz - y)$
 $= 2\Sigma x^2 + 2\Sigma x^2 y^2 + 2\Sigma xy + 2xyz \cdot \Sigma x$
 $+ 2\Sigma ab[x^2 y^2 z^2 - xyz(x+y) + xy]$
 $= \Sigma x^2 + 2\Sigma x^2 y^2 + (x+y+z)^2 + 2x^2 y^2 z^2$
 $+ 2\Sigma ab[x^2 y^2 z^2 - xyz(xyz - s) + xy]$
 $= \Sigma x^2 + 2\Sigma x^2 y^2 + 3x^2 y^2 z^2 + 2\Sigma abxy(z^2 + 1)$
 $= \Sigma x^2 + 2\Sigma x^2 y^2 + 3x^2 y^2 z^2 + 2abc \Sigma cxy.$

Hence $\Sigma zab = \Sigma a(z+y)$, and the given expression reduces to xyz .

18066. ("CONTRIBUTOR.")—A variable straight line meets two fixed straight lines meeting at O in points B and C. If OB and OC subtend equal angles at a fixed point S, show that BC passes through a fixed point T such that TSO is a right angle.

Solution by C. M. ROSS, M.A.

Let S be the origin, SO the x-axis and SQ, at right angles to SO, the y-axis. If $y = mx$ be the equation to CS, then $y = -mx$ is the equation to BS. Let the equations of OC and OB be

$$y = a(x-l) \quad \text{and} \quad y = b(x-l),$$

where OS = l. The points C and B are easily found to be

$$\{al/(a-m), alm/(a-m)\} \quad \text{and} \quad \{bl/(b-m), -blm/(b-m)\},$$

and hence the equation of BC will be

$$\begin{vmatrix} x & y & 1 \\ al & alm & a-m \\ bl & -blm & b-m \end{vmatrix} = 0$$

or $x(2ab - am - bm) + y(a+b) - 2abl = 0.$

It is clear that this line passes through the fixed point

$$T \{0, 2abl/(a+b)\},$$

which is on the y-axis. Thus TSO is a right angle.

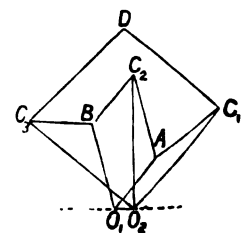
QUESTIONS FOR SOLUTION.

18070. *Corrected.* (Col. R. L. HIPPLISLEY, C.B., R.E.)—The figure is a system of jointed rods,

$$C_2 B = BC_2 = O_1 A, \quad C_2 A = AC_1 = O_1 B,$$

$$O_2 C_1 = O_2 C_2 = O_2 C_3 = DC_1 = DC_3,$$

O_1 and O_2 are fixed centres; show that D describes a circle with its centre on $O_1 O_2$.



18104. (E. G. HOGG, M.A.)—Prove that

$$\iint dS/n\rho^2 = \Sigma (1/a^4)^{1/2} V,$$

where the integral is taken over the surface of the ellipsoid $x^2/a^2 + y^2/b^2 + z^2/c^2 = 1,$

n is the length intercepted by the ellipsoid on the normal at x, y, z , p is the central perpendicular on the tangent plane at that point, and V is the volume of the ellipsoid.

18105. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Show how to express primes > 3 in form $p = (x^2 + y^2 + z^2 - 3xyz)$ [x, y, z all positive integers], and primes $p = 6w + 1$ in same form [x, y, z integers; one or two negative]. Show also that these expressions are unique. Ex.—Express $p = 99991$ in both forms. [The possibility of both these expressions and their uniqueness has been enunciated by Prof. Carmichael, see American Mathematical Society Meeting, August 1915, Abstracts.]

18106. (D. BIDDLE.)— N is the product of two unknown primes, x and y . Divide N into two parts, P and Q , each greater than 1, such that $P \cdot Q \equiv -1 \pmod{N}$.

18107. (Professor K. J. SANJANA, M.A.)—(i) If Q_k denote the sum of the squares of the reciprocals of the products k at a time of the first r odd integers, prove that

$$\frac{Q_1}{(2k+1)^2} + \frac{Q_2}{(2k+3)^2} + \frac{Q_3}{(2k+5)^2} + \dots = \frac{\pi^{2k+2}}{2^{2k+2}(2k+2)!}$$

(This is a generalization of Mr. Krishnaswami Aiyangar's Question 17781.) (ii) If P_k denote the sum of the square of the reciprocals of the products k at a time of the first r natural integers, prove that

$$\frac{P_1}{(k+1)^2} + \frac{P_2}{(k+2)^2} + \frac{P_3}{(k+3)^2} + \dots = \frac{\pi^{2k+2}}{(2k+3)!}$$

18108. (C. M. ROSS, M.A.)—If $\alpha, \beta, \gamma, \delta, \epsilon$ are the roots of the quintic $x^5 + px - q = 0$, prove that

$$\Sigma \alpha^2 = \frac{1}{2} \{ \Sigma \alpha^4 \}^2, \quad \Sigma \alpha^{10} = \frac{1}{2} \{ \Sigma \alpha^5 \}^2, \quad \Sigma \alpha^{12} = \frac{1}{16} \{ \Sigma \alpha^4 \}^2.$$

18109. (R. GOORMAGHTIGH.)—If from a moving point of a fixed tangent to a cisoid tangents are drawn to the curve, the contact chord envelops a conic.

18110. (W. N. BAILEY. Suggested by Question 14609.)—Show that the envelope of the circum-circle of the triangle formed by two fixed lines through the focus of a parabola, and any tangent to the parabola, is the inverse of a tricuspid.

18111. (Professor NEUBERG.)—On considère toutes les hyperboles qui passent par trois points donnés A, B, C et dont une asymptote passe par un point donné D. Trouver (1) l'enveloppe de la seconde asymptote; (2) le lieu du centre.

18112. (C. E. YOUNGMAN, M.A.)—The normal at P to a conic with centre C cuts the axes at G, g; and N is a point so placed that C is the centroid of NGg; then the circles of curvature at the feet of the normals from N have their centres on PG.

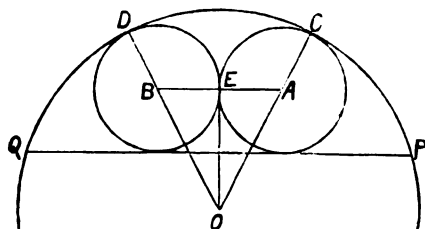
18113. (W. F. BEARD, M.A.)—If $\Sigma \alpha \beta \gamma + \Sigma \alpha \cdot \Sigma \alpha \alpha = 0$ is the equation of a circle S, the condition that two circles S, S' should cut orthogonally is

$$\Sigma l'l' + \Sigma (l+l') \cos A + 1 = \Sigma (mn' + m'n) \cos A.$$

18114. (E. R. HAMILTON, B.Sc.)—An ellipse slips between two perpendicular straight lines. Show that the centre moves on a circle, and find the locus of a focus and the envelope of an axis.

18115. (MAURICE A. GIBLETT, B.Sc. Lond.)—Four points A, B, C, D are concyclic. Prove (i) that the lines joining each of these points to the orthocentre of the triangle formed by the other three con-intersect at their middle point; (ii) that the point of intersection is the centre of the rectangular hyperbola through the points A, B, C, D.

18116. (R. F. DAVIS, M.A.)—Two equal circles (centres A, B) have external contact at E with each other and touch internally at



C, D an outer circle (centre O). A common tangent to the inner circles intersects the outer circle in P, Q. Prove that the angles subtended by PQ at O and E are such that the first is four times the supplement of the second.

18117. (A. M. NESBITT, M.A.)—PQR is a circle whose centre is O, and PC is at right angles to the chord QCR. Prove geometrically that the mid-points of PQ, PR are equidistant from the mid-point of OC.

18118. (Professor E. J. NANSON.)—Find the condition that the vectors $x - a, b - c$ may be perpendicular, and hence show that the three perpendiculars from the vertices of a triangle on the opposite sides are concurrent.

18119. (V. V. SATYANARAYAN.)—The ratio compounded of the ratios in which any two isogonal conjugates with respect to an angle of a triangle divide the opposite side is equal to the duplicate ratio of the sides containing the angle. Apply this to show that the Symmedians divide any side in the duplicate ratio of the other two.

18120. (S. KRISHNASWAMI AIYANGAR, B.A.)—ABC is a triangle with the base BC given in position and magnitude. If the length of the tangent to the in-circle parallel to the base and terminated by the sides is constant, find the locus of C.

18121. (The late Professor COCHEZ.)—Construire un triangle connaissant l'angle A, le périmètre $2p$ et la médiane m_a .

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

14544. (Professor A. DROZ-FARNY.)—Une droite coupe une spirale logarithmique. Quel est le lieu des centres de courbure correspondants aux divers points d'intersection?

14587. (G. H. HARDY, B.A.)—Prove that the line element of a sphere of unit radius may be expressed in the form

$$ds^2 = \{dn^2 \alpha - dn^2 \beta\} (d\alpha^2 - d\beta^2);$$

that the equation of a circle on the sphere is

$$p \sin^2 \frac{1}{2} (\alpha - \beta) \sin^2 \frac{1}{2} (\alpha + \beta) + q \sin^2 \frac{1}{2} (\alpha + \beta) + r \sin^2 \frac{1}{2} (\alpha - \beta) + s = 0;$$

and that the condition that two circles should cut at right angles is

$$ps' + p's = qr' + q'r.$$

14640. (R. P. PARANJPYE, B.A.)—A pseudo-periodic function $\phi(u)$ satisfies the equations

$$\phi(u + 2\omega) = \phi(u) + 2\alpha, \quad \phi(u + 2\omega') = \phi(u) + 2\beta,$$

and has no essential singularity at a finite distance. Find its most general expression. [α and β are any constant quantities.]

14650. (Professor H. LANGHORNE ORCHARD, M.A., B.Sc.)—An oblate spheroid, of mass m_1 and angular velocity ω , describes under gravity an ellipse about another oblate spheroid, of mass m_2 , placed at one focus, which last spheroid itself is simultaneously describing, with velocity v , a similar ellipse about a mass m_3 placed at one focus. Find the whole velocity of m_1 at any point on its path.

14731. (I. ARNOLD.)—ABCD is a square whose base AB is 12 inches. Four forces proportional to 8, 10, 12, 16 act in the plane of the square at the angular points A, B, C, D, making with the direction AB the angles $30^\circ, 45^\circ, 60^\circ,$ and 150° , respectively. Required the magnitude and direction of a force which acting on AB shall keep the square in equilibrium.

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EXAMINATIONS.

Diplomas.—The Winter Examination of Teachers for the Diplomas of the College will commence on the 3rd of January, 1916.

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The Educational Times.

Until further notice, "The Educational Times" will be issued four times a year: on the 1st of February, May, August, and November. The next issue will appear on Feb. 1st, 1916.

Communications intended for the Editor should be addressed to Ulverscroft, High Wycombe.

THE OVERTHROWN NINEPIN.

STORY-TELLING, literature, and the humanities have been excluded from the Montessori system of Education as carried out in the Children's Houses of Rome. So much has been generally understood, and Dr. Montessori has met with much criticism on the point, but hitherto, in her writings, she has ignored rather than contemned imagination in children. Now, goaded by her critics (as the tone of the writing suggests), she has written for *The Times Educational Supplement* an article, denying, in the first place, that children possess imagination, and, in the second place, arguing that, if they possess this quality, the less it is developed the better for their future sanity.

But Mme Montessori, with a superficiality that in a scientific student is surprising, has confused imagination with make-believe, and has set herself seriously to attack the way in which the most ignorant and the most foolish parents bring up their children. She appears to assume that this way is approved by educational thought, and thus, on an insecure foundation, sets up a tottering ninepin that she has no difficulty in overthrowing.

Mme Montessori begins by ridiculing the idea that children possess special mental qualities that go beyond the restrictions of adults. She pokes fun at the notion that children pass through the stage of savage life, and

are, therefore, fascinated by the unreal and the fantastic. She goes on to urge that, even if this is true, the "savage state" is but a passing phase, and that education should help a child to pass out of it as quickly as possible. The usual play of young children, in which a stick becomes a horse or a couple of upturned chairs a railway train, is described as an attempt at self-delusion, in order to satisfy a felt want. The child wants a pony; he cannot get one. He tries to delude himself into the belief that a stick is a horse; he is training himself in delusions. In later life he may, in consequence, lose his mental balance. A mother divides her child's hunch of bread into two parts, and says: "This is bread and that is meat." Shall we, then, asks Mme Montessori, deny a child nutritious food in order to develop his imagination? Another mother once asked: "My child pretends to play the piano on the table. If I get him a real piano, shall I not prevent the development of his imagination?"

The article then goes on to attack the alleged practice in kindergartens, in which, it is stated, the children merely listen to the imaginative stories of the teacher who says, "this brick is a house," "that is a church," and so on—again creating illusions that may prove dangerous to sanity. It may fairly be doubted if Mme Montessori is familiar with the work of kindergartens. Mme Montessori's writings have brought fresh life and more freedom into hundreds of kindergartens; but this is not a justification for a sweeping attack on Froebel and his followers. Parents are further attacked for encouraging such childish illusions as the visit of Santa Claus at Christmas. Here there may be some justification; but it is not reasonable to speak as if educationists deliberately encouraged the action of ignorant parents, and it will seem to most people an exaggeration to say that the little play of make-believe with regard to Santa Claus is to encourage perpetual credulity and intellectual darkness.

We are far from saying that many parents are not ill advised in continuing and enlarging upon this childish make-believe. It is an undoubted error to go on talking baby-language, and so prevent the proper speech development

As well, says Mme Montessori, treat the gums of infants so as to prevent the growth of teeth, on the ground that the toothless stage is natural to infancy. It is clear that many foolish adults amuse themselves with the childishness of children, and to a certain extent retard their growth. But, again, we do not expect a scientific student to speak as if this practice was defended by the educational thought of the day. It is true that childishness is a passing stage; it is true that we are glad (as a rule) when that stage is past, and the children come to years of discretion. A generation or two ago it was the aim of teachers to make little men and women of their charges as soon as possible: to make them like themselves. In the present generation we try to let them be children while they are children. We respect their childish personality, and do not try to force them to be premature men and women; but it is probably not true to say (and this is the crime with which we are charged) that we deliberately retard the growth of children, and make it more difficult for them to rise from one progressive stage to another. "This is what we are doing to-day," says Mme Montessori, "with the so-called education of the imagination. We amuse ourselves with the illusions, the ignorance, the errors, of an immature mind. . . . To retard one stage of development artificially, and to amuse oneself thereby . . . this is one of the unnoticed faults of our times. . . . This assertion may seem harsh, but it states a real fact."

Mme Montessori gives away her case, and shows the confusion between make-believe and imagination when she deals with religion. She says, quite rightly, that true faith is the basis of religion; that myths and fantasies pass, but that religion must stay to the end of life. Religion, she says, is reality, and not imagination. Therefore she argues that religion cannot be taught through the imagination. Truth is the basis of all religion, just as it is the basis of all art. Michael Angelo dreamed dreams and saw visions, which resulted in the dome of St. Peter's; but, says Mme Montessori, these visions were based upon a knowledge of architecture. She proceeds to argue that progress in civilization and in mental sanity means knowledge of facts, knowledge of truth.

With this dictum we are in full accord. Our aim must be truth, a true perception of actual things as they are, and a sincere expression of that knowledge. The endeavour of school life is to give the children knowledge, not merely the information that comes in lesson books, but knowledge with regard to every fact, object, and idea that comes within the scope of their experience. A certain amount of make-believe is natural to young children, and does them no harm, so long as it is not encouraged to a stage that makes them unconscientious and insincere. Imagination is altogether a different quality: it is based on knowledge, observation, and feeling. The sounder the basis of education, the keener the intellectual grip of facts, the more valuable does imagination become. Michael Angelo, as Mme Montessori admits in one of her illustrations, possessed imagination. The meanest among us lives a poor life if his imagination is dwarfed and starved.

NOTES.

WE English are not fond of criticism of ourselves; we like far better to be told what good fellows we are. Perhaps it may be wholesome that we should sometimes face our faults; and, if any speaker can express blame with complete courtesy and gentleness, that speaker is Prof. Sadler. The address he delivered to the Bradford Textile Society last month has received far less prominence in the newspapers than would have been the case before the War. He compared the ideals of the three great educational forces that are represented by the United States, Germany, and England. "Germany," he said (we are quoting from the account in the *Manchester Guardian*), "stands for unity based on the State; the United States for variety based on the individual. The British Empire stands for an attempt at moral unity based partly on individual experiences, partly on the inherited tradition of various social groups, partly on administrative organization." In England we have aimed high in conduct; in intellectual training we are satisfied with a minimum; at science we still look askance, or with the aloofness of toleration."

THIS is the first defect that Prof. Sadler points out in English education: the absence of an exacting standard in the training of the mind. The charge is unfortunately a true one. In English secondary schools we are still too much under the influence of the thought that inspired the words: "Be good, sweet maid, and let who will be clever"—though we might perhaps vary the quotation by adding "and strong" to "good." In moral conduct and in physical strength and agility we aim high. Here there is no moderate or "pass" standard. All must seek the highest. It is not so in matters of the intellect. Scholars and scientists may have at the back of their minds or may even express a feeling of contempt for their unliterary and unscientific fellows; but it is impossible to say that the general feeling of the "educated classes" demands a high level of intellectual training. This is a defect in the English educational ideal—a defect that can be remedied. If we raise our standard of intellectual and scientific training, in our achievement we shall reach a higher stage than we have reached at present.

IN his second charge against English education, Prof. Sadler points out that parental opinion lacks instruction, and is swayed by indifference and caprice in the choice of schools. This is unfortunately true: indifference to the quality of the teaching is common on the part of parents. Prof. Sadler also charges the nation—or the schools, we are not quite sure which—with failure to stimulate the intellectual interests of boys and girls of average capacity, with resulting wastefulness to the nation. He speaks with emphasis of the general inertness of mind towards

Prof. Sadler on Education.

Intellectual Training.

Further Charges.

science—alike in industry, in public administration, and in domestic management. The last indictment is directed towards neglect and ignorance in homes. And the remedy: Leadership by a great statesman resolved to kindle in England a purposeful zeal for educational reform. If such a man is found, he would focus public opinion and produce an entire change in our educational standpoint.

THE Ministry of Munitions and the Board of Education are giving official sanction and encouragement to the schemes for training "semi-skilled munition-workers." During the past three months training courses have been established in the technical institutes of many towns. In some centres the courses have been successful and the learners have been placed without difficulty. In other cases the classes have been abandoned because no attempt was made to enlist the support of employers and to explain to them that the classes were intended to be a really practical introduction to machine-tool work. The Ministry of Munitions are convinced that the schemes for training are fundamentally sound. The value of the training, the adaptability of the learners, and their usefulness in the factories have been ascertained. In a circular now issued the Ministry offer substantial money grants when the instruction is given under proper conditions. It is also pointed out that the scheme applies to women as well as to men.

ON another page we print a letter addressed by Mr. Arthur Henderson, President of the Board of Education, to his colleagues in the education service, *i.e.* all the teachers of the country. Making exception for special and individual cases in which he has not the knowledge of the circumstances to enable him to form a judgment, Mr. Henderson offers a definite opinion on the general question. "With the fullest sense," he says, "of public responsibility I offer to my colleagues my considered opinion that the need now paramount is the need for men of military capacity to augment and maintain the forces of the Crown." Mr. Henderson is the last man to undervalue education. To him it is the most fruitful of all public services, and to starve it would be shortsighted economy. "In their nature," concludes Mr. Henderson, "education and war are as far apart as the poles. Education builds, war destroys. But there is a time when the man who is building must leave his work to guard against a calamity which threatens the building itself, when civilization must curtail its most constructive work to preserve itself from destruction. That time is now come."

MR. HENDERSON'S letter has been followed by a more formal circular from the Board, signed by the Permanent Secretary, calling upon governing bodies of secondary schools and Local Education Committees to draw up lists of men who can best be spared. These will be divided into age-

groups, to be called upon as the need arises. It is promised that Lord Derby will take into consideration the representations of governors in reference to the special need to retain in a school certain teachers. And, in particular, it is pointed out that masters engaged in training contingents of the O.T.C. should not be accepted unless adequate provision can be made for continuing the work effectively. All masters who are willing to serve are asked to send in their names at once, and to undergo medical examination by an army doctor. The names should go to the governing body, through the head master in the case of assistant masters. Lord Derby hopes that the practice of Education Authorities in respect of making War allowances will not be altered to the disadvantage of men who now offer themselves for military service.

THE schools will be further depleted of men teachers as a result of a circular letter just issued by the Board of Education to the Training College Authorities. It is announced that all men students of military age and physically fit are to be permitted, if they wish, to join the Forces without waiting to complete even the shortened course of training that has been specially provided. We must accept the position. When the Authorities tell us that the need for more men is urgent, it is hardly possible for any suitable man to hold back. We have been accustomed to feel that education was a matter of the very first importance, but that was in times of peace, when food and security were taken for granted. In the present unhappy times the first demands are for food, ammunition, and soldiers. Education is forced to take a second place. Yet the result will be very serious to the present generation of schoolboys and to the nation of which they form part. We can only hope that the Authorities are acting rightly: we must assume that they are, and acquiesce.

MISS JANE HARRISON, who is perhaps chiefly known as a classical scholar, has been studying the Russian language, as she told a Cambridge audience in a lecture that has since been published. Her researches have convinced her that the Russian verb explains the psychology of the Russian people. The Russian verb has aspects: so, less frequently, has the English verb. An example from the latter will make the lecturer's meaning clear. We can say, "I go to church" or "I am going to church." "Does it matter which we say? Surely whole worlds of emotional difference lie between. 'I go to church' states the fact coldly. That is the perfective aspect. 'I am going to church.' Instantly we not only visualize, but we feel, we live ourselves inside the act; it becomes alive." This is the imperfective. The Russian verb is rich in the imperfective, the "aspect of what M. Bergson would call *durée*—of process, of actuality, of the thing lived." In English we hurry on to a moral judgment. In Russian the speaker is unconcerned with the moral aspect, but lives in the act.

MR. ALBERT MANSBRIDGE is an enthusiastic advocate for the establishment of tutorial classes for those whose work makes day attendance at University Lectures impossible.

Church Tutorial Classes.

He has now carried his campaign into a fresh field. Speaking at the annual conference of the diocese of Southwark, held in the Chapter House, he urged that one of the Church problems was that of obtaining clergy from the working classes. The classes he wished to form would not be definitely recognized as classes for Holy Orders, but they would train men who had missed educational opportunities in their youth, and after three or six years of study the students, without having made too great sacrifices of time or money, might have revealed their powers, and could then proceed to a theological college or a University. The project was warmly supported, and a strong committee was appointed to consider a practical plan of carrying out the proposals.

At the annual meeting of one of the Northern Divisions of the Incorporated Association of Head Masters of Secondary Schools there was a discussion on the need for a closer supervision of films shown in picture palaces that children attend.

Head Masters and the Kinema.

Several cases were reported by head masters present of films that were entirely unsuitable. It was considered that there ought to be a more stringent censorship. It was decided to co-operate with other associations of teachers in an attempt to bring the united influence of the teaching profession to bear on this problem, both from the national and the local standpoint. The kinema film is certainly a potent factor in education, either for good or for evil. The film differs from a book: it is more real and influences the beholder more actively. In the case of books censorship is more easy to establish. Unsuitable books may be forbidden or may be kept out of the way. At a kinema performance a child sees the whole, even if he is only attracted by one special film he wishes to see. The need for stricter supervision is great, and we wish all success to the effort to establish it.

SUMMARY OF THE MONTH.

TRAINING OF TEACHERS FOR SECONDARY SCHOOLS.

Two minor changes are introduced this year in the Board's Regulations:—

1. It is explained in Article 9 (c) that, in the case of persons who have had several years' experience as secondary-school teachers before admission to their course of training the Board are prepared to accept a smaller amount of teaching practice than the minimum of sixty school days usually required.

2. Provision is made for the endorsement by the Board under certain specified conditions of certificates given by the authorities of an efficient training college to students who have completed their course of training in a satisfactory manner.

Provision is made in a special temporary Article for the payment of a supplementary grant in cases where the Board are satisfied that any students who would otherwise have been in attendance at a University training department during the academic year 1914-15 have been absent owing to the War. The Board also take power under this Article to pay grant in

respect of any period during the continuance of the War to a University training department or other training college which has previously been in receipt of grants under the Regulations, notwithstanding that the number of recognized students during the period in question has fallen below ten, provided that the other conditions of grant are satisfied.

DARLINGTON GRAMMAR SCHOOL.

Another step affecting the future of Darlington Grammar School was under the consideration of the General Purposes Committee of the Darlington Corporation recently. The Committee had under review the recommendation that the Council should negotiate with the governors with a view to acquiring control of the school as a maintained school, and also that some of the present governors, who have taken a keen interest in the school, should be co-opted on the Higher Education Sub-committee. It is understood that a communication was read from the governors expressing their willingness to send a deputation to meet the representatives of the Council to draw up a scheme. This will provide for the transfer of the school in its entirety, on the understanding that the Town Council does not lower the status of the school or try to divert the income received from the ancient trust.—*The Schoolmaster.*

L.C.C. WAR ECONOMY.

The London County Council, in cutting down its education service by £360,000, and the services of all its seventeen other Committees by no more than £75,000, economizes at the wrong end. Besides suspending all the educational improvements that were in progress, the Council intends to make every six teachers do the work of seven, to stop the supply of books, to skip the school fires, to let the schools go unpainted and uncleansed, to stop the vacation play centres, to shut up some of the smaller technical institutions, and so on. Worst of all, the policy of excluding from school all children under five—in spite of the fact that we have not in London the *écoles maternelles* of Paris—is to be extended. Such restriction of the education service might be defended as part of a policy of universal and rigorous national retrenchment, but it cannot be justified as long as the expenditure of the well-to-do on personal luxuries and comforts is permitted to continue at its present level. For all this saving, it must be understood, is not to help the Chancellor of the Exchequer, but is to be presented to the average rate-payer in a reduction of rates. The children of Bermondsey and Bethnal Green are to suffer in order that the lessees and property owners of the City and Westminster, to whom no less than one-fourth of the whole saving will accrue, may be able to maintain their accustomed course of life. We hope that no other Local Governing Authority will follow the evil example of the L.C.C.—*The New Statesman.*

MR. HENDERSON'S PLEA FOR COOKERY CENTRES.

In reply to a request to him to state his views on a proposal recently made at Wimbledon to close the domestic economy centres, Mr. Arthur Henderson, President of the Board of Education, writes:—"Broadly speaking, I think the War renders the adequate provision of instruction in cookery more rather than less necessary as an element in the public system of education. The present need for economy in the use of food, and the position in which the country will be placed at the end of the War, render it, in my opinion, very important that all means should be taken to spread amongst the population a knowledge of the best and most economical methods of preparing foods. I should regret, on economical as well as educational grounds, the closing of all cookery centres in any area, and I think that similar considerations apply, though not necessarily with the same force, to instruction in laundry-work and housecraft."

LECTURES FOR TEACHERS, 1916.

The following courses of lectures have been arranged for 1916:—The Rev. A. E. Smith, M.A., will lecture on "The Introduction to the New Testament" on Wednesdays, February 2, 9, 16, and 23, 1916. The Rev. W. O. E. Oesterley, D.D., (Examining Chaplain to the Bishop of London,) will lecture on "The

Book of the Judges" on Wednesdays, March 22, 29, April 5 and April 12, 1916. The Rev. H. F. B. Compston, M.A. (Assistant Professor of Hebrew and Old Testament Exegesis, King's College, London.) will lecture on "Old Testament History and Literature in the Sixth and Fifth Centuries B.C." on Wednesdays, May 3, 10, and 17, 1916. The lectures are open, without fee, to all teachers in elementary or secondary schools. An opportunity will be given of contributing to the cost of the lectures at the conclusion of each course. The lectures will be given at 6 p.m. in St. Paul's Chapter House, St. Paul's Churchyard. Bernard Reynolds, Chairman, 67 Queen's Street, E.C.; W. S. Swayne, Hon. Secretary, St. Peter's Vicarage, Cranley Gardens, S.W. (Lectures for Teachers Committee).

MONTESSORI LECTURES.
[Communicated.]

A course of lectures is announced on "The Montessori Method," by Mr. C. A. Claremont, B.Sc., at Caxton Hall, Westminster. Mr. Claremont may claim to be, for the present, the most competent authority in England. He has taken the Montessori Diploma, and, as assistant and interpreter to the Dottressa in Rome last year, he is well acquainted not only with what has been generally accepted as her aims and method, but with her very interesting and hitherto unpublished developments. The course, which begins on December 2, has been specially designed to meet the needs of serious students. Particulars may be obtained from Mrs. S. K. Ratcliffe, 127 Willifield Way, Hampstead Garden Suburb.

ENLISTMENT OF TEACHERS.

The Executive of the National Union of Teachers asks us to give publicity to the following:—The National Union of Teachers' Executive does not ask for exceptional exemption for teachers, though it points out that more than eight thousand are already enrolled, and that the education of boys is seriously suffering thereby. The Executive are asking that the local tribunals under Lord Derby's scheme shall give full consideration to representations made to them by Local Education Authorities, as to the need for retaining a reasonable proportion of the men teachers in each school. The Executive are also asking that teachers and others engaged in the public service should, on enlistment, be treated by public authorities on the same footing as Civil Servants who join His Majesty's Forces.

CAUTION.

Some of the Manchester teachers whose schools are on half-time, owing to the use of school buildings as hospitals, take the children for country walks, and indulge in Nature study. A male teacher, halted with his boys in a wood, had them gravely discussing the merits of a new penknife he had bought. One boy recommended him to have his name engraved on the plate provided for the purpose. Being a family man, having a long, unblemished scholastic record, and being furthermore a special constable, he was a little shocked by the contrary advice immediately and solemnly offered by another. "I wouldn't, if I were you, Mr. B—". In a detective story I've just been reading a man robs a bank. The detectives would never have collared him only he'd dropped his knife on the floor of the strong room, and his name was engraved on the handle!"—*Manchester Guardian*.

THE JANUARY CONFERENCE.

The fourth Annual Conference of Educational Associations will be held in the University of London, Imperial Institute Road, South Kensington, S.W., from Monday, January 3, to Saturday, January 8, 1916, inclusive, by kind permission of the Senate. The opening address will be given by Sir Oliver Lodge, F.R.S., D.Sc., LL.D., Principal of the University of Birmingham, at 3 p.m., on Monday, January 3. The subject of his address will be "Education after the War." Twenty-one educational associations are taking part in this Conference, holding twenty-six meetings, which will be open to all the members of the constituent associations. There will be an educational exhibition in the East Gallery of recent textbooks and apparatus.

EDUCATION AND THE PRESENT CRISIS.

LETTER FROM THE PRESIDENT OF THE BOARD OF EDUCATION.

TO MY COLLEAGUES IN THE NATIONAL SERVICE OF EDUCATION,—My predecessor, addressing you during the first month of the War, urged upon you the duty of keeping the system of education going. I entirely subscribe to all he said; and looking back now, thirteen months later, I have nothing but admiration for the way in which my colleagues have responded to this call. But the events of these months, and, above all, His Majesty's stirring appeal, make it necessary for me now to say something further.

Problems of conflicting duties are the hardest of all, and I know how difficult it has been in many cases for men of military age engaged in the education service to decide which way duty calls. Many have joined the Colours, and have, by conspicuous deeds of gallantry and steady devotion to duty, won honour and prestige for themselves and their profession. Others, in different circumstances and with different claims upon them, but with no less public spirit, have felt so far that they could serve their country better by remaining at their posts. But I make no doubt that lately many of these have been asking themselves whether, in the increasing gravity of the international situation, the balance of duty has not now shifted, and the claims of military service, relatively to those of the education service, have not now increased.

The same question has, I know, been in the minds of Local Education Authorities, Universities, and the governing bodies of schools and colleges in considering applications from members of their staffs for permission to volunteer. They have felt the tug of conflicting considerations—the importance of maintaining the efficiency of education, and the importance of giving full facilities to all who wish to join the Colours.

Both my predecessor and I have been asked not infrequently both for personal advice and also to give a general lead to our colleagues. Even if I had the necessary knowledge of their circumstances, I could neither claim nor accept the responsibility for advising individuals; but, as the official head of the public service of education, I feel that a duty now lies upon me to express the opinion which, after the most careful and anxious thought, I have formed on the general question. With the fullest sense of public responsibility, I offer to my colleagues my considered opinion that the need now paramount is the need for men of military capacity to augment and maintain the forces of the Crown.

To meet this need the education service, like all other services not immediately essential to the prosecution of the War, must now be prepared to make greater sacrifices. I am the last man to undervalue education. To me it is the most fruitful of all public services, and to starve it would be the most shortsighted parsimony. For the sake of the future—that future which we are fighting to secure—we must keep the fabric of education in being. But we cannot keep everything. We have already sent many men from the service of education into the field, and we must send more. We must look to those who remain behind, by greater effort and new devotion, to mitigate the temporary loss which the absence of their comrades entails. We must win this War—if need be, with a depleted education service, with makeshifts taking the place of the normal organization, with volunteers from the non-combatant classes taking the place of teachers under arms,—but we must win it.

I need not enlarge on this theme. I am confident that the education service of the country will meet the changed situation with the same readiness, public spirit, and resourcefulness which it has shown hitherto: that Local Education Authorities and governing bodies will give every facility to any teachers and other members of their staffs who now desire to join the Colours.

I speak only in general terms. There must be exceptions in particular cases, and I am confident that Authorities and governing bodies will use a wise discretion in their action. The immediate release for military service of some teachers might cause more disturbance to the educational system than that of others. Lord Derby authorizes me to say that as far

as possible consideration will be given to representations made by Education Authorities and governors of schools and colleges with a view to deferring the actual embodiment of teachers and members of their staffs whose services in the schools are specially important or specially difficult to replace. The matter is clearly one for discussion between the Authorities and the Local Recruiting Committees; it needs only goodwill and public spirit, which, on behalf of the educational service, I can confidently undertake will be given in full measure.

The Board of Education will so far as is necessary communicate with Local Education Authorities and governing bodies on details connected with the recruiting scheme and administrative matters arising out of it. Here I need say no more than that the Board will do everything in their power to help those responsible for local educational administration in meeting the difficulties which lie before them.

My own view of the voluntary system is well known: I both hope and believe that we can get all the men we need without resorting to compulsion. But personal views are of little importance at the moment; the immediate need is to get the men. Knowing as I do the loyalty and public spirit of my colleagues, I feel confident that all will lay aside their personal predilections on the question of national service and combine in a generous response to His Majesty's appeal.

In their nature, education and war are as far apart as the poles. Education builds and war destroys. But there is a time when the man who is building must leave his work to guard against a calamity which threatens the building itself; when civilization must curtail its most constructive work to preserve itself from destruction. That time is now come.

ARTHUR HENDERSON.

Board of Education.
October 27, 1915.

CIRCULAR TO LOCAL EDUCATION AUTHORITIES AND GOVERNING BODIES OF SECONDARY SCHOOLS.

THE RELEASE OF MASTERS IN SECONDARY SCHOOLS FOR MILITARY SERVICE.

SIR—

1. Since the issue of His Majesty's appeal to the country the Board of Education have been approached by a number of representatives of Local Education Authorities and of the governing bodies and staffs of secondary schools. As the Board confidently anticipated would be the case, they learn that there is a general desire on the part of masters in secondary schools who are of military age and physically fit, to offer themselves for military service, and on the part of Education Authorities and governing bodies to release them for this purpose. At the same time it has been indicated that some general suggestions and advice from the Board as to the procedure to be adopted would be welcomed.

2. In the interests both of the recruiting system and of the schools, it is desirable that the number of masters in secondary schools who are prepared to undertake military service and are medically fit for it should be ascertained as soon as possible.

For this purpose it is hoped that masters who are willing to serve will at once intimate formally (through their head master if they are assistant masters) to their governing bodies or Local Education Authorities their desire to join the forces and to take up actual service in their age-groups when they are wanted, or as soon as the schools can spare them. It is also desirable that such masters should as soon as possible submit themselves for medical examination by an army doctor in order that they and the school authorities may know definitely whether they are fit or unfit.

The adoption of this procedure will assist the school authorities in making the necessary adjustments and arrangements for the provision of substitutes before members of their staffs are actually called up for service.

3. It is desirable that school authorities should endeavour as soon as possible to frame a plan for releasing masters for

actual service at future dates. This, of course, will depend on the circumstances of each school, the possibilities of obtaining substitutes (women, or men ineligible for military service), &c. In some cases the process of release might be facilitated by concerted arrangements between different schools—e.g., it is possible that a school staffed largely with men of over military age or physically unfit might be prepared to lend staff temporarily or permanently to another school whose work would otherwise be totally disorganized by the early release of all eligible members of the staff.

4. The Board are authorized by Lord Derby to say that, while he is anxious that masters who are willing and fit to serve should be attested as soon as possible, he deprecates precipitate action which would unnecessarily dislocate and impair the work of the schools, especially in the upper forms where the boys are approaching military age. It is already well known that the War Office desires that masters in secondary schools who are engaged in the work of training contingents of the O.T.C. should not undertake military service, unless or until provision can be made for continuing that work effectively. In other cases, where the sudden withdrawal of the head master or of masters whose functions in the school are specially important, or the simultaneous withdrawal of a large number of masters, would seriously disorganize the work of the schools, Lord Derby considers that full advantage should be taken of the system of gradual embodiment by age-groups and of the machinery for appeals which will be set up in the immediate future.

5. The Board understand that, under the machinery of local recruiting appeal committees, provision will be made by which on the one hand men who have been attested can ask for special consideration of their individual circumstances, and employers can ask for special consideration, on national grounds, of the requirements of the work in which the men are now engaged. It is understood that, under the second of these provisions, Local Education Authorities and governing bodies of schools may, with the concurrence of the individual men concerned and as their employers, appear before the Committees and state their case in favour of postponing the embodiment of particular men who have already been attested.

6. Lord Derby hopes that the practice of Local Education Authorities in respect of war allowances will not be altered to the disadvantage of men who now offer themselves for military service. Moreover, while he emphasizes the desirability of early decision to undertake military service, he hopes that unduly short periods will not be prescribed within which a man must be attested if he is to enjoy the benefit of a war allowance. The Board of course assume that, whatever date is fixed as the end of such a period, actual embodiment, as distinguished from attestation, within that period will not be required.

7. As regards the arrangements for carrying on the schools with depleted staffs, the Board can at the present moment say no more than that they will meet the difficulties of Local Education Authorities and governing bodies in a sympathetic spirit. It is of course understood that any arrangements made for carrying on the schools in the absence of the normal staffs will be regarded as purely temporary in character, adopted for an emergency, and that they will be determined as soon as possible after the war.—I am, Sir, your obedient servant,

L. A. SELBY-BIGGE.

At a meeting of the Corporation of London, Mr. Brinsley-Harper asked whether the boys at the City of London School had expressed a desire to give up learning German and to substitute another foreign language. Mr. Banister Fletcher, chairman of the City of London Schools Committee, said he had heard nothing of any such desire, and he could not imagine its being made, as German was an important part of their education.

NEW SCOTTISH PROFESSOR.—The King has been pleased, on the recommendation of the Secretary for Scotland, to approve the appointment of Mr. Adolphus Alfred Jack, M.A., LL.M., formerly Fellow of St. Peter's College, Cambridge, to be Professor of English Literature in the University of Aberdeen, in place of Prof. Herbert J. C. Grierson, who has resigned.

EDUCATION IN ENGLAND.

PROF. BOMPAS SMITH, who is head of the Department of Education at the University of Manchester, has been writing some wise words upon the lessons which the British communities may learn from the War. "Our thinking," he remarks, "must be directed, among other things, to a clearer understanding of national ideals. The War is, from one point of view, a war waged on behalf of freedom. But it is doubtful whether, either in our national life or in our schools, we have sufficiently realized what freedom means. Before the War there were many signs that a false idea of freedom was exerting a powerful influence. Men and women were demanding new rights and larger opportunities, without always remembering that rights and opportunities are possible only in an organized State, and that any weakening of law and order is inimical to true freedom. And, now that the hour of trial is upon us, is not our fundamental weakness a lack of organization, and therefore of the power to mobilize our national resources? We have tended to regard freedom as consisting mainly in the opportunity for achieving our own personal or sectional interests, whereas it is really a whole-hearted devotion to worthy aims."

There is truth in what the Professor says, and we are bound to admit that before the War social tension in many industrial parts of Great Britain, as well as in a considerable fraction of Ireland, had become so grave as to threaten civil war. Any one, looking back on those years of great national prosperity and of abounding wealth, might even say of us what Izaak Walton said of England before the Civil War of the seventeenth century, that men seemed "sick of being well." But, though we shall all agree with Prof. Bompas Smith that it is wrong to subordinate other claims upon our strength and duty to the insistence upon opportunities for achieving our own personal and sectional interests, I can imagine some one asking him what he really means by "a whole-hearted devotion to worthy aims" as the laudable alternative to individual selfishness or sectionalism. "Is not my devotion to the cause of the political Union between Great Britain and Ireland a devotion to a worthy aim?" an enthusiastic Ulsterman might have asked. "Or mine to the cause of the political enfranchisement of women?" a second questioner. "Or mine to the cause of Labour?" a third. What, in plain words, does Prof. Bompas Smith mean by the "worthy aims" to which we ought to give heart and service?

Here lies the very crux of the riddle of British national life. What do we mean by the "nation"? We know pretty well what we do not want the word to mean. We have long passed out of the belief that national welfare is the spontaneous and easy outcome of an infinite number of scrambling self-interests. Not that England as a whole ever believed such rubbish. But a school of economists and political philosophers tried to make her believe it. The most characteristic thing in Edwardian England was not individualism, but sectionalism. Trade Unions tramped individual opinion by collective custom. Public schools insisted on "good form." Professions insisted upon obedience to corporate etiquette. Political parties enforced discipline upon their members. It was only in the religious life of the country that the bonds of sectionalism seemed to be weakening in their hold. And this sectionalism was a great obstacle to national unity. At the root of it lay a conflict in social ideals. And the conflict seemed unappeasable.

What can lift us out of sectionalism? To a large degree the War has done this. But under the surface we see half hidden the danger of its return, when peace shall be once more established amongst us. What can exorcise the danger? What formula can we agree to accept in place of devotion to our sectional ideals? The Germans had to answer this question nearly half a century ago, and they decided to subordinate the group as well as the individual to the State—meaning by the State the collectivity of the people governed by a powerful bureaucracy, which, in turn, was in ultimate things subordinated to the military power of the Crown. This is the formula for the German system of national education. It has accomplished its purpose, because it is simple in its aim. But its aim is false, because (in spite of all its nobler aspects of

personal self-sacrifice and subordination) it is inadequate to the complexity of the social facts of the case. A nation ought to consist of groups. It is enriched by sectional loyalties and by sectional differences. A nation is not a heap of individuals. Nor is it a hard set aggregate of human beings clamped by Government in one mould. It is a living organism composed of groups—social groups, religious groups, economic groups. And each one of us belongs at one and the same time to several groups according to the many-sidedness of our intellectual and spiritual and economic life. Somehow or other, our English education must gain unity of national function without losing variety of group contribution. Education is at bottom a social discipline. It must be adjusted to the groups of which the national organism is composed. It must not be individualistic nor rigidly collectivist. It must have an Imperial outlook as well as a national. It must be disciplined, and yet free. No copy of American or German education will fit England. England must have her own type of national training, answerable to her inner character, to her adventurous variety, to her respect for the tested wisdom of ancient tradition. And to build up such a system; to discard its attractive, but malign, competitors; to enable the new English education to grow naturally and healthily out of the old—this is the task, the supreme and central task, of the statesmen of our time.

Fortunate it is for us that in our Universities we have men like Prof. Bompas Smith teaching wise lessons about the true nature of freedom. For it is in the Universities that the source of the formative ideas in political education is to be found. As Hobbes said after the experience of the great Civil War, "Look to the Universities."—Prof. SADLER, in *Indian Education*.

DISCOMFORT AND PLEASURE IN THE THOUGHT-PROCESSES OF OLDER CHILDREN.

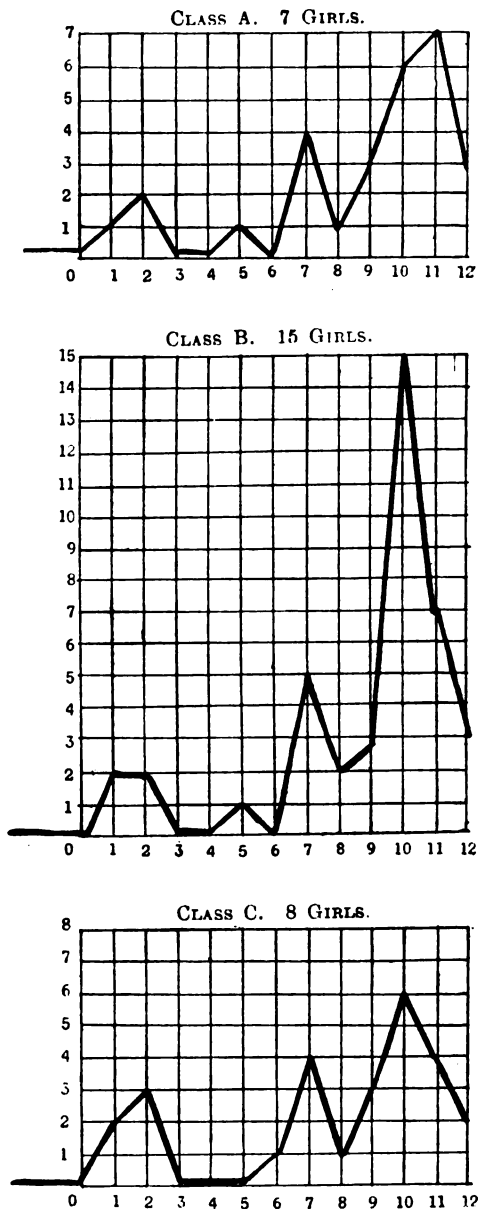
By MARGARET CORNER, M.A.

THE following experiments were made to verify impressions gained during some years of instruction in French and German by oral methods. For these purposes, I accept the classification in the functions of language as made by Charles Bally ("Traité de Stilstique française," Heidelberg, 1909, Introduction). Language possesses three elements or functions or characters: (1) It may be objective—i.e. it simply places on record our intellectual being, our intellectual effort to approach a fact, without in any way connecting ourselves with the observation—e.g. the tree is green, the road curves. Even will or command may be expressed in this way without any personal element's being introduced, as—"Thou shalt not kill," &c. (2) Language may be subjective—i.e. it expresses ourself, our sentiments, and impulses, emotional nature, character—all of which is far more dominant in us than the pure intellect. This "temperament" intrudes itself constantly into our observations, with the result that almost every utterance we give out is refracted in its passage through our mind, and bears the impress of that mind in its individuality and peculiarity. This language, deflected much or little from the mathematical precision of mere intellectual expression, is "subjective." The involuntary exclamation—of surprise, terror, anger, contempt, delight, joy—is the extreme form of subjective expression. In almost all language, however, objective and subjective are blended, even if in varying degree. Even the scientific treatise is not always free from a personal element, and rare are the expressions of emotion which fail to employ grammatical form. If I say "What a glorious sunset!" I express my perception of the sun's setting, together with the effect its beauty has had on me, and the way in which my particular mentality approaches this kind of beauty, my gesture, emphasis, inflection of voice, and other extra-verbal expression all being called on for aid. (3) The third element in language is of a social kind. One rarely speaks without speaking to someone, and does not use language which is not understood by someone else. In many ways this third func-

tion of language is its most important one. In the present experiments, however, it was purposely reduced to a minimum, as will appear.

When the oral methods of teaching modern languages became general, and I had used them for some time, I noticed that it was comparatively easy for even young children to acquire facility and fluency in prattling, within certain sharply defined limits, about a picture or an object, and these young children took great delight in applying the knowledge gained to personal belongings, attributes, and relationships.

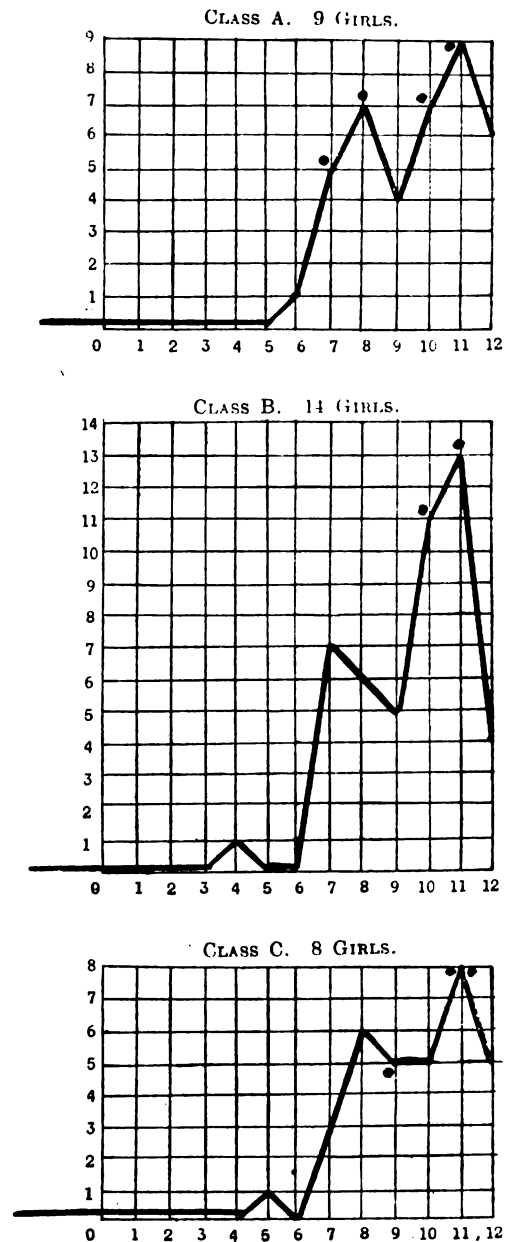
FIG. 1.



The limbs, clothes, age, and family of themselves, their fellows, and myself were discussed fully and with delight. This continued up to the age of eleven or twelve years or thereabouts. After that there came, in similar circumstances, an unwillingness, hesitation, difficulty, doubt, error. I exercised the extreme of caution in avoiding subjects which might be considered private, and personal in that sense, but I was anxious that the actual subject-matter of our conversation should not deal exclusively with the reading book or a picture. It was to be applied to the circumstances of the pupil's own life, or it could only fail to be of use later on. I had a temporary fear that the interchange of pronouns (from the

second in the question to the first in the reply) might be causing the difficulty, and gave the matter particular attention without experiencing any improvement. The child of ten gave me details about her family which I had to restrain, while, three years later, she would seem to find difficulty in deciding when she had breakfast. Finally, I decided to try to clarify my impressions by experiment. The point at issue was: Do children between the ages of twelve and fifteen years (I have to confess that these particular experiments were made with girls only) really have a different attitude towards subjective

FIG. 2.



matters from the easy, take-everything-for-granted one with which they approach objective matters?

It was not easy to find a method of experiment. Any seemed, and still seems, crude and rough and ready. It could not make allowances, in class teaching, for individual differences, or even for variations of mental type. As the whole system was based more or less on the question and answer method, I felt obliged to use that in some form, for, if I employed any other, the girls would be surprised, suspect an ulterior motive, and lose the naturalness from which I hoped

to get ingenuousness. To preserve this last also from the eyes and ears of the class-fellows, I let the girls write their answers to oral questions from myself. This sank the social element to a minimum and allowed full play to the subjective and objective. I myself did not count for very much. They were accustomed to my fire of questions, and scarcely looked on me at such times as more than a cog in the school machinery. They were past the age when writing presents technical difficulty, but just at the one to take exceptional delight in that form of expansion of their mysterious newly awakening self.

The experiment had perforce to be conducted in the foreign language. To those who would reject the whole result on the ground that discomfort or difficulty shown would be purely that of linguistic ignorance, I will reply that at least you must let me have it the other way, and grant that pleasure or delight displayed would have been greater in English, and I should be justified in expecting results at least as good there. My own idea was that the thought-processes proceeded in the foreign language precisely as they do in the mother tongue, but that their slowness enabled me to make my observations with greater ease. The foreign language also allowed me to put questions suitable to my purpose which had sounded ridiculously artificial in English, but which the victim only supposed set for practice. I need only to add that embarrassment as to the correctness of what was being written or as to the incidental use of English words was totally non-existent.

I performed the experiments two or three times before attempting to make the diagrammatic result. Each time the same set of questions was set in three parallel divisions, to whom I will refer as A (twelve to thirteen years), B (average fourteen years), and C (fifteen to sixteen years). They had learned (German in this case) a year or a little more. Twelve questions were put, six objective, six subjective. In early experiments I observed merely the stages in mental dealing with these. In response to each question there came first a calm period of apprehension; there followed either an expression of relief as the matter was understood and disposed of and the pencil came into use, or one of discomfort if it involved unaccustomed thought; thirdly, there came an expression of pleasure if the matter was dear to the mind, otherwise absent. This might even expand into a laugh of delight. Finally there came passive calm again.

At length I attempted a representation of the results. I am thoroughly aware of its inadequate and unsatisfactory crudity of form; yet I can think of no other which would have expressed them so plainly. The vertical side of each diagram is divided to denote the number of girls present in the division, the horizontal one to denote the number of questions asked, always twelve. Since the first six questions always concerned objective matters, the left-hand side of each diagram gives the results for that kind of mental action; conversely, those for subjective mental action are on the right-hand side. Fig. 1 shows the number of girls who displayed discomfort in dealing with each question in turn; Fig. 2 shows pleasure. Thus, in Fig. 1, at Question 1, one girl displayed mental discomfort in Class A; at Question 2, two girls, and so on. You will notice the excess of discomfort displayed in dealing with subjective matters (right half) over objective. The questions asked (in which style is subordinated to practical purpose) were:

1. Wie heissen Blumen, welche man in einem Garten hat?
2. Wie heissen die schönen Insekten, welche von Blume zu Blume fliegen?
3. Was ist auch sonst in einem Garten?
4. Welche Früchte sind im Herbst reif?
5. Wann kann man im Garten sitzen?
6. Warum ist es warm im Sommer?
7. Mit wem bist du sehr freundlich?
8. Ist deine Freundin älter oder jünger als du?
9. Wohnt sie nahe bei dir?
10. Warum hast du sie gern?
11. Wann ist es sehr gut, eine Freundin zu haben?
12. Wie lange hast du deine Freundin gehabt?

There is no attempt to measure amount of discomfort, nor

inference that, because more girls felt discomfort at Question 10, each individual felt more discomfort at this question than at another. I merely argue, in a general way, that, because a relatively large number of girls feel mental discomfort in approaching the matter of, say, Question 10, it is one which may justly be termed "discomfort-producing" in the mind of that life-period.

A large number of girls failed to answer Question 10 at all. They had never analysed the emotions of friendship. Those who did reply, said: "I like her because she is good," or "because she is my opposite," or "I like her because I do."

At the close of the experiment I asked how they had found the work. In A five-eighths thought it had been "harder" in the second half; in B, nine-fifteenths; in C, two-eighths. Despite this difficulty, there was an immense quickening of interest in the second half. Fig. 2 is arranged as Fig. 1, and the rising and falling line represents the number of girls displaying pleasure at each question in turn. The divisions A, B, and C are identical with the A, B, and C of Fig. 1, but the number present was different. In this experiment the questions were:

1. Wovon ist das Stroh ein Teil?
2. Was machen wir aus dem Stroh?
3. Welches ist nützlicher, das Holz oder das Stroh?
4. Was machen wir aus dem Holz?
5. Woher kommt das Holz?
6. In welchem Land ist mehr Holz als in England?
7. Wo ist deine Mutter?
8. Was tut deine Mutter am Morgen?
9. Wann bist du bei deiner Mutter?
10. Hat deine Mutter mehrere Kinder?
11. Warum liebst du deine Mutter?
12. Kommt deine Mutter dann und wann in die Schule?

The high standard of pleasure manifested in the second half will be noticed. The black dots denote that a laugh of delight broke forth. I should like to draw attention to the fact that Question 11, which produced the maximum number of cases of pleasure here, is practically identical with No. 10 of Fig. 1, which there produced the largest number of cases of discomfort.

Time Experiment.—It occurred to me that the emotions of discomfort and pleasure involved the spending of more time to answer a question, than did a mere intellectual effort. I performed the time experiment a number of times and give one result. The questions in this case, similar in style to the examples given in the previous cases, concerned the playground and playtime on the objective side, the Christmas presents to be expected and given on the subjective. The results could only be gauged for the class as a whole, and bore the following averages:—Class A: Objective answers, average time 57½ seconds; subjective answers, average time 1 minute 20 seconds. Class B: Objective answers, average time 51½ seconds; subjective answers, average time 1 minute 25 seconds. Class C: Objective answers, average time 55 seconds; subjective answers, average time 1 minute 13½ seconds.

THE Royal Academy of Science has awarded the Nobel Prize for Chemistry for 1915 to Prof. A. R. Willstätter, of Berlin, and recommends that the prize for Physics should be divided between Prof. W. H. Bragg, of Leeds, and his son, W. L. Bragg, of Cambridge, for examination of the formation of crystals by X-rays.

In 1916, Prof. John Adams, M.A., B.Sc., LL.D., Professor of Education in the University of London, will give a second course of lectures, which will be open without fee to teachers. The lectures will be delivered on Saturday mornings, at 11.30, at the London Day Training College, Southampton Row. The first course began in October. The second course will be given during the Lent Term on the following dates:—January 15, 22, 29; February 5, 12, 19, 26; March 4. Subject: "The Psychology of Explanation." Application for cards of admission should be made to Prof. Adams, London Day Training College, Southampton Row, W.C., giving full name and address, and also the name and address of the school in which the applicant teaches.

SCHOOL BOOKS AND EYESIGHT.*

SINCE presenting its report at Birmingham in 1913, the Committee has had correspondence with Education Authorities, school medical officers, teachers, publishers, and authors, and is pleased to report that widespread efforts are being made to secure the fulfilment of the Committee's recommendations—at least, so far as books for young children are concerned. The Committee hopes that further progress will be made in regard to books for boys and girls over fourteen years of age. A diminution in the power of accommodation of the eye continues during this period of life as part of the changes of adolescence. At the same age there is good educational reason for an increased extent of reading and for the use of books containing a considerable amount of information. Hence visual defects frequently become evident at about the age of sixteen. The recommendations in the Committee's typographical table issued in 1913 were based on a balanced consideration of the above facts, and it is important that the standard proposed for readers over twelve years should be insisted upon.

Investigations have been made during the last two years, in order to obtain an objective measurement of the gloss of paper, and the Committee is indebted to Mr. A. P. Trotter for designing a new form of gloss-tester and for carrying out tests with books and writing-papers used in schools.

The Committee observes :

(1) That glossiness of paper depends mainly on specular reflection—i.e. reflection as from polished metals; such reflection is apt to interfere with binocular vision. The ideal surface for books would exhibit no specular reflection; all the reflected light would be scattered, or diffuse reflection, equal in all directions and independent of the direction of the incident beam. Such absence of gloss is realizable in any fine white powder, such as magnesia, but not in printing papers. No harm to eyesight is, however, likely to accrue if the specular reflection is not excessive; hence the proportion of specular to diffuse reflection affords a suitable index of the glossiness of paper.

(2) That a large proportion of school books and writing papers are satisfactorily free from glare at angles of incidence not exceeding 45 degrees. In most of these satisfactory books the specular reflection does not exceed the diffuse reflection when the light is incident at 45 degrees, the paper being viewed from the direction of the corresponding specularly reflected rays.

(3) That when the specular reflection exceeds 56 per cent. (the diffuse reflection being then less than 44 per cent.) there is likely to be injurious glare. The risk is greater if the book is read in artificial light.

The Committee therefore hopes that publishers will select for school books papers from which the specular reflection at 45 degrees does not exceed the diffuse reflection. Books in which the specular reflection exceeds 56 per cent. of the total reflection (specular plus diffuse) must be regarded as potentially injurious to eyesight.

Writing paper for school use should not give more than 54 per cent. specular reflection at 45 degrees, since young writers often look obliquely at the paper.

The Committee finds that coloured maps can be produced without extra expense or difficulty on paper conforming with the above rules. In some instances the effect of using suitable paper has been spoiled by the use of glaze in the colours or inks. The glossiness of paper is greatly influenced by the extent and particular method of calendering, and it is suggested that careful control of calendering will assist in obtaining the desired hardness and the even surface required, without introducing pernicious gloss.

* Report of the Committee of the British Association, consisting of Dr. G. A. Auden (Chairman), Mr. G. F. Daniell (Secretary), Mr. C. H. Bothamley, Mr. W. D. Eggar, Prof. R. A. Gregory, Mr. N. Bishop Harman, Mr. J. L. Holland, Dr. W. E. Sumpner, Mr. A. P. Trotter, and Mr. W. T. H. Walsh, appointed to inquire into the Influence of School Books upon Eyesight. Presented at Manchester, 1915.

Mr. Trotter's description of his gloss-tester is subjoined to the report at the request of the Committee, since the recommendations in this report require that some standardizing instruments should be available.

DELAYED REFORMS.

The author hopes he will not be too severely criticised if, through a desire of rendering this branch more easy and simple, he has in some instances deviated a little from the tedious and rigid strictness of Euclid, particularly in the doctrine of ratios and proportion, which has always been so greatly complained of, especially by young students in these sciences.

THUS wrote the celebrated Dr. Hutton in 1798 in his preface to his "Course of Mathematics," especially designed for the use of "The Gentlemen Cadets in the Royal Military Academy at Woolwich." But Dr. Hutton was altogether too modest—his "slight deviation" from Euclid is general; and, even if he could not claim originality for the whole of the alteration he has made, yet his adoption of wide-reaching changes ranks him amongst the early teachers of modern geometry in England.

Whereas, in the late eighties, the author of a well known "Euclid Revised," stated that "what is essential to be retained in Euclid is his order, numbering, and general mode of proof," we find Dr. Hutton had no such scruples. He collected the usual geometrical *Problems* together, and apparently numbered them to his liking; and then rearranging the *Theorems* he performed gave them more or less modern proofs. The following brief table will show how far he was in advance of his educational brethren:—

Dr. Hutton's (1798)		Euclid.
Theorem I	was	I, 4
" II	"	I, 26
" III	"	I, 5
" IV	"	I, 6
" V	"	I, 8
" VI	"	I, 13
" VII	"	I, 15

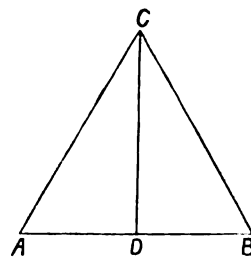
Hutton's Third Theorem reads as follows:—

In an Isosceles Triangle, the Angles at the Base are equal. Or, if a Triangle have Two Sides equal, their Opposite Angles will also be equal.

If the triangle ABC, have the side AC equal to the side BC: then will the angle B be equal to the angle A.

For, conceive the angle C to be bisected, or divided into two equal parts, by the line CD, making the angle ACD equal to the angle BCD.

Then, the two triangles ACD, BCD have two sides and the contained angle of the one equal to two sides and the contained angle of the other, viz. the side AC equal to BC, the angle ACD equal to BCD, and the side CD common; therefore these two triangles are identical, or equal in all respects; consequently the angle A equal to the angle B.



Q.E.D.

Cor 1. Hence, the line which bisects the vertical angle of an isosceles triangle, bisects the base, and is also perpendicular to it.

Cor. 2. Hence, too, it appears that every equilateral triangle is also equiangular, or has all its angles equal.

The word *conceive* above (the italics are not in the original) is grand: it was a conception that took a hundred years to bear fruit. It mined and blew to pieces that infamous Pons Asinorum—that veritable Bridge of Sighs which ought never to have been rebuilt. That fantastic structure had sustained, even before Hutton's time, several gallant assaults. For instance, John Ward, Bishop of Chester, in his "Young Mathematician's Guide" (first published in 1706, and afterwards running through several editions), had a laudable ambition "to be accounted as one of the Under-Labourers in Clearing the Ground a little, and removing some of the Rubbish that lay in the way to this Sort of Knowledge." He

leaves it "to proper Judges" to determine his success, which is by no means to be measured by his version of 5. e. 1. as he terms it. His algebraical treatment of, say, 12. e. 2 (*i.e.* Euc. II, 12) is no whit behind his modern representative. Many a tyro struggling with the intricacies of geometrical reasoning has been most caustically dealt with for treating Euc. I, 5 as did he, whose framed portraiture in full-bottomed wig forms a handsome frontispiece to his generally excellent work. By the way, what a hint to modern mathematicians, especially if they imitated to the full this old author who was not ashamed of his age, but had printed in bold type under his quasi-photograph:—

Johannes Ward.

De Civitat: Ceftriae.

Ætat: sue 58 An^o Dom̄: 1706.

His version of the *pons* reads as follows:

Suppose the $\triangle BCD$ to be an Isosceles \triangle : that is, let $BC = CD$. Bisect the $\angle C$, or (which is all one) make CA Perpendicular to BD ; then will the $\angle A$ on each side of it (*viz.* $\angle BAC$ and $\angle DAC$) be Right Angles.

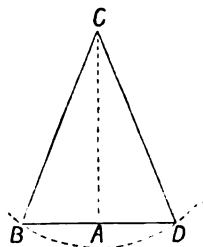
Therefore $\begin{cases} \frac{1}{2}\angle C + \angle B = 90^\circ. \\ \frac{1}{2}\angle C + \angle D = 90^\circ. \end{cases}$

Consequently,

$$\frac{1}{2}\angle C + \angle B = \frac{1}{2}\angle C + \angle D.$$

Subtract $\frac{1}{2}\angle C$ from both sides of the Equation, and it will leave $\angle B = \angle D$.

Q.E.D.



The real point of quoting this somewhat futile example is to emphasize the fact that modern geometry is not really so "modern" as its name seems to imply. At the same time, it proves conclusively that the youth of this country need not, for the last two centuries, have continued to crawl unwillingly to school to memorize what a very small percentage of them could "peptonize"—not because more suitable food was unobtainable, but because of the conservatism of educationists generally, and the beneficent sway of the Universities in particular. That the Universities were largely to blame, it may be mentioned that Sir P. Magnus, in a lecture on "Euclid and the Teaching of Geometry," delivered before the College of Preceptors in 1880, said: "At the present moment our school training is more directly under the influence of the Universities of Oxford and Cambridge than it has ever been; and it is probable that nearly all important reforms in methods of teaching will have directly or indirectly to be sanctioned by these Universities before they will be adopted by the schools." Further on, Sir P. Magnus stated that "any general reform, therefore, in the teaching of geometry or of any other subject cannot be expected to take place so long as it is opposed by the older Universities."

So, then, it is the "don," grandly enthroned amid the lore of the ancients, who has been out of sympathy with the practical teaching world, vainly struggling to inculcate what few deem of practical utility, yet endeavouring to justify by flimsy apologetical theories.

The "don" still looms too largely on the educational horizon: he clings fondly to Paley's ghost: out of the whole range of English literature he could recently prescribe nothing better than Borrow's "Bible in Spain" as a *sine qua non* to admittance to certain ancestral halls of learning; and he still insists that the budding medico shall cram a certain amount of useless Greek—useless because merely "got up" for an examination, and then to be tossed aside and forgotten as soon and as deliberately as possible.

Yet there are signs of a "going" in the mulberry trees; the exigency of the times makes us reconstitute values; even the students themselves are more seriously inclined. There evidently should be less waste of mental energy: the mind must, and can, be equally trained along more immediately useful lines. We are already hearing that much is learnt at school that is of no good in after life. This is not necessarily true, but its bearing should be made more immediately intelligible even to the "lay" mind. There must be no century's delay in adopting improvements. The country's call is for a

better understanding between teachers of all classes; a little more *bouhémie* is needed among the members of an avowedly difficult profession, which is rendered unnecessarily so by the individual teacher being unable to accept an honourable defeat.

In arguing, too, the parson own'd his skill;
For, e'en though vanquished, he could argue still.
While words of learned length and thund'ring sound
Amazed the gazing rustics ranged around—
And still they gazed, and still the wonder grew,
That one small head could carry all he knew.

Or, rather, the poet might have said, had the rhythm permitted, "all he professed to know." The "wisdom will die with us" attitude undoubtedly delays reform. It is largely the cause of the still wellnigh impassable gap that separates primary and secondary education. The distant feeling between teachers of different grades means a real loss to the community; and the best form of national service they could render is "to pull together," and disinterestedly to plan the best for each of their pupils—even at considerable personal loss. For such a course might well entail passing this brilliant youth to such a school, or that backward or defective one to some particular institution to be dealt with by some special method. And it is quite conceivable that at times the crown of earthly glory would not wreath the brow of him who laid the first foundations or of him who effaced himself that another might lay them. But each would have the real joy and satisfaction of modest self-approval.

Unfortunately the profession as a whole is too slow to adopt and appreciate new methods, especially if promulgated by unknown persons or by teachers of a different "caste." If any proof were needed of the slowness of "the craft" to adopt reforms, it is amply furnished by the fact that the early British fathers of modern geometry had to wait over two hundred years before the youth of the country as a whole were allowed to profit by the methods they used and possibly originated.

W. DRAYTON ROBERTS.

SIMPLICITÉ FRANÇAISE.

By MARION CAHILL.

CANDOUR takes different forms in different countries. We are inclined to regard foreigners as *ruses* and ourselves as singularly frank and open-minded. Very often, however, the French regard English candour as lacking in delicacy, and we regard their peculiar form of humour—smacking of eighteenth-century wit—as not only too candid, but too coarse. The following little examples, taken at random, show a few phases of French simplicity which may interest those who are not of Gallic birth.

I.

Many of the children have suffered during the War not only from loss of relatives, but also from loss of money. The first loss is deplored, but there are few complaints. They have died for *la douce France*. Could one desire a better or nobler death! The second loss, that of money, is accepted with the utmost simplicity.

"*Mon Dieu!*" sighs Marie Thérèse, who never in all her life has known what it is to lack a luxury, much less a necessity. "My mother, she send me ten francs, and tell me to buy a dress and a hat."

And she does it. She buys a black and white voile (she is mourning, as many of them are), and she makes it up herself. It is the last word in elegance. A Frenchwoman's clothes never look home-made. Over the simplest material she will expend as much time, thought, and care as a Chancellor over the Budget.

Two of the younger ones were wearing at the Concours de Prix little blue velvet frocks—nattier blue—with chemisettes of a soft coarse material—cream, with roses of an exquisite pink. They looked so charming, I was obliged to regard them over long.

"Whoever would have thought of using that peculiar material with velvet?" I asked myself. "It is too fine for canvas, too coarse for linen, and what a delightful pink with that charming blue!"

The children are very fair, with blue eyes and golden hair, a not very common French type. They came up laughing.

"You look at our old frocks?" laughed Simone. Maman was in despair. She could not afford new frocks for the *con-cours*, Mademoiselle. Since two years we have these dresses, and we grow so fast! But the other day Maman was in my bedroom, which is white and pink, and she said: 'Simone, you must have a new *couvre-lit*; that one is faded. *Mon Dieu!* the money, the money; and you want new frocks!'

"And Annette, our *bonne*, she said: 'Madame, I can make new chemisettes for the little frocks of blue out of the old *couvre-lit*. That lovely faded pink—it is so beautiful with the natty blue!'

"And she did! She has a *chic!* has Annette. And when we came back to school everybody say: 'Oh! but your dress—it is beautiful. How lovely the little chemisette!'

It was truly lovely, with a cut and elegance that defy description. The short blue sleeves were caught back with soft points of the faded roses; it was most delicate and harmonious. But everybody knew that it was the old *couvre-lit*, and the *chic* of Annette that had worked the miracle.

II.

Simone and Yvette have been out all day. On their return they will rush to tell me all about it.

"We have been out, Mademoiselle; did you not know? An American lady, a friend of Maman, came to see us, and she took us to a hotel for *déjeuner*. Oh, la, la! We are not used to that elegance, Mademoiselle. It is nice at home; but, oh! not like that! And we did not know how to eat, because everything was different, and so many knives and forks, and many glasses! I was in despair; and at last I begin to cry, and I say: 'Madame, you must forgive us. We are of a simplicity, we two *petites filles*; never have we sat down to such a repast. It confuse, it bewilder! This dress that you see, Madame, is made from the old *couvre-lit* in my bedroom.'

"An' she laugh, that American lady. Oh, 'ow she laugh!

"Do what you like, *mes chères*; you are *charmantes*.'

"So then we were quite 'appy, and I took the little chicken-bone in my fingers, and I was 'appy."

III.

A few weeks ago I assisted at a concert, the main items of which were liberally sprinkled with what is known as "Gallic salt."

Nothing amazes the English more than the French taste in humour. It is a more than elementary type. No one denies that, as a nation, they can be brilliantly, mordantly witty, but it is a pity the subject-matter is not worthy of the brain-power lavished on it.

I knew that my French friends were regarding me anxiously. They were sure I should regard it as "shocking," as it undoubtedly was.

"See how the face of the English miss is serious!" murmured Madame.

If I had said that I was frankly bored—bored nearly to extinction—they would not have believed me. That is another form of *simplicité française*.

IV.

Fernande is a little musician; her beautiful little fingers can bring real music from the old piano in the Grande Salle.

"Where do you get your music, Fernande?" I asked. For I was sure such a gift must have been inherited.

"From maman. Oh, she has the music! But she has no time, for always she is in the kitchen. She cook all the morning, and she cook so beautiful we eat all! And in the evening she must cook again! An' never she waste anything. Papa say: 'Fernande (Maman also is Fernande), you have the *génie*.'

"Sometime we have a *gigot*, too big to eat at one time, but Maman, she serves the rest with a sauce *piquante* as she make a *ragoût*. She is of a miracle!"

"And the music?"

"Oh, la, la! the music! When the dinner is in the oven she run to the piano, and she cry because her fingers are spoil by the cooking."

"And papa—is he musical also?"

"No, Mademoiselle, but he paint, and, when he want re-

creation, 'e do *mathématiques*; 'e love them. And Madeleine *et moi*—we are *deux imbéciles* at *arithmétique*, Mademoiselle. Is it not peculiar?"

"And do you paint?"

"*Mais oui*, Mademoiselle. I fetch you a little picture."

Soon she was showing me some delicate little sketches with a touch of imagination about them not common in the average schoolgirl.

"And your name, Fernande? Delacroix—that is the name of the grandfather who composes."

"*Mais oui*, it was once de la Croix. But now we are good Republicans, and so we say 'Delacroix'—like that. Maman would like the old name, for it is a name famous in the history of France. But papa—he say no. We are good *bourgeoisie*; we do not desire to be noble. Papa say, if we are truly noble, the good God will soon find it out. We shall not need *de* in heaven."

"And you?" I said, for I thought I had seen signs of ambition in my little Fernande.

"*Mais* now, Mademoiselle, I am a daughter of France. *C'est assez pour une petite fille!*"

THE SECONDARY SCHOOLS ASSOCIATION.

MEMORANDUM ON THE BOARD OF EDUCATION'S CIRCULAR No. 849, ON EXAMINATIONS IN SECONDARY SCHOOLS.

The proposals of the Board of Education, as embodied in Circular No. 849, are in effect as follows:—

(1) To establish in every secondary school recognized for grants two new external examinations of grades suitable for the fifth and sixth forms respectively, to be taken annually in every school and to be conducted by a University, but the standard to be fixed by the Board of Education and to be substantially equivalent throughout the country.

(2) To reserve the right of prohibiting every such secondary school from preparing pupils for other external examinations except with the special permission of the Board of Education.

The proposed change is momentous for two distinct reasons. It seeks for the first time to standardize secondary education throughout the country, and it deprives the schools of the freedom which (except in the case of very young pupils) they have hitherto enjoyed of deciding for what external examinations they may consider desirable to prepare their pupils. It is obvious that such important changes will, if adopted, have far-reaching effects upon the scope as well as the administration of secondary schools, and it is therefore necessary to consider the objects which it is desired to attain, as well as the means proposed to be employed.

The apparent object of these proposals is to remedy an evil—viz., that the true aims of secondary education are sacrificed or prejudiced by the excessive number of external examinations for which the schools prepare or are expected to prepare their pupils.

The Association do not dispute the existence of this evil, but they are of opinion that its extent is often exaggerated. Indeed, they are informed that in many large areas there is no evidence of its existence, and where the evil does exist, there appears to be an effective remedy.

Every secondary school recognized for grants is under the constant supervision of the Board's inspectors, who not only periodically conduct formal inspections, but frequently visit the schools under normal conditions. The Inspectors have thus full opportunity of forming an opinion whether a particular school prepares its pupils for external examinations to such an extent as to impair its efficiency. If this is found to be the case, the Board, on the report of their Inspectors, can at once communicate with the offending school through the Local Education Authority or the managers, who, on their attention being called to the matter, will in all cases take steps to remedy the evil where it exists. If the Local Education Authority or the managers fail in their duty, the Board of Education can put immediate and effective pressure upon them by threatening to reduce grants or to withdraw recognition.

If the Board's scheme is adopted, the question still arises as to the extent to which the number of external examinations taken in the schools will be thereby reduced. In any circumstances it would be desirable that some assurance should be obtained from the Universities and the Authorities responsible for the entrance examinations to the professions that the new examinations would be accepted by them in lieu of their preliminary examinations.

In Appendix C to the report of the Board's Consultative Committee on Examinations in Secondary Schools is given a long list of ninety or more examinations for which boys and girls of secondary school age may be entered. This list doubtless includes most of the external examinations which the Board, in issuing Circular No. 849,

had in view. If the list be analysed, the examinations contained in it will be found, with the exception of examinations in the special subjects of drawing and music, to fall within three classes:

(1) The local examinations of various grades conducted by the Universities, and similar examinations conducted by general educational bodies, such as the Central Welsh Board, College of Preceptors, Royal Society of Arts, &c.

(2) The Matriculation examinations of the Universities and the qualifying examinations conducted by Government Departments and the various professional bodies, as a test of fitness to enter the University or the Government service, or to undertake a course of technical training for one of the professions.

(3) The competitive examinations for University Entrance Scholarships and for the Army and the Civil Service.

Whatever effect the scheme may have on existing examinations of the First Class, it is obvious that the proposed new examinations will not take the place of those in the Third Class. As regards the Second Class, it is possible (though as yet there is no evidence upon which to form a judgment) that the new examination may be accepted as an alternative in the case of the non-competitive or qualifying examinations, which will still be held as at present. At best, however, the new examination will only be accepted as an alternative to, and not in substitution for, existing examinations. In many cases, too, even as an alternative, it will only be accepted conditionally—i.e. provided the pupil passes in one or more specified subjects. Thus Latin is a compulsory subject for the examinations of the Law Society, and a particular science or modern language may be a compulsory subject in other cases. In other words, the school must continue to permit alternative subjects to be taken, or it will drive its pupils to the coach or to the "business college."

The circular states that the first examination will be conducted on the principle of easy papers and a high standard of marking, and in such a way as to serve the double purpose of a school examination and Matriculation. It further states that it will be for the Universities to say on what terms they will accept the examination as exempting pupils from the ordinary tests of admission.

This part of the scheme suggests many possibilities. Some of the pupils in the fifth form (the whole of which is expected to be presented for examination at the same time) may be working for the higher standard, others for the lower. The work of those who aim at the higher standard will be controlled by the requirements of the particular University which they desire to enter, and by the subjects which that University prescribes as essential. Thus one University may prescribe Latin as essential for entrance to a particular faculty or to the University itself, while another may prescribe a Modern Language or a particular science. If the examination is to serve the double purpose which is indicated in the circular, the secondary school must give its pupils the opportunity of preparing for a variety of alternative subjects and for various grades of efficiency in those subjects, and this is much the same thing as allowing preparation for two or more examinations.

These and other considerations lead to the conclusion that for the first examination there can be no uniform preparation of the form as a whole.

As regards the second examination, the circular itself proposes a wide choice of subjects, involving separate preparation for each. This is the present practice in the sixth form of many secondary schools, and, if the practice continues, there seems to be no reason why the pupils of that form should be restricted to the examination conducted upon the lines of the circular.

It has been pointed out that the effect of the scheme, if adopted, would be to attach insufficient weight to the views and authority of the bodies by whom a large and increasing number of secondary schools are controlled.

This was not the intention of the framers of the Education Act, 1902, which (Section 2) imposed upon Local Education Authorities the duty of considering the educational needs of their area and of taking such steps as seemed to them desirable, after consultation with the Board of Education, to supply or aid in the supply of education, other than elementary, and to promote the general co-ordination of all forms of education. The responsibility of carrying on secondary schools is thus cast upon the Local Education Authority, whilst the Board are entitled in the case of a grant-aided school to satisfy themselves as to its efficiency.

The Association have every reason to believe that the Local Education Authorities throughout the country have, as a general rule, worthily carried out their trust, and that to their efforts is largely due the marked progress in secondary education during the last twelve years. One cause of that success has been that these bodies are acquainted not only with local needs, but also with local traditions and sentiments.

The Board of Education are no doubt aware of the difficulty and the undesirability of establishing a new system of examinations affecting secondary schools without the cordial co-operation of those who manage and control those schools. But assuming that the Board's scheme were so altered as to give the Local Education

Authorities an adequate share in shaping and controlling the proposed examinations, there would remain the difficulty underlying any scheme for the establishment of a single standard for all secondary schools, and, as the scheme stands, a substantially equivalent standard is to be applied to all grant-aided secondary schools, irrespective of differences of aim, of locality, of the ages and character of the pupils. It follows that any such standard must be a low one, as it would be manifestly inequitable to expect pupils in a young municipal secondary school, who leave at a comparatively early age, to reach a standard which would be suitable in a long-established school with an organization that has stood the test of time, and where the pupils continue their education to the age of 18 or 19. But the combination of a low standard with a wide choice would inevitably lead to the choice of easy subjects—"soft options"—and the neglect of more difficult ones. It is feared, therefore, that any common standard would thus lead to a levelling down and not to a levelling up of school work.

English secondary education has been subjected to much adverse criticism, but has never been condemned on the ground of excessive uniformity. Indeed, one of its characteristics has always been its "infinite variety." There are the old public schools, the modern public schools, the grammar schools, the nonconformist academies and their successors, the modern day schools, and the new municipal day schools of various types.

During the last 50 years great changes have come about in all classes of secondary schools. Each class has developed on its own lines and with good results. There has been no compulsory standard, yet the standard has been greatly raised. There has been no forced co-ordination, yet there has been improvement all along the line.

In education, as in many other activities, excessive uniformity is alien to the English genius: a choice of roads to a given object is preferred. The newer English schools claim the same right as the older schools to develop on such lines as are found best suited to their circumstances and needs.

Whilst recognizing that the Board are entitled to satisfy themselves that the education provided in all State-aided schools is efficient, the Association venture to hope that the Board may see their way to make such modifications in their circular, on the merits of which they have invited criticism, as will give to the new grant-aided schools the same degree of freedom in their choice of examinations as is enjoyed by other older schools.

In forwarding to the Board this Memorandum, the Association wish it to be understood that they do so in no hostile nor carping spirit, but solely with the intention of placing before the Board the views of many managers of schools and others, who are giving their unstinted aid to the public service of education, and are desirous of helping rather than hindering a wise solution of a problem the difficulty and importance of which they freely admit.

PHILIP MAGNUS,

Chairman of the Association.

H. D. RAWNSLEY,

Honorary Secretary.

November, 1915.

CURRENT EVENTS.

MR. ARTHUR CHRISTOPHER BENSON, C.V.O., has been appointed by Lord Braybrooke to the Mastership of Magdalene College, Cambridge, vacant by the death of Dr. Stuart Donaldson.

THE death is announced of Sir Arthur William Rücker, Principal of the University of London from 1901 to 1908.

PROF. HAROLD MAXWELL LEFROY, of the Imperial College of Science and Technology, is leaving for India, and expects to be away from England for a year.

THE REV. JAMES SNOWDON, late Vicar of Sunninghill, Berkshire, and formerly Head Master of Richmond Grammar School, Yorkshire, has died at Reading, aged seventy-four.

MR. W. LORING, M.A., Warden of the Goldsmiths' College (Captain 2nd Scottish Horse), has died of wounds received in action in the Gallipoli peninsula. He died on board H.M. Hospital Ship "Devanha," and was buried at sea.

HIS MAJESTY THE KING has given one of the most valuable stamps in his collection to the National War Fund, which the stamp-collectors and dealers of this country have started. It is a ninepenny

stamp of the Victorian era, printed in a straw-coloured ink, and with the tiny figures "5," denoting the plate number, in the lower spandrels.

THE London County Council Education Committee has adopted the proposal to close the elementary schools at 4 p.m. instead of 4.30 during the winter.

THE Glasgow University Council, at its Half-yearly Statutory Meeting, approved of a proposal by the Business Committee that a Doctorate in Education be instituted, and that a post-graduate degree of Bachelor of Education be established. They also favoured the institution in each University in Scotland of a Faculty of Education. It was agreed to transmit the proposals to the University Court, directing special attention to the desirability of instituting a Faculty of Education.

WE regret to announce the death of Mr. C. F. King, for many years an Examiner to the College of Preceptors for Book-keeping and Mensuration. He had been a member of the College for twenty-eight years. Mr. King was an Assistant Mathematical Master in University College School for the long period of forty-three years, and served under the Head Masterships of Mr. Key, Mr. Weston Eve, Mr. Paton, and Dr. Spenser. Owing to infirmities, he was of late years obliged to live very quietly, and he has now passed away at the ripe age of eighty-three years.

PRIZE COMPETITION.

THE NOVEMBER COMPETITION.

A sensible business man of good abilities, but of no great education, has been appointed to a Municipal Education Committee, and is put on a Sub-Committee that has the duty of appointing a head master. Forty-seven applications and sets of testimonials have been sent in. This member of Committee writes to a teacher friend, asking for advice as to how to estimate the testimonials, which, however, the teacher friend is not to see. The prize is offered for the best letter of advice. Competitors may make it a head mistress-ship if they prefer that, and may make the school either elementary or secondary, so long as they make it clear which they have in view.

THE prevailing defect of the letters submitted is a tendency to write at large on the subject of the nature of a teacher's qualifications and the importance of making a right selection for the important post of head master. Too many of the competitors lecture the poor business man on the responsibilities of his position. One even advises him to give a preference to "any applicant who would be likely to worry an Education Authority to pull down unhygienic buildings, insist on adequate baths, playgrounds, and clinics." The lady who gives this advice has the grace to admit that her advice cannot be palatable to her business friend; but many of the letters take it for granted that the intelligent person whom they are advising is in need of much general instruction on educational matters. Too few stick to the exact problem—how to deal with the forty-seven sets of testimonials. It does not help the man very much to be told "That you should write to ask me about the Blank County school I consider a sign of grace in you, for it is seldom that a business man acknowledges that the appointment of a head master to an elementary school is at least as important as that of a new clerk."

More to the point is the following: "Lay aside as useless all sets of a mildly laudatory character; they will be written of mediocrities. Choose from the rest those sets which testify to the possession of strength of character, marked personality, supreme teaching power, or organizing skill, which I mention in order of importance." Our business man would be sadly puzzled if he had to depend on our recommendations, for the above is directly countered by the advice of another competitor, who makes the remarkable statement: "Do not be at all particular as to personality. Clear speech and, above all, a just, unbiased, straightforward, healthy-minded man is desired, as the 'Head's' person is cruelly criticized by all."

Certainly the best letter sent in is the following, though

we fear the writer must have suffered at some time or other from the teacher's bane, clerical control:

"Dear Harrison,—I quite agree with you that choosing a head master for an elementary school is a little out of your line.

"Begin by reading over all the testimonials; this will confuse you, and you will wonder why forty-seven such magnificent fellows are pining to become an elementary head master. They appear to have all the virtues; people who have known them from infancy testify to their moral qualities, and in some cases refer feelingly to their parents. Begin by making a pile of the testimonials where clergymen figure largely. I am sorry to say it, but you will find that, as a rule, where the aid of the family parson has been evoked, you will note that the scholarship is not very high. A first-class man doesn't need a page and a half from his parson if his head master will put in a couple of strongly worded lines about his morals and character.

"By this time you have found your feet, and can easily make a pile of men who might do if there were nobody better. This leaves you with the best men, and with two or three who have rather unusual qualifications. You may perhaps find an old University man in this pile, or a man who 'left teaching in 1903, since then been abroad.' If the gentlemen in this little lot do not give a very clear and tabulated statement of the whole of their working life, even if their clergymen grow hysterical over behaviour as choristers and Sunday school scholars, have nothing to do with them. Look at their ages and at the dates of their testimonials, if they are dated.

"Now take the excellent men. There is one phrase that arrests the *expérimenté* reader at once. 'An interview is advisable.' There is naturally always an interview before final decision. So this phrase means much. It may mean a stammer, or a club foot, or a hunchback, or a glass eye, or a nervous twitter that the whole school would acquire in a week. Anyhow it means something that the writer is too kind or too careful to put in black and white, and the wary reader will turn to the next candidate.

"It is time now to look for what is not there. If you note a pointed absence of allusion to temper or discipline, or the art of getting on with other people, sweep the testimonial away. Your pile will now be reduced to three or four. Probably, if no special wires are being pulled, and no nephew of the chairman is on the list, you will find that your selection is very much the same as those of your *confères*.

"Then comes the interview, and there all your splendid business qualities will be of the utmost value, and face to face with the candidates you will, I know, unerringly choose the right man.—Yours ever,

"— — —"

An interesting point is the insistence on not having too young a head master; the argument usually being to appoint a young man is unfair to the staff who are to be under him. One competitor states quite explicitly, "experience should override everything else." We leave this an open question, but in all probability few will be found to support the recommendation of one of the competitors—irrelevant of course to the subject set, but still of general interest—that time would be saved for appointing committees if candidates were not allowed to send in complete testimonials, but compelled to confine themselves to *extracts*! We can fancy the broad grin of satisfaction with which such a regulation would be received by certain unsuccessful teachers whose testimonials are of the curate's egg type. Publishers are always on the look-out, in reading the reviews of their books, for striking sentences of a favourable kind. They call these "eye-pieces"; and it is often found possible to make a brilliant show for a particular book by making from unfavourable reviews a judicious selection of eye-pieces. Appointing committees do well to be jealous of anything in the way of extracts.

A half-guinea Prize is awarded to "Ninety-three," who will please send name and address for publication.

"Belga," the prize-winner for October, is Mr. R. Goormaghtigh, 60 Calabria Road, Highbury, London, N.

The Prize Competition comes to an end with this number.

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STUDIES IN SCHOOLS.

By BERNARD E. R. TURNER.

I.

EMMANUEL PRIVATE SCHOOL FOR GIRLS, WESTICOT.

THE school is approached by a winding drive which appears suddenly on the left of the main road out of Westicot, just when you think you have left the town altogether behind you. The drive twists back in such a way that, just as you catch a view of the school, you see also the higher part of the town, where the richer people live, and the square-towered church close up under you. However, concentrating on the task before you, you pass through low iron railings and into a courtyard, the left of which the drive strikes, and the centre of which is covered by grass for two tennis lawns, rather uncomfortably short, with a kind of slope back towards the house. Entering a low stone porch, where the bell you ring clangs as though in an empty house, you are received in a big wainscoted room, with a step down from the hall, by Miss Appleby or her niece, who embodies modern, up-to-date theory of education. Miss Appleby always takes you at once round the buildings, and explains that a perfect system of drainage exists, which was installed by her brother, who died of angina pectoris. It was his vicarage really, but was endowed with the system of drainage in order to let it, as the rent from it was his only income.

On the other hand, the niece, Miss Adela, as everyone calls her, generally tells you that what is aimed at is "preparation for life." She is a slight person, with a face tapering from a sufficient forehead regularly to the chin, and she is visited occasionally by her cousin, who is an officer in the Army, and whose visits are always signaled immediately afterwards by a great insistence on the all importance of "honour" in the direction of affairs. Miss Adela takes you first to the classrooms, which are all in the left wing nearest the town—one large and one small room on the ground floor, and three small on the next, two of them divided by a wooden partition, Miss Adela's idea. All the rooms are adequate and the large one is almost a hall, serving, indeed, for that purpose in school gatherings and examinations. The apparent disproportion of space for classes to the size of the three girls' dormitories,

holding twelve each, is explained to the visitor by the fact that, in addition to the boarders, exclusively girls, Miss Appleby takes also day scholars from the town, of whom at present there are twelve boys and fifteen girls.

The dormitories are shown you by Miss Appleby—one, the "Home," occupying the first floor of the main building (the part facing you as you enter) from back to front, in which, only partially screened, Miss Adela sleeps herself. The other two, named respectively "Castle" and "Hall," occupy each half of the first floor of the wing opposite the classrooms, the ground floor of which is used for day rooms, cloakrooms, and offices. The inner of these two dormitories, "Hall," has windows only looking out on the tennis lawns, as a passage runs behind it communicating with "Castle." The latter, however, stretches right through, and it is here that all pupils who have dwelt for a few weeks at Emmanuel really covet to sleep. For not only is it furthest away from Miss Adela, but the mistress who sleeps there, Mrs. Anderit, a young widow, is the favourite member of the staff, is thought very beautiful, and severely keeps herself to herself during the night hours, having suborned the carpenter to put up a complete screen for herself, from which she issues forth only when any of the boarders seem to be suffering physical torment of some kind.

Mrs. Anderit is not *persona grata* with Miss Adela, and the latter has several times attempted to secure her removal; but Miss Appleby, having originally admitted Mrs. Anderit for pity's sake, the latter's husband, a friend of Adela's cousin, having died of fever in South Africa, Mrs. Anderit is immovable during good conduct, and this, as she is genuinely fond of Miss Appleby and has no views on managing the school, she manages, except in Miss Adela's eyes, to achieve.

She is not learned, and Miss Adela, who is, allows her only to teach the little ones, girls and boys, the limit of age for the school varying from seven to fifteen. Miss Appleby tried keeping pupils longer, but found that they quarrelled with her niece when she came, and that the difficulty of keeping them within bounds—there being no adequate fence to Emmanuel, and Westicot having a small garrison of soldiers—was too great.

The boarders mostly, and the day boarders exclusively, are drawn from the middle middle classes, but there is occasionally a boarder with an accent, and occasionally one with a motor-car. Miss Adela says nothing about manners, but she insists on a high—that is, her own—standard. On the other hand, Miss Appleby herself discourses philosophically upon demeanour, but never interferes in detail. If a bad case is referred to her, she says: "Miss Adela doesn't like you giggling in class, Evangeline. Pray meet Miss Adela's wishes."

Mrs. Anderit is generally voted "sweet." On her first arrival she committed several enormities, including the failure to get into her evening frock by tea-time, which she had not been accustomed to, but which was *de rigueur* with Miss Adela, as otherwise the girls would have little opportunity of seeing you in one. The test of an evening frock was that it should be made in one piece and have a V-shaped, but meagre, opening at the neck—enough to remind the boarders of what they would come to some day.

The boys are generally pariahs, except in Mrs. Anderit's department, but a regular flow from Westicot continues owing to the fact that the bigger boys come home in a depressed condition, which is found conducive to domestic peace. The general education, owing to the fact that Miss Adela really knows history and mathematics, that Miss Appleby herself loves Shakespeare, English poetry, and the Bible, that Mrs. Anderit, while skilled in French conversation, has had to learn her other elements while teaching them, and that the fourth mistress is passable in everything, is satisfactory on the whole. Pupils leave Emmanuel without knowing much, but without thinking they do, which is an advantage. On the other hand, they do not generally like returning after the holidays, which encourages the parents to believe it is a sound school. Originality is not encouraged, but, then, what's the use of originality in Westicot?

Cricket having been rejected by Miss Appleby as a "sicken- ing game for children," the staple of the games is hockey,

which Miss Adela played herself at college, and which many, but not all, of the boarders and few of the day boarders play on the field on "Castle" side of the house, the town side being too sloping to admit of any playground there. Games are in no way compulsory, and those boarders who do not play are expected to keep during play hours within range of vision of the hockey ground, the result of which is that Miss Adela, while playing herself with more determination than most of the girls, has the whole time to be "keeping an eye" on the non-combatants, who, seated on the seats or on the ground when it is dry or playing little games of their own on the stretch of gravel and grass immediately between the back of the house and the flower-beds, must refer to her or to Miss Lemon, the fourth and only other hockey-playing mistress, before going out of sight. This time of the day is called "spot" by the children. New ones think it refers to the gravel and grass plot where they may play their own games, but it really originated from the "eye" of Miss Adela.

Miss Appleby herself secretly takes the school as a necessary evil, and Miss Adela herself might tend to do so if it were not for her cousin in the Army, whose hobby is to have "views" on education, and who talks to his cousin of her "mission." Miss Appleby enjoys talking and making the children talk about her few favourite books, and her influence in that direction is felt afterwards by "Old Emmanuels," but her only intellectual fury is over Latin, the elements of which she beats into all with an efficiency which secures unusual results in Oxford and Cambridge Locals and other itinerant examinations. These latter are a great feature. It was Miss Appleby's *idée fixe* that, if she was going to make a living and retain the old vicarage in the family's hands, she must secure "results" of an advertisable kind. The result is that nearly every intelligent pupil might put yards of mysterious initials after their names.

The music and other optional subjects, including a dancing class and art needlework, are taught by visiting experts from Westicot. It is the one secret shame of Miss Appleby that none of her resident staff are competent to teach needlework. Miss Appleby won't, Miss Adela can't, Mrs. Anderit mustn't, because, according to Miss Adela, "she already has too much influence over the girls," and Miss Lemon simply hasn't the time. The study of Nature consists entirely in "Nature walks" with Mrs. Anderit, who knows nothing about botany or zoology, but talks enthusiastically about hedgerows and woods, and infects the girls with a kind of vague religion of the country. She returns at tea time with girls whom she can no longer keep away, on either arm, a huge armful of leafy things and flowers carried by one of them, and a body of tired but still talkative youngsters pressing on her heels.

She really loves her work, and it is the one terror of her life that, through some slip giving Miss Adela an opportunity, she may lose it. She is childless herself by a marriage which was only long enough to be unhappy, and she has an inclination for men's society, which she nevertheless represses for the sake of retaining her still freshly attractive work.

Of religion she never speaks; it is not her province, and the school is well served therein by the vicar, who not only keeps special seats for the school on Sunday, but conducts Confirmation classes every year, and sends Miss Appleby particulars of all matters of parish interest and requirements of money. Miss Appleby, unquestionably loyal to Mother Church, admits Nonconformists and heathen among her boarders, and therefore confines her religious instruction to lessons in the text of Scripture, where she does not encourage questions, but manages to convey its sonorous dignity. Miss Adela, while avoiding religion herself, is particularly watchful for any remark thereon of unorthodox tone, and it was a rash remark by Mrs. Anderit that "she did not believe God wanted to punish anybody" which once brought her nearest to the danger she is always dreading, and was, as a consequence, her last venture upon dangerous subjects before her lips were sealed for ever.

The health of the school is excellent, except for epidemics, and the school is pleasantly and salubriously situated on chalk soil.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College of Preceptors, Bloomsbury Square, W.C., on November 24.

Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Dr. Armitage-Smith, the Rev. J. O. Bevan, Mr. Brown, Mr. Butler, Mr. R. F. Charles, Mr. Hardie, Mr. Holland, Miss Lawford, Mr. Longsdon, Mr. Millar Inglis, the Rev. Dr. Nairn, Mr. Ritchie, Mr. Rushbrooke, the Rev. C. J. Smith, Mr. Starbuck, Mr. Thornton, Mr. Vincent, Mr. Whitbread, Mr. White, and Mr. Wilson.

The Secretary reported that the total number of entries for the Christmas Certificate and Lower Forms Examinations was 3,543.

On the recommendation of *The Educational Times* Committee and the Finance Committee, it was resolved that, after the close of the year 1915, *The Educational Times* be issued quarterly instead of monthly during the period of the War, and that the dates of publication be the 1st of February, the 1st of May, the 1st of August, and the 1st of November.

The Rev. Dr. David and Prof. Dixon were re-elected Members of the Council.

Prof. John Adams was appointed to deliver the next course of twelve lectures on Psychology.

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

By GINN & Co.—Bruce's Exercises in French Composition; Moore's *Porta Latina*.

By HACHETTE & Co.—Edwards's Extracts for Translation into French.

By MACMILLAN & Co.—Thompson's Elementary Lessons in Electricity and Magnetism.

By JOHN MURRAY.—Shedlock's Art of Story-Telling.

By the OXFORD UNIVERSITY PRESS.—Batchelor's *Mon Premier Livre de Francais*; Woodhead's Study of Plants.

By RIVINGTONS.—Robinson's Short British History, Period II; Whitham's Short New Testament History.

Calendar of the University of Aberdeen.

Calendar of the University of Birmingham.

Calendar of University College, Cork.

Incorporated Accountants' Yearbook.

REVIEWS.

The Foundations of Normal and Abnormal Psychology.

By Boris Sidis. (7s. 6d. net. Duckworth.)

Teachers have been accustomed, in spite of Prof. Munsterberg's warnings, to look to psychology for a certain amount of definite guidance, so any work on this subject has an interest for us. We find, however, that Dr. Sidis does not offer us a very cordial welcome. In his preface he tells us that "there is at present an epidemic of practical or applied psychology. People, however, will wake up from their psychological dreams and will realize that applied psychology is nothing but a nightmare. I am fully aware that my present protest will draw on me the ire and severe attacks of many a psychologist, but I sincerely hope that some of the more earnest psychologists will sustain me in my present contention." We note that this preface is dated from Sidis Psychotherapeutic Institute, so that it would appear that at least in one walk of life there is a place for applied psychology. No doubt it may turn out that it is only abnormal psychology that is applied at the Institute, and we teachers are naturally inclined to think that our great interest lies in normal psychology. But Dr. Sidis points out that, in order to understand normal psychology, it is desirable to study the abnormal, so that we are made to feel that we are unfairly treated in being warned off, even though the book is written largely from the medical point of view.

The theories set forth by Dr. Sidis are probably not so novel as he appears to imagine; but they will certainly be fresh to most teachers, and they are presented in a very vigorous way. From the teacher's standpoint the most striking features of Dr. Sidis's doctrine are his theory of reserve energy, and his conception of what he calls "moment consciousness." Beginning with a doctrine of perception that includes an extension of the usual view of the functions of sensation, Dr. Sidis builds up a series of synthetizations of ever greater complexity, be-

ginning with the vital processes of the amœba and ending with the most intricate processes of self-consciousness in man. The notion of "moment consciousness" is really an elaboration of the Herbartian doctrine of apperception masses. A moment consciousness is a highly synthetized continuum, and is marked by dynamic qualities. It takes in all that has gone before, and reaches out to what is coming. It seems to be the unit of spiritual progress in the individual. There is here an almost irresistible temptation to read into the moments-consciousness an independent activity that does not really belong to them. Just as Herbart sometimes seems to regard the ideas as having a dynamic quality of their own, and to act and react directly upon each other, so Dr. Sidis seems to toy with the idea of the moment itself being or not being cognizant of certain things. He is, however, too sound on the doctrine of the ego to run danger of any serious error.

For teachers there is a high value in this dynamic view of the moments-consciousness, and in the various levels of these moments, but not less useful is the theory of reserve energy and the possibility of releasing energy at suitable moments. If it is true that "the associative external stimulus, when accompanied by the unconditional stimulus alone, becomes after a few repetitions a powerful inhibiting agent," and if by breaking down temporarily certain associations we can set free latent energy, we have at the teacher's disposal a means of systematically building up the character of his pupils. Indeed, this is the general effect of the whole book. It conveys the impression that an instrument is being put into the hands of the teacher for carrying out, in a more or less scientific way, the ideals of which he reads so much in those more metaphysical books of which Dr. Sidis has so little good to say. We therefore feel that we have a right to be aggrieved if we are denied the privilege of applying what Dr. Sidis has to teach us. On page 278, for example, we have one of the teacher's problems to all appearance authoritatively solved, for we are told categorically that "experiences, however, may first be perceived by submerged subconscious moments, and then transmitted to the focus of consciousness, the movements of the process thus taking a direction opposite to the usual one, from the subconscious to the conscious." It will by this time be evident that this book, though provocative, is not one that the progressive teacher can afford to neglect.

The Industrial and Commercial Schools of the United States and Germany. By Frederick William Roman. (6s. net. Putnam's Sons.)

Dr. Roman spent two and a half years in Germany in the execution of a commission from Governor Beckham, of Kentucky, "to investigate and report on the German school system to the State Superintendent of Public Instruction." The results were published in Germany in October, 1910, and are now presented to English readers in this volume. The book is a very valuable and opportune contribution at a time like this, when the educational authorities of the world should be carefully considering their plans for such a reorganization as will enable the various countries to deal successfully with the murderous commercial competition that will set in the moment the War has come to an end. The work would have been still more valuable had Dr. Roman been able to bring his statistics up to date. Too many of his tables refer to periods of ten years ago. In the case of the United States, he has been able to get more recent statistics; but here he has a different disadvantage, for in many cases it is impossible to get figures that apply to the whole of the Union. It has to be admitted, however, that Dr. Roman has made the best use of the material he has been able to amass, and, in particular, he conveys the comforting impression that what he says is largely based on his personal experience and observation.

The book is a queer mixture of two different styles. Sometimes the reader is kept strictly to tables and their interpretation, and is made to feel that he is being improved at the expense of a certain amount of boredom. At other times, particularly in dealing with United States conditions, Dr. Roman carries his reader along with a rush, filling him up with all manner of fresh information, presented in the most attractive way. Always fair in his presentation, Dr. Roman

is usually judicial in his style, but occasionally he becomes animated, and loses his aloofness when he strikes on a subject that has a personal interest for himself. This is exemplified in his treatment of the question of the dual control of education. It appears that there is a party in the States who desire that technical education should be put under an authority separate from, and independent of, the ordinary school authority. Our author becomes picturesque in opposing this plan, and as unbiased outsiders we feel bound to admit that he makes out an excellent case.

The main interest for us is the contrast between Germany and the States, for in many ways our conditions resemble those of the States; and we have a certain satisfaction in noting that, while Dr. Roman has all respect for German efficiency, he finds something hopeful on the side of the Anglo-Saxon looser methods. We think he is right in maintaining that German methods cannot be applied to American education till we have changed the American character, and he does not give indication of any hurry to make that change.

With regard to German education we are afraid that what English readers will like best is the indication of decadence on the moral side. Those who are concerned about the social status of the teacher will be interested in what this book has to say on the subject. There is a very human touch in the sentence, "The school teacher in the country districts is usually the secretary and treasurer of the land-banks, and, when people want to borrow money, they go to the school teacher." We are told, also, that when the country people have disputes, instead of going to law they argue their case before the schoolmaster, and accept his decision! In dealing with American technical education, Dr. Roman has some excellent chapters describing the origin of commercial and industrial schools. Here he writes from personal experience, and gives certain details that cannot fail to startle English readers. A very interesting point is his explanation of the fact that in America the commercial schools preceded the industrial, while in Germany the order was reversed. The book is copiously documented, and thus provides a storehouse of facts from which intelligent readers may draw their own conclusions. The teacher and the educational administrator will find it to their advantage to read this book, though they will, no doubt, join with us in wondering why it has no index.

A Student's History of Education. By Frank Pierpont Graves. (5s. 6d. net. Macmillan.)

When the author of an elaborate history of education in three volumes produces a brief history like this, one wonders what is his motive. Is Dr. Graves's major work not intended for students? He resolves our doubts on the matter by explaining that "there is a growing conviction among those engaged in training teachers that the history of education must justify itself." There are those who think that this subject gets too much attention in the training course. It is so clear cut and is so easy to examine upon. In a year's course the student is put at an unfair disadvantage if he has to find room for the whole of Dr. Graves's three volumes. It is not, however, a mere question of bulk; the subject should be treated in a more practical way than is usually done. Prof. Adamson is never tired of requiring from historians what he himself does his best to supply—an account of what actually took place in the schools at the different periods. What we want is not mere biography on the one hand, nor mere statements of changing theories on the other, but such an account of school practice and theory as shall lead the student to understand the present more clearly by comparing it with the past. All this Dr. Graves realizes when he tells us that this is not an abridgment of his larger work, "but has been very largely rewritten from the new angle." On comparing the two works, the reader will at once acknowledge that the author's claim is justified; the purpose of a book like his "Peter Ramus" is totally different from that of the book now before us.

At first sight one may be a little doubtful of the advisability of illustrating such a work; yet a careful examination of the twenty-four plates convinces us that, at any rate, two-thirds of them really do add to the effectiveness of the book, and the others are at least interesting. The list of books for supplementary reading supplied at the end of each chapter will

enable the student to follow up whatever points attract him most, though it strikes us that, if these lists are largely used, it would be more advantageous for the student to start with either the three-volume Graves or with Monroe's "Text-book." One advantage of the necessary condensation is that the excessive detail in classification has been avoided, and the author has to come to the point much more rapidly than is usual.

We have seriously to consider in England how far the inevitable American bias in such books is a disadvantage. There are the two points—the transatlantic point of view and the actual description and criticism of transatlantic schools and methods. With regard to the first, there is no great danger in this book. After all, in the theory of education, the Americans have a much greater interest than we, so we can afford to learn something from them. But, with regard to the amount of space given to American as compared with English education, this book certainly is less suitable for English than for American students. It may well be left, however, to the English teacher who uses this textbook to keep the balance true. It has to be remembered that the English student is living in an atmosphere of English education, and it will do him no harm to have the opportunity of contrasting what he sees here with what he reads of there.

Dr. Graves apparently lays a great deal of stress on the fact that his "Outline" in each case is printed at the beginning, and not at the end, of the chapter. Naturally, the student will use the "outline" either at the beginning or the end of his reading or both. The important point is that the outlines are well done.

Methods for Elementary and Secondary Schools. By E. L. Kemp. (5s. net. Lippincott.)

This is one of "Lippincott's Educational Series," to which its writer has already contributed the volume on the "History of Education." Accordingly, the editor of the series is able to claim that Dr. Kemp is a trained student in educational theory as well as a successful teacher familiar with educational practices. But it appears to us that more is attempted than could possibly be accomplished in a volume of this size. It is really a reversion to an older type that was once familiar on this side of the Atlantic. It attempts, in good spirits, the old formidable problem of bridging the great gap between general theory and the details of practice. Its author admits that the best of the books that combine statements of theory with descriptions of practice are monographs on the different branches. But he points out that the mere expense of buying the number of volumes necessary to cover the whole field is prohibitive, to say nothing of the danger of confusion in the mind of the student who is driven to study all the subjects of the school curriculum in such detail. But a consideration of the field covered by this book is sufficient to show the experienced trainer of teachers that its author would have been well advised to confine himself to either elementary or secondary schools. Indeed, an ordinary English reader who perused the book without reference to the title, the preface, and the introduction would take it for granted that he was dealing with matter prepared for the teacher of elementary schools. There is something curiously familiar about the part dealing with the rudiments of reading and writing. One is carried back to the textbooks in use in the English elementary training colleges of forty years ago, though the names of some of the methods are now different, and we have certain proper names introduced that are unfamiliar to English readers. But, with the substitution of Miss Nellie Dale for Mrs. Pollard, the English reader is quite at home. There is an air of superficiality thrown over the whole by the necessarily inadequate treatment of the more difficult subjects of the school curriculum. For the secondary teacher subjects must be treated on the scale adopted by Mr. P. A. Barnett or Dr. Spencer.

Within its limits, however, Dr. Kemp's book is useful, and will be found stimulating and attractive by younger students. The first part treats of the General Principles of Method. Part II is given up to a somewhat incomplete treatment of the Kindergarten. Part III is the most important section, and deals in nine chapters with the various subjects of the school

curriculum. Part IV is made up of two chapters—one on The Manual Arts, the other on Vocational Training. Obviously these important matters cannot be satisfactorily treated in two brief chapters. In dealing with the various school subjects, Dr. Kemp has much to say that is valuable, and, from the English teacher's point of view, it is important to note that most of the matter is quite applicable to conditions outside the United States. The European reader, however, in view of the hyphenated American, may be allowed to smile at the complacent remark in the chapter on History: "When the [North v. South] War destroyed the causes that separated the sections, we were born again a nation more perfectly joined together than any other in the world."

Teaching: its Nature and Varieties. By Benjamin Dumville. (4s. 6d. Clive.)

This work differs from most of those prepared for the use of elementary teachers in the fact that it deals with teaching in general, and not with the specific subjects of the curriculum. Naturally, all the subjects do get a fair amount of the author's attention—two of them (literature and history) indeed obtain, inconsistently with the plan of the book, a place on the contents page—but he approaches them all from the general point of view. Each subject is used in turn as material to illustrate the general principles laid down. The plan has the advantage of unifying the somewhat diverse elements with which the teacher has to deal. Whatever device is adopted, a work of this kind necessarily involves a certain amount of repetition, and it would appear that Mr. Dumville's plan has reduced the repetition to a minimum.

Two chapters supply a general view of Education and of Teaching; one chapter is devoted to Teaching as Telling; other two are given up to Teaching as Causing to Learn; two more deal with Object Teaching and the Teaching of Skill; and one with the Teaching of General Truths. Heuristic Teaching gets a chapter to itself, and the last three chapters are given up to different aspects of Inspirational Teaching. It would appear that the work is intended to serve as a textbook for students in training, and for this purpose it is admirably fitted. It is self-contained, as it includes a satisfactory account of all the matters such students must study. The presentation is eminently clear, and the practical advice sound and really useful. Everywhere we have evidence that the writer is a man who knows thoroughly the needs and conditions of the elementary schools, and has kept abreast of their latest developments. His pages teem with instructive illustrations drawn from the actual schoolroom, and when an illustration is ineffective it is usually a borrowed one. We are surprised, for example, that our author does not note the glaring defect of the Stanley Hall table on page 28—the lack of reference to age or stage of advancement of the children in question. Most of the quotations, however, are very effective, and give richness and variety to the text, though some of the poetical passages are rather hackneyed. The references to French methods are particularly useful—as, for example, the manipulation of the *cahier de roulement*.

In a book of this kind the author must keep in mind cases within the region of professional orthodoxy, and to this principle Mr. Dumville generally conforms. But now and again he must of necessity take a side, since the matter is under discussion in our professional literature. In such cases he acquits himself well. This is exemplified in his treatment of the "definite spelling lesson," the use of suggestion, and the general question of direct moral instruction. One wishes, indeed, that there were more of these passages in which our author appears as a contributor rather than as an expositor. Each chapter is followed by a list of more or less ingenious questions to enable the reader to test himself. There is an excellent index.

Didascalus Patiens. A Satire, a Medley, a Romance. By J. H. E. Crees. (6s. net. Smith, Elder.)

Dr. Crees, we may suppose, has suffered long and patiently

at the hands of Inspectors, Authorities, and associations. Perhaps the patience was on the surface only and the wrath was but bottled up for the time. Now it is poured out in a fervent stream of scorching words. Schoolmasters will read the invective with delight, for it is a pleasure both to hear the enemy abused by one who has suffered and to be rallied on one's own weaknesses by a sympathetic sharer. Dr. Crees can see little good in State control of secondary education, and he views with distrust the threatening increase in the powers of the Board of Education. It is an old story, and there is no ready solution—the dead hand of the State *versus* the living fervour of the man. It may be granted readily that a school governed by a head master of force, enthusiasm, vitality, and culture is better than a machine-made institution in which the members of the staff are puppets whose strings are pulled by the local Director of Education. But the picture may be over-coloured, and it is also necessary to remember that, if opportunities of secondary education are to be widespread, more schools are needed than there are horn head masters, and that there will be scant provision of secondary schools if the State does not organize. But we are entirely with Dr. Crees in desiring that State control should be carefully watched and effectively checked. The best check is the appointment to secondary schools of men who decline to be bullied. Dr. Crees's book will have effected something if it encourages the patient sufferer to insist that upon some points his knowledge and experience must be heard.

The glimpses we get and the portraits that are drawn of great teachers show that Dr. Crees is a faithful student of educational history. He gibes at educationists, at the Board, and especially at the smaller Local Education Committees and at theorists; but he does not hesitate to deal with formal training and other shibboleths of pedagogy. But it is as an advocate of Latin literature that Dr. Crees shows his best powers of writing. To the schoolboy who pleaded that Virgil was dull, Dr. Crees would probably reply that he had been taught by a man who lacked appreciation and fire. The invective is powerful and the satire amusing. No schoolmaster will fail to enjoy the book, in spite of its one-sided presentations. Schoolmistresses are warned in the preface that the author has not given sufficient attention to feminism—a warning that is justified by the scant and airy way in which allusion is made to the problems of girls' education.

The Extra Day. By Algernon Blackwood. (6s. Macmillan.)

Father possessed fancy and, up to a certain point, satisfied the children's desire for stories: but he was frequently in London, supposed to be tightly bound in red tape. Mother "wobbled and hesitated," and on her the children placed little reliance. Aunt Emily was a person of decision, but her decision was always "No." Come-Back Stumper (General Stumper, C.B.) was a better friend, and something could be made out of him, as he lived near and called frequently. But real joy in life began for Judy, Tim, and Maria when Uncle Felix loomed upon the horizon; and the joy reached its climax when Uncle Felix undertook to look after Tim, Maria, and Judy for a whole fortnight, "on condition that there were no lessons." Father and Mother and Aunt Emily (especially) were away. The possible cloud was a dreaded telegram from Aunt Emily saying "don't"; but it never arrived.

It was a fortnight of superb weather. The sun was so bright that in its beams a doubtful tramp was turned into a prince in gold armour, and even the policeman was bamboozled. The winds became the children's friends; even the night wind was caught and spoken to. Imagination kindles, awakes, grows, and develops, until it produces a whole lost day of twenty-four hours, which is enjoyed with especial delight by all.

"The Extra Day" is all about children, but it is not a book for the children any more than is "The Golden Age"; but it is a book from which grown-up people may draw great pleasure and profit as they read the inspiring prose, which never halts, never lags, and is always on the hill tops.

Latin Selections. Illustrating Public Life in the Roman Commonwealth in the time of Cicero. By Albert A. Howard. (4s. 6d. Ginn.)

These selections are drawn from a number of authors—Cicero, Tacitus, Aulus Gellius, Gaius, and others, and provide just the sort of background which is indispensable to the proper understanding of Roman history. Although the book does not claim to be in any way exhaustive, a good variety of topics is illustrated, such as "Method of Freeing from the Patria Potestas," "Quid sit Municipium et Quid a Colonia differat," "Cursus Honorum," "The Comitia and the Concilium," to quote a few titles. All the selections do not refer directly to occurrences of Cicero's time, but the respect for precedent in such matters was so strong in the Roman mind that the rules governing procedure in the various public assemblies and in the Senate, and the powers and ceremonies of the magistrates remained in theory, and even in practice, substantially the same over long periods. Of the two *leges* which are included, the "Lex Julia Municipalis" has been printed without any indication of the additions made to it by scholars, and with most of the abbreviations expanded; the "Lex Quintia de Aquaeductibus" in the regulation form to give the student an idea of the extent to which abbreviations were used in official documents, and to show how far such documents have been corrected by scholars. The editor has added no notes in order that teachers may be free to emphasize such points as have special interest for them. We recommend the book to students and teachers of Roman history and archaeology.

OVERSEAS.

The work, study, and play schools that have had their origin at the city of Gary, in Indiana, seem to be making progress. Their originator, Superintendent A. Wirt, has been called to New York to discuss his methods with the educational experts of that city, and it now appears that the Gary System is likely to have a chance of proving its value in the greatest city of the States. To teachers all over the world this system has a very special interest, since it involves certain principles that seriously affect their professional prospects. The foundation of the system is the principle of using school buildings all day and every day. Mr. Wirt claims that his schools are to be used for six days every week for all subjects, and for seven days for many subjects. They are to be open for twelve months in the year, and each day they are to be in use from eight o'clock in the morning till ten at night—the evening hours being given up to continuation work and adult education and recreation. Mr. Wirt registers an advance on the use made of a certain article of furniture that was contrived

a double debt to pay,
A bed by night, a chest of drawers by day,

for his school buildings must pay a treble debt—they must accommodate two schools during the day time, and an evening school after dark. He regards as absurd the usual school-room ideal of "a seat and desk for every pupil," maintaining that we might as well claim for every citizen a separate seat in the public park. He contrives his school buildings so that only half of the pupils can be in classrooms at any given time. The other half of the pupils are occupied in laboratories, libraries, conservatories, gymnasiums, swimming ponds, recreation rooms, playing fields. For the saving effected by limiting the classroom accommodation enables Mr. Wirt to launch out into a luxurious provision of all the extra accommodation so dear to the American heart. Since the average cost of a classroom in a city school in the States is about 8,000 dollars, it is clear that the new scheme leaves a handsome margin.

Teachers will naturally want to know how all this duplication of work is to be carried out. If the schools are to be in session from 8.15 a.m. to past 5 p.m., how are the teachers to fare? Are they to teach all this time for six days in the week? Mr. Wirt avoids overwork for the teachers by arranging his classes according to subjects. Every teacher is a specialist, and the pupils move about from classroom to classroom according to the subject studied. This applies even to the youngest pupils. Accordingly, each teacher can teach just the number of hours that he would have to teach under an ordinary system, the only difference being that some of those hours may happen

to be earlier or later than is at present customary. Saturday work is paid for separately. But when all allowance is made there seems to remain some danger to the professional interests of the teachers, for Mr. Wirt is eager to explain away certain difficulties. The following is from the *New York Evening Post*:—

Mr. Wirt then showed how automatically his work-study-and-play school "made unnecessary the larger force of teachers now employed by the traditional school. This possible diminution of teachers, he explained, was a by-product, and not the main purpose of his educational method. His purpose, he asserted, was to give children greater opportunities to express themselves, not to save dollars. . . . Next Mr. Wirt explained that his plan to choose assistant teachers from among pupils was not a harking back to the rejected "Lancastrian system." "I certainly do not want children to teach," he said; "I do not believe in it. The pupils who act as assistants to teachers under my organization are learners, not teachers. After they have spent the greater part of the time allotted to science, shop-work, and drawing under expert teachers, we allow the children to go back and assist their teachers by explaining to and assisting other children. This helps the children to clarify their own ideas. Teachers have told me repeatedly that they have learned more about their respective subjects during their first year of teaching than previous to that time, for in that year they clarified their own ideas in the process of endeavouring to make their ideas plain to others."

The *Evening Post* is mainly expository, but, in the magazine section of the *New York Times* for October 17, we find a distinctly critical tone. The writer, Dr. Baker, assumes, naturally, the attitude one would expect from the head master of a school: "Educational traditions, textbooks, established courses of study are thrown to the winds because they may not appeal to the boys and girls, and in discussing the Gary schools, whether dealing with the school plant or courses of study, this must always be the starting-point. Give the child what he likes; do not attempt to force upon him methods to which he may object." Again: "It is to be observed that the idea of the superintendent is always not to give the pupil what past experience says is best for him, or what the superintendent or teacher thinks is best for him, but always what the child himself wants." Dr. Baker believes that Superintendent Wirt thinks and talks too much about method, and too little about the ability of the individual teacher. "A good schoolmaster can teach successfully and inspire his pupils, whether he follows the Gary system or whether he follows no system at all. A good teacher does not need the complex equipment that Mr. Wirt demands." Dr. Baker hints darkly at academic inefficiency, and suggests that he will be more inclined to favour the new system when it satisfies the high academic demands of the local Universities. After noting that Mr. Wirt appeals to the example of Germany, Dr. Baker ends with the words: "But it should be borne in mind that the foundation of all German educational work is thoroughness."

A striking development of the community interest is found in the Gary Schools, since the teacher of chemistry is also the municipal chemist. The pupils in the highest chemistry class assist their master in his work of analysis for the city. They systematically test the water of the city, and they naturally have a special delight in testing the various candies and "soft drinks," to make sure that there is no adulteration. The chemist explains that the help of his pupils is so valuable that since he adopted his present plan he has never once failed to get a conviction if he prosecuted on the evidence of his pupils. Failures to secure convictions were common under the old system. To us in England this municipalization of the schools reads like a fairy tale, but it is quite evident that things are happening in Gary that it behoves us to note. A continuous session throughout the year, schools open seven days a week, one school building supplying the needs of two schools, school classes linked up with the general municipal service—surely these are enough to encourage the British teacher to neglect Paisley for a time and keep his eye on Gary.

Mr. J. S. FURLEY, one of the Senior Assistant Masters of Winchester College, has retired. Mr. Furley was Scholar at the College in 1867, and was House Master from 1894 until 1909. He has served as Mayor of Winchester, Chairman of the Local Education Committee, and Chairman of the Hampshire Insurance Committee.

CHRISTMAS GIFT BOOKS.

The Grand Duchess Benedicte. By A. E. Burns. (3s. 6d. net. Longmans.)—This is an excellent tale of an elaborate joke planned by some girls in a convent school, who had a good deal of leisure at their disposal except when they were in penance. A pistol, a rope ladder, fire-engines, and policemen enter into the plot, which is exciting, and yet without disastrous results. The illustrations are good.

The Cub. By Ethel Turner. (3s. 6d. Ward, Lock.)—The Cub is a youth with ideas almost beyond his years. On board an Australian liner he meets the twin heroines, an English girl and a Belgian child, who together had passed through terrifying experiences on the outbreak of war in Belgium. Finally, the Cub subordinates his individual views to the country's needs, and enlists. The story is excellent and the characters well drawn.

Ian Hardy, Senior Midshipman. By Commander E. Hamilton Currey. (5s. Seeley.)—Readers of "Ian Hardy, Midshipman," and they must have been numerous, will be delighted to have another volume of his breezy and healthy adventures. Even senior midshipmen "will be boys," and there is a good deal of fun on board, in addition to thrilling, and sometimes tragic, happenings.

Fairy Tales. Edited by Harry Golding. (3s. 6d. net. Ward, Lock.)—Margaret W. Tarrant gives us forty-eight coloured plates, executed with humour and fidelity to the story. These are a decided addition to the book. The stories are printed in large type that will not try the eyes of the little ones. They are all familiar ones, and are pleasingly told, with an occasional attempt to give greater *resemblance*; though, after all, it is difficult to make Red Riding Hood and the Wolf fit into a photograph of modern life, and children do not notice the difficulties.

My Friend Phil. By Isabel Maud Peacocke. (3s. 6d. Ward, Lock.)—Phil is a charming boy who makes friends easily with people he likes, and causes them to make friends with one another. Much of the humour in the story arises from Phil's misunderstanding of grown-ups' words and actions. As a study of child character the book is full of interest to adult readers, but it may be doubted if children will care for it, though the appearance suggests a Christmas present for the schoolroom.

In the Wake of the War Canoe. By Archdeacon Collison. (5s. net. Seeley.)—The Bishop of Derry writes an introduction to this "record of a wonderful triumph" of missionary work. For forty years Archdeacon Collison has laboured among the savage Indian tribes of the Pacific coast and among the pirates of Queen Charlotte Islands. Perils and adventures were many. There are illustrations and a map.

The School of Arms. By Ascott R. Hope. (3s. 6d. Routledge.)—Mr. Ascott Hope, deeming the thoughts of the young to be much taken up at present with warfare by land and sea, gives us as his contribution to the Christmas book market a dozen stories of brave lads whose lot has been to smell powder in their teens. The stories have the added interest to boy readers that they give some account of campaigns famous in history.

True Stories about Horses. By Lilian Gask. Illustrated by Patten Wilson. (3s. 6d. net. Harrap.)—Delightful stories that will be eagerly read or listened to by all lovers of animals.

The Boy Electrician. By Alfred P. Morgan. (5s. net. Duckworth.)—Numerous illustrations and diagrams by the author form a valuable addition to this book, which gives all the information about electricity that a boy is likely to want, as well as showing how electric apparatus is to be made.

The Story of the Golden Fleece. Adapted from "The Heroes" of Charles Kingsley by M. W. Jennings. (1s. Blackie.)—A pretty book with pretty coloured pictures in the "Stories Old and New" series. It may be found useful for readers too young to enjoy "The Heroes" undiluted.

Bramble-Bees and Others. By J. Henri Fabre. Translated by A. T. de Mattos. (6s. net. Hodder & Stoughton.)—Henri Fabre's writings on insects are well known to all lovers of Nature. No writer has observed more closely or more sympathetically; and no writer has recorded what he has seen in more fascinating words. In this volume the translator has collected all the essays on Bees that have appeared in various writings, except those on "Mason Bees," which form a separate volume under that title. The book is not, of course, for young children, but for naturalists in the middle and later teens no better gift could be chosen.

The Book of the Thin Red Line. By Sir Henry Newbolt. (5s. net. Longmans.)—In this, his latest, gift to boys Sir Henry Newbolt has done for the soldier what, in "The Book of the Blue Sea," he did for the sailor. "I have chosen," he says, "six good men, and pieced together these stories of their lives. I have tried to tell them as adventures." But the historical setting, welcome to the boy reader, is

clearly there. The chosen men are not all widely known to fame; but they all fight in famous days. That Sir Henry makes the stories live goes without saying. There are numerous coloured plates and illustrations in black and white by Stanley L. Wood.

Missionary Knights of the Cross. By John C. Lambert. (2s. 6d. Seeley.)—Missionaries see strange sights and experience thrilling adventures. The sub-title gives an idea of the scope of Dr. Lambert's book: stories of the indomitable courage and stirring adventures of missionaries with uncivilized men, wild beasts, and the forces of Nature in many parts of the world. There are some good illustrations. Remarkably good value for 2s. 6d.

The Animal A B C. Edited by Harry Golding. (1s. Ward, Lock.)—A new volume in "The Little Wonder Books." Thirty pictures in colour by Margaret W. Tarrant.

The Romance of the Spanish Main. A Record of the Daring Deeds of some of the most famous Adventurers, Buccaneers, Filibusters, and Pirates in the Western Seas. By Norman J. Davidson. (5s. Seeley.)—Drake, Hawkins, and Raleigh are amongst the heroes whose adventures are related by Mr. Davidson, and the fact that these men are known to history will not detract, but rather increase, the boy reader's interest in their doings. The story tells of the buccaneers, their origin and their life, of filibusters, and of well known pirates. If sometimes the horrors related are somewhat unpleasant, perhaps that is better than the sentiment that appears usually to surround the pirate of fiction. Mr. Davidson tells of men who actually lived and of the deeds they actually did.

Adventures of Missionary Explorers. By R. M. A. Ibbotson. (5s. Seeley.)—Missionaries must perforce be ready to brave perils and endure hardships. Their experiences, especially in entering a district for the first time, are full of adventure. Consequently the archives of the missionary societies afford plenty of material for the writer of stories for boys. In this volume Mr. Ibbotson tells us, according to the sub-title, true stories of the heroism, fortitude, and indomitable courage of Dr. T. L. Pennell, W. Basbrooke Grubb, Bishop Bompas, Griffith John, George Grenfell, and many other well known missionaries in all parts of the world.

The Cloister and the Hearth. A Tale of the Middle Ages. By Charles Reade. With fourteen illustrations by Charles Keene and six by M. Sankey. Edited, with Introduction and Notes, by C. B. Wheeler. (3s. 6d. Milford.)—A vast amount of reading, in good type and well bound, for a very moderate price. Mr. Wheeler is doing a service by editing this series of English classics with just enough introduction and annotation to remove doubts and difficulties.

The Stars and their Mysteries. By Charles R. Gibson. (3s. 6d. Seeley.)—Mr. Gibson is well known as a writer of scientific works designed to introduce young readers to the wonders that lie, often unnoticed, around them. In this volume we are at first taken in a flying machine to the moon, and, though the journey may suggest the fanciful, what is described as seen on the moon is authorized by research. After the moon comes Mars, and then the Sun. There are also chapters on the stars. Some good illustrations and diagrams.

The Jolly Book of Boxcraft. By Patten Beard. (3s. 6d. net. Harrap.)—Three fairies—Happy Thought, Nimble Fingers, and Play—visit the writer of this book and tell her of many wonderful things that can be made out of boxes. Under this inspiration, and with the help of a pair of scissors and a paste-pot, arise Boxville Town, Boxville Railway Station, and many another building full of joy. There are numerous photographic illustrations of toys that have been made out of discarded boxes, together with diagrams and full instructions.

Modern Chemistry and its Wonders. By Geoffrey Martin. (7s. 6d. net. Sampson, Low.)—Dr. Martin's earlier volume was found so valuable that he has prepared this supplementary volume, dealing with matter that was omitted in his first book. It is addressed to the general reader or student who has some knowledge of chemistry and who wishes to learn more of the wonders of explosives, radium, and other materials.

Stories from German History. From Ancient Times to the Year 1648. By Florence Aston. (3s. 6d. net. Harrap.)—Miss Aston has a clear style, and tells her stories well. Alaric, Attila, Charlemagne, Frederick the Red Beard, and Martin Luther are among the heroes of the stories. Boys and girls, wearied as they often are by stories that claim to be written for their especial benefit, will read with enjoyment these plain tales of actual (or traditional) happenings.

Saturday Island. Fun, Friendship, and Adventure at an Elementary Council School. By Robert Overton. (3s. 6d. Sampson Low.)—Mr. Overton can tell a story well, and there is no dull page in his very readable work. The adventures are all possible for boys in an Essex Council school. As a picture of a Council school the story would leave the reader unenlightened. There appears to be little, if any, attempt to portray the life of an elementary school or to make the reader feel its atmosphere. The head master was educated at Eton and Oxford. The boy hero is called "the toff" by his

fellows, and is sent to the school only because his uncle is a firm believer in Council schools for everybody. The father of the sub-hero was at Eton, though he has come down in the world. These facts, though they detract from the value of the book as a study of an elementary school, do not prevent it from being a well written and interesting story.

Plants we Play With. By H. R. Robertson. (3s. 6d. net. Wells Gardner.)—This is a book of great charm. Mr. Robertson has taken twenty well known plants, and gives a Nature study and a child picture to each, together with a page of letterpress. The coloured pictures are very successful reproductions of delicate and beautiful miniatures. The letterpress contains some games, story, or interesting fact connected with the plant—for instance, the mulberry includes the game of the mulberry bush; the willow, the cutting of whistles.

CASSELL & Co.

Just at the last moment as we are going to press comes a parcel of attractive gift books from Messrs. Cassell. Four popular tales by R. L. Stevenson—*Treasure Island*, *Kidnapped*, *Catriona*, and *The Black Arrow* (3s. 6d. each). These are handsome volumes, well printed on thick paper, and with coloured illustrations. *The Scarlet Scouts* (3s. 6d.) is similar in appearance to the Stevenson volumes just mentioned. The author is D. H. Parry; his theme is the present War. The adventures of the Scouts are thrilling, and are well told. There are striking coloured illustrations. *All About Aircraft* (6s.), by Ralph Simmonds, is, as the name implies, a full account of aircraft in their beginnings and in their recent development for purposes of war. The book is written for boys; it is a handsome volume, and well illustrated. *The British Boy's Annual* (5s.) is in its sixth year of issue, and will be welcomed by those who have read the previous volumes. Thrilling stories of the present War are included, in which submarines, mines, Zeppelins, and motor bicycles play a part. Mr. Claude Grahame White is among the contributors. *Cassell's Children's Annual* (picture boards 3s. 6d., cloth gilt 5s.), an old favourite, has been rendered still more attractive this year by the addition of eight special coloured plates, as well as other things. It is an excellent volume and printed in type suitable for young eyes. *Little Folks Christmas Volume* (picture boards 3s. 6d., cloth gilt 5s.) is a book to be enjoyed by boys and girls alike. It is full of varied and interesting tales and articles. *Tiny Tots* (picture boards 1s. 6d., cloth 2s.) is a book of short stories and amusing verse, written especially for the little ones in the nursery. The pictures are very droll. *My Book of Best Fairy Tales* (6s.) has been compiled and edited by Charles S. Bayne, who well knows what children like. He claims to have included all the favourite stories from Grimm, Andersen, Perrault, and the Arabian Nights. It is a large volume of good print and paper, with many handsome illustrations. *Bunyanfufkins* and *Little Mousie Cruoe* (1s. each), by May Byron, are charming little illustrated story-books for children who are learning to read.

DIARIES.

Brown's Boy Scout Diary for 1916 (6d. net).—This diary has plenty of space for entries, and, in addition, gives all the formal information belonging to the craft, such as the various proficiency badges, signalling, and the like, with illustrations. A useful book for a boy.

GENERAL NOTICES.

CLASSICS.

Conspectus, or Latin at Sight. By Rev. Hedley V. Taylor, M.A. (2s. 6d. Macmillan.)

This book is meant to serve as a method of sight translation, and will be found to contain ample material for elementary practice, both sentences and passages of graded difficulty. The introduction, consisting of remarks on sentence construction, order, methods of translation, &c., is intended to be the basis of a series of lessons. This is followed by illustrative sentences bearing on various points of syntax and idiom. The extracts in Part I are preceded by short sentences giving the substance of each passage. Part II consists of harder passages without preparatory sentences. Part III contains graded passages to test the progress of a class from stage to stage. A list of synonyms, with an index of the Latin words contained in it, completes a very useful little volume.

Proceedings of the Classical Association. Vol XII. (2s. 6d. net Murray.)

This year's Proceedings of the Classical Association were naturally much curtailed, and the present volume contains only lists of members, financial statements, and the brief address of the President. The latter has already been quoted largely in the Press owing to its striking views on democracy and peace, expressed with characteristic vigour. Prof. Ridgeway is with Bernhardt in regarding universal peace as "a dream, and not a pleasant one."

"The world," he remarks, "would be like a stagnant pond in some shady spot, mantled over by a greenish slimy scum, never ruffled by the wind's fresh, purging blasts. In it no higher animals can live, but it is filled to overflowing with all the lowest and basest forms of life. So, in a world of perfect peace, humanity would perish from its own physical and moral corruption." Even those who cannot accept Prof. Ridgeway's conclusions will find his address interesting, and will enjoy the apt illustrations from ancient history with which he supports them.

The Annals of Tacitus. Book IV. By G. M. Edwards, M.A. (3s. net. Cambridge University Press.)

The editor remarks in his preface that the fourth book of the "Annals" is an excellent introduction to Silver Age Latin and to the history of the early Principate, and we may add that teachers who think of reading it with their classes will find this edition admirably suited to the purpose. The notes are brief, but show thorough and careful scholarship. There are introductions on "Tacitus and his Art," on "Tiberius the Tyrant," and on various aspects of the government of the Early Empire. They are evidently the work of a scholar familiar with a wide range of Tacitian literature. An appendix on select various readings and indexes are useful features of a book which deserves to be largely used.

MATHEMATICS.

Improved Four-figure Logarithm Table. By George C. McLaren. (1s. 6d. net. Cambridge University Press.)

The tables of four-figure logarithms as arranged by Mr. McLaren are certainly characterized by special clearness and simplicity. Unless, however, the method employed were generally adopted, instead of the usual construction, students taught solely with the present tables would find themselves somewhat at a loss if confronted with the ordinary sets and their columns of differences. The advantages afforded by the little book before us will be readily appreciated by those already initiated. The author claims a closer degree of approximation for his results than that to be obtained from other four-figure tables, an error of unity in the fourth decimal place being the maximum. A comparison of numerous values would be required in order to establish this. Dr. Edward Sang's seven-figure logarithms are those on which the author has based his work.

Electrical and Optical Wave-Motion. By H. Bateman, M.A., Ph.D. (7s. 6d. net. Cambridge University Press.)

Basing his work on the equations of Maxwell, the author intends the present volume to serve as an introduction to some of the later developments of the electro-magnetic theory as promulgated by Maxwell. Important considerations have been instrumental in deciding the scope of the treatise—namely, the vast quantity of literature bearing on the subject in its entirety, and necessarily demanding an author's attention in the course of preparing his own volume, and the wish on Dr. Bateman's part to stimulate not merely the researches of the most advanced of our mathematical students, but also original work and discovery amongst the less widely and deeply read in the science of mathematics. It follows that very much that would have been of deep interest to readers of the former type has had to be omitted entirely. Even a cursory glance through the text suffices to make abundantly evident the wide reading of the author himself, for the successive pages teem with references to the scientific textbooks and memoirs on the subject to which he has had recourse. So numerous are these, in fact, that it is often far from easy to grasp clearly how much is actually due to the writer's own pen, and how much is adapted from the authorities quoted by him. Dr. Bateman enriches the volume with the results of some of his own research work, notably in the eighth chapter. Readers will welcome the presence of an index—a valuable accession which they often look for, and fail to find, in textbooks on higher branches of mathematics. A certain number of diagrams are furnished, and the qualities of publication that combine to enhance the intrinsic value of so scholarly a treatise as Dr. Bateman's are everywhere noticeable. It will interest some of our readers to recognize in the author a sometime regular contributor to the mathematical columns of *The Educational Times*.

Projective Geometry. By G. B. Mathews, M.A., F.R.S., Lecturer in Pure Mathematics in the University College of North Wales, Bangor. (5s. Longmans.)

The scarcity of English works on this subject makes this book a most valuable addition to mathematical literature, and it should appeal equally to both teachers and advanced students. The whole subject is developed in an especially thorough and satisfactory manner. The more elementary portions are covered in the first half, which follows purely geometrical lines. In the second half, Von Staudt's Theory of Complex Elements, the Theory of Casts, Quadric Surfaces, Null Systems, and Skew Involutions are discussed with other related topics. In this half the author introduces a limited amount of analytical work to assist his exposition. This does not, however, interfere with the geometrical aspect of the work. The principle of duality is emphasized from the very begin-

ning. The book throughout is admirably written, and is well illustrated with carefully drawn diagrams.

ENGLISH.

Dryden's Annus Mirabilis. Edited by W. D. Christie. With an Introduction by F. Page. (1s. Clarendon Press.)

A scholarly edition of Dryden's "diligent" poem, including a Life of Dryden, Johnson's criticism of the poem, and Christie's notes revised by Firth. For school purposes the book will have but little value—the poem hardly merits a detailed study—but, where examinations demand it, this edition will be highly satisfactory.

Macaulay's Horatius, Regillus, and The Armada. Edited by A. J. F. Collins, M.A. (1s. University Tutorial Press.)

This is a book for examinations. The introduction duly sets forth the life of Macaulay (two pages, with all the dates), and then jumps, without hesitation, to Roman history and legend, Roman lays and the like. A diagram follows, with everything lettered and numbered. Next comes the text, and the forty-five pages of poetry are further "explained" in eighteen pages of notes. Everything which a stony-hearted examiner will ask is provided for, and the scholar has only to read it, and re-read it. The tragedy of it all is in these words from the preface: "This series of English classics is intended for the use of junior and middle forms in schools."

Leaders of English Literature. By A. F. Bell. (2s. net. Bell.)

For scholars who desire an introduction to the great figures of literature, this book will be of great value. Simply written, full of interesting personal material about the authors, and wise criticism of their works, it avoids the minor figures, and strives to emphasize the leaders and their relationship to the period of which they are the products. The author is obviously in strong sympathy with his work and offers an easily read narrative which will take the scholar safely down the broad highway of literature, helping him to a clearer plan than if he were taken by a more circuitous route. It ranges from Chaucer to Swinburne.

Class Exercises in English Composition. By Arthur Linecar. (Three books, 4d., 5d., 6d. Jack.)

A wide variety of elementary exercises in oral and written composition is provided in these graded books. A picture is generally the basis of a lesson, and on the opposite page are questions about the picture, followed by exercises in narration or description. Exercises in grammar also accompany the lessons, and plenty of work is provided for the scholar. The majority of the pictures (in colour and monotone) are very suitable; a few might well be omitted. For the teacher of English in junior forms the books would save much valuable time in the setting of exercises, and would not fetter him in his teaching.

A Matriculation English Course. By B. J. Sparks, B.A., B.Sc. (3s. University of London Press—published by Hodder & Stoughton.)

Everything required for the Matriculation and similar examinations in English receives due treatment here. The grammar occupies about one-third of the book and is clearly and sufficiently expounded. The remainder deals with composition, and includes all the topics covered by that elastic term. The book is well suited to its purpose, and will justify its use in examination forms.

A New System of Analysis. By Lydia Winchester. (1s. Blackie.)

This "new" system consists essentially of a simplification of the complex methods of analysis with their elaborate "tables," and is therefore to be commended as waging war against mechanical aids. The bulk of the book is given over to the sentences and passages for analysis, graded in difficulty, which will be useful to the teacher.

How and Why Stories; Here and There Stories; Then and Now Stories. (Junior, 3d. paper, 4d. cloth; Intermediate, 4d. paper, 5d. cloth; Senior, 5d. paper, 6d. cloth. Macmillan.)

These are short reading books with topics from Nature study, geography, and history respectively, and all offer suitable material in their own field. They are printed in graded type and are illustrated. The "How and Why Stories," perhaps, are more striking than the others, and Fabre's "Insect Life" (Senior) and Guest's "Curious Facts about Animals" (Intermediate) are both unusually interesting.

The Three Bears and the Water of Life (paper, 1d.; cloth, 2d.).

The Fir Tree and the Tinder-Box, by Hans Andersen (paper, 2d.; cloth, 3d.). *Lamb's Tales, with Illustrative Extracts from the Plays* (paper, 3d.; cloth, 4d.). (Chambers.)

Three readers for children, each a representative of a series. The first is a member of "Complete Tales for Infants," which contains twenty volumes. The second is from a series of "Narrative Readers," now numbering forty-five volumes. The third is

from Chambers's "Supplementary Readers," and contains "The Tempest" and "The Merchant of Venice." All are clearly printed in big type on good paper and are excellent value.

The Progress to Literature. Edited by R. Wilson, B.A. In Six Books. (10d., 1s., 1s. 3d., 1s. 6d., 1s. 8d., 2s. Macmillan.)

These books attempt to provide attractive readers for school use, and also to give scholars a desire for more reading of the same kind. Both aims are likely to be secured, for few readers offer so attractive a fare, or give such wise advice to scholars in the choice of books. The personal side of literature is emphasized, and writers are introduced as friends, who are willing to be "story-tellers." First of all, Wendy's friends—Lewis Carroll, R. L. Stevenson, and Hans Andersen—are the tale-tellers, and in subsequent books all the magicians are drawn into service. Scott is cleverly introduced as Marjorie Fleming's friend, and his contribution is short. Folk-lore and mythology, too, claim a hearing, and in the literature of natural history there are excellent "peeps" into Selborne, as brief as they are interesting. The books are alike suitable to the elementary school and to the preparatory and junior forms of the secondary school. The extracts have been largely chosen for their interest to children, but they are also of the highest literary worth, and the author's plan weaves them together in an attractive sequence. They suggest a close connexion between the literature lesson and the school library, and cannot but help the scholar to a love of what is worthy among books. The printing conforms to the standards recommended by the British Association, and the pictures are well chosen and delightfully reproduced. In all respects they are excellent.

Exercises in Prose Literature and Composition. By G. Clifford Dent, B.A. (3s. 6d. Clarendon Press.)

A wide selection of literary extracts is given on the left-hand pages of this book, and many questions and exercises on them occupy the right-hand pages. The extracts are carefully graded and are designed to cover the instruction of children between the ages of eight and eighteen. The questions are very varied and searching, demanding much thought. The author has also wisely divided the book into three parts, which may be purchased separately, and, since the extracts can also be obtained without the exercises, the teacher is at liberty to formulate his own questions.

The Elder Brother. A Comedy by John Fletcher. Edited by W. H. Draper, M.A. (2s. 6d. net. Cambridge University Press.)

There is little to do in these few lines except to commend Fletcher's comedy as suitable in every way for acting in schools and Universities. Since the complaint is often heard that suitable plays are difficult to find, this reprint should be warmly welcomed, particularly as its main purpose is to show the superiority of the scholar over the courtier. The plot is simple, the language direct, and of the chief characters only one is a woman.

Great Names in English Literature. Vol. II: *From Dryden to Burke.* By Edith L. Elias, M.A. (1s. 3d. Harrap.)

Each writer is given a separate chapter, and is rather rigorously divided from his fellows. Moreover, in the allocation of space, there is little indication of rank, for Boswell gets a little more than Gray, and many of unequal importance are each given the same number of pages. The book is easy to read and the criticisms are sound. The author writes fervently, with a prodigal use of adjectives, but she will be forgiven this in a book on the great men of literature.

HISTORY.

The People of England: a Social History for Schools. By Stanley Leathes, C.B., M.A., formerly Lecturer in History at Trinity College, Cambridge, one of the Editors of "The Cambridge Modern History." Vol. I, *The People in the Making.* (2s. 6d. Heinemann.)

Mr. Leathes writes for boys and girls between the ages of twelve and sixteen in the first place, but also "for the schools in which such boys and girls are taught"; and he assumes that his students already have some knowledge of the main movements and landmarks of that period—that is, for this volume, early and medieval times, say down to 1485. "This volume deals with the making, the schooling, the apprenticeship of the nation. It shows how learning and the arts, driven out by the Angles and Saxons, worked their way back through the Church, the Normans, the Crusades, and the French. It shows how an untutored people by foreign discipline learnt to govern itself." Especially it pictures how the people lived and moved and had their being—their everyday unconscious life as well as their conscious activity and achievement. Mr. Leathes, of course, is amply furnished with such information as is accessible, and he casts the material into a clear and effective form, and expresses himself in most simple language and style. There are more than a hundred judiciously selected

illustrations. This is about as admirable a book for its purpose as one could desire.

Frederick the Great and his Seven Years' War. By Ronald Acott Hall, C.C.S. (4s. 6d. net. Allen & Unwin.)

"Read and re-read the history of Frederick's campaigns; model yourself upon them." So said Napoleon, and Napoleon was a good judge. Now the German strategy of to-day is mainly based upon Frederick's strategy in the Seven Years' War, just as the German political morality of to-day follows the lines of Frederick's. Mr. Hall, therefore, has done well to translate, with connecting links of explanation, Frederick's own account of his policy and campaigns, and to point the moral. The correspondences between the practice of Frederick and numerous aspects of the present War are very striking and instructive. The broad principles of strategy remain unchanged, but there is ample room for variations in detail; and Frederick's secret is now a very open secret, without any apparent Frederick to work it. The volume is very opportune and deserves careful study.

The Secret of the Raj. By Basil Mathews, M.A. (1s. 6d. United Council for Missionary Education.)

This little volume is written in the right spirit, and the principles commended are freely illustrated from historical examples. In India, as elsewhere, the fundamental thing that impresses is character, but the term must be taken in a wide sense, and so very much depends upon real knowledge of the world around one and on a sympathetic temperament. The author's enthusiasms refuse control, and his exposition is less connected than sober instruction demands. The sketch may, however, stimulate readers to seek a more solid narrative in other books. There are several illustrations.

In Norman and Plantagenet Times, 1066-1485. By William Hislop. (1s. 3d. Chambers.)

This is a member of a series called "Chambers's Dramatic History Readers," but as a reader it is without virtues, whereas its large number of simply dramatized episodes offers great possibilities to the history teacher who uses the dramatic method with young children. The author adds a valuable note which will help teachers in such work, and two interesting photographs are reproduced, showing some young actors. The "reader" could well be improved. As in a former day, it is the kings and nobles who do everything, and so a distorted account of life in early times is offered. Even with such material the author has given us a book of value; with better material he might produce something noteworthy.

GEOGRAPHY.

Educative Geography. By John L. Haddon, B.Sc. (1s. net. Bacon.)

This is a small notebook for teachers. There is a well illustrated appendix containing full information, which will specially appeal to those teachers who are in the habit of obtaining their practical geography appliances from the school workshop. The text itself is most happy when dealing with elementary surveying and mathematical geography. The human geography section is too short to be of much value. The climate section contains some new features, but needs some revision. It might be noted that not even in normal times do two hundred stations send telegraphic returns daily to the Meteorological Office; the analogy between contour lines and isobars is a dangerous one; an anticyclone is not a wind; the *Times* chart is a poor substitute for the inexpensive Daily Weather Report, and it is never available sufficiently early for schools to fill up charts showing "to-day's" pressure distribution.

Bacon's New War Map of South Central Europe. (Paper, 6d. net; cloth, 1s. net.)

Covers an area from Warsaw to South Greece, Sebastopol to Budapest, on a scale of 43 miles to an inch. It is politically coloured, has a moderate number of place names, shows chief lines of communication, but is not very successful in its attempt to suggest relief, though for general purposes it is certainly an improvement on many other maps which have been issued.

Bartholomew's New War Map of Italy and the Balkan States. (Paper, 1s. net; cloth, 2s. 6d.)

This covers an area from Vienna to Malta, Odessa to Nice, on a scale of 1 in 21,000,000. It is quite equal to the other productions of this famous Institute, and is a clean looking map, with an unusually large number of legible place names. Political divisions are coloured, and "form lines," unfortunately with varying intervals, give some hint of the relief of the land. All railways are marked, and there are some useful insets. Only a very large demand can repay Dr. Bartholomew for his enterprise in issuing this excellent cheap map.

Physical Geography. By Philip Lake, M.A. (7s. 6d. Cambridge University Press.)

A book for advanced pupils. The rudiments of all branches of

the subject are, intentionally, not included, but the writer does not demand much more than a general knowledge of elementary science on the part of his readers. The book deals with atmosphere, ocean, and land, and the arrangement of the chapters is the result of long experience and careful thought. It is difficult to imagine a textbook with information more complete and yet so pleasingly put. Teachers, in particular, will appreciate the extreme care and logical manner in which each point is presented. With regard to matters of controversy the arguments are impartially set out—in fact, there will be some regret that Mr. Lake has not given a more definite ruling in some parts of the work in which he can justly claim to speak with authority. In a book of three hundred pages on physical geography the difficulty is to decide what to omit, and, on the whole, the choice has been well made, though possibly a short account of the work of Hedley and Taylor on the Great Barrier Reef would have made the chapter more complete, and many readers will regret that the book does not contain more of the author's special work on rivers. Careful printing, good paper and binding, and lavish illustrations (over two hundred, including maps) add to the general excellence of the volume.

GERMAN.

Deutsche Stunden. By V. Krüger. (2s. Blackie.)

A textbook designed for those who begin German about the age of fourteen, and may be expected to make fairly rapid progress. The author does not, however, make this fact a pretext for introducing too much grammar; she wisely relies on practice and repetition of simple grammatical forms. There is a good supply of questions for conversation and of easy lyrical poems. The English in the book seems to us unnecessary.

Die drei gerechten Kammacher. By G. Heller. Edited by H. T. Collings. (1s. 6d. Heath.)

The length of the paragraphs in this *Novelle* (some extend to more than three pages) and the lack of conversation would make it seem rather uninteresting as a school reader. It requires, we think, to be read rather quickly by those who have a good knowledge of German. The story is edited with a good literary introduction and a full vocabulary. Difficulties are well explained in the notes.

(1) *Von Jenseit des Meeres.* By Th. Storm. Edited by A. Oswald.
(2) *Der Stadtpfeifer.* By W. H. Riehl. Edited by A. Oswald. (9d. each. Blackie.)

These are two of Blackie's German Texts, "Modern Copyright Authors." The little books are very cheap, but they are well and clearly printed. Difficulties are treated in short notes, and all necessary words are given in the German-English vocabularies. "Der Stadtpfeifer" will be found very useful for fifth-form reading, whether the pupils are boys or girls. "Von Jenseit des Meeres" is a little more advanced, and will appeal especially to girls.

(1) *Wolfdietrich.* By A. O. Klausman. Edited by H. E. Adams.
(2) *Das grüne Haus.* By P. Dehmel. Edited by C. R. Ash.
(3) *Umzingelt.* By D. von Lilienkron. Edited by A. M. Hughes. (1s. 6d. each. Oxford University Press.)

"Wolfdietrich" is a legendary story of adventure, very suitable for reading in a second year of German, as it is full of incident and contains much conversation. "Das grüne Haus" is a collection of short stories told in simple and charming language, from which much good German could be learnt. "Umzingelt" is a good deal more difficult than the other two books; it consists of war stories, sometimes a little too realistic for school reading, it seems to us. Of course, being by Lilienkron, they are very well told. The three texts are edited with excellent "reform" exercises, and may be had with or without vocabulary.

FLEMISH.

De eerste Steppen om Engelsch te leeren. By T. W. Cox. (6d. McDougall's Educational Co.)

This is an introduction to English for Flemish children. Parts of the body, the family, mealtimes, the house, the street, the school are treated of in simple sentences. The book would be useful also to those who wish to gain a little knowledge of Flemish, and there is a good section on the pronunciation of that language.

SCIENCE.

Aims and Ideals in School Science. By Joseph Reilly, M.A., M.Sc. (1s. 6d. net. Browne & Nolan.)

This little book, well worthy of the attention of all interested in scientific education, contains a collection of essays, in the preparation of which the author (in addition to his own facilities for studying *in situ* the problems which he handles) has received much assistance from the first-hand knowledge of his colleagues in various branches of the educational service. The subject is one of which the author has evidently made a special study; he is chiefly concerned with the Irish educational system, but, in dealing with

(Continued on page 458.)

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the particular type of scientific training best suited for the adolescent, he has put before us a valuable summarized comparison of such widely differing ideals and methods as those of England, Scotland, America, France, and Germany. Further, though he does not claim originality for many of the views expressed, he has discussed them in a fresh and convincing manner, having always in mind the aim to speak of adolescent education as an end in itself, and not as a mere step on the way towards the University. Copious references to treatises upon educational subjects and to recent articles in professional magazines appear both throughout the text and in a useful bibliography, with which the essays conclude.

Practical Physical Chemistry. By J. B. Firth, M.Sc.
(2s. 6d. Methuen.)

The author of a practical textbook who can satisfy readers of all shades of opinion is, indeed, a *rara avis*. Thus, some of us will regret certain omissions—e.g. of a chapter dealing with Errors and Means, and of references to original papers, only to commend the careful selection of experiments so that theory and practice should go hand in hand. A noteworthy feature is the inclusion of short chapters on Electrochemical Analysis, and Electrolytic Preparations, owing as much to the importance of their industrial applications as to their theoretical interest. The book contains a course of judiciously selected practical work in physical chemistry, and is published at a surprisingly low price. The print, however, is good and the diagrams very clear.

Volumetric Analysis. By A. J. Berry, M.A.
(6s. 6d. net. Cambridge University Press.)

This volume, bearing the hall-mark of the "Cambridge Physical Series," not only contains practical directions for exercises in volumetric analysis, but also treats the subject from a theoretical point of view. Thus, there are included a useful chapter on the Theory of Indicators, and noteworthy paragraphs on Relative Errors. Facility of arithmetic and a certain measure of common sense is assumed to be possessed by the volumetric analyst, who will find the calculations restricted to the elucidation of principles and of knotty points only. The book is intended to suit the needs of students rather than to be a work of reference. The author has succeeded admirably in his task—that of filling a real gap between the superficiality of many elementary textbooks and the exhaustiveness of standard treatises on the subject. We expect soon to find a copy in the laboratories of most secondary schools, and we have no hesitation in saying that it is well worthy of a place in the library of every teacher of chemistry as well as on the bench of every college student of the subject.

First Course in Chemistry. By William McPherson and William Edwards Henderson. (5s. 6d. Ginn.)

Another American book, which will find favour for the middle and upper forms of our schools. The value of the creation and stimulation of interest in the subject has been well borne in mind—as, for instance, testify the attractive photographs interspersed throughout the text. The conception of the book is utilitarian in character; the "Topics for Themes" at the end of each chapter form valuable suggestions for further study in this direction.

Annual Report of the Smithsonian Institution, 1913.
(Washington: Government Printing Office.)

Of this volume 139 pages are devoted to the report proper, of general interest only, while the remaining 650 pages contain scientific papers of absorbing interest and some splendid explanatory photographs and diagrams. It would be useless to attempt to give even a superficial résumé of the material included or to select a paper for special comment. Suffice it to remark upon the sustained excellence of the authoritative discourses upon anthropological, biological, chemical, engineering, economic, geological, physical, and other problems which are annually to be found in the publications of the Smithsonian Institution.

Chemistry. Parts I and II. By W. H. Ratcliffe, B.Sc., F.C.S.
(Part I, 3s.; Part II, 1s. 6d. University of London Press: Hodder & Stoughton.)

The arrangement adopted by the author includes the separation of the descriptive and theoretical portion of the subject (Part I) from the practical experimental section (Part II). Such a course evidently has its advantages, but is at the same time open to some objections. The author has carried out the task of compiling a two years' course in chemistry for young students in a very creditable manner. The text is good, but the diagrams are perhaps rather crude, and one cannot help thinking that such contractions as " \bar{x}_s " for "excess" are a little out of place in a class book. The diagrammatic "summaries," too, at the end of each chapter appear more suited to the use of the teacher than that of the class. These adverse criticisms are, however, of relatively minor importance and do not prevent us from recording our general satisfaction with the books.

Advanced Inorganic Chemistry. By P. W. Oseroff, M.A.
(5s. net. Bell.)

Intended primarily for the use of boys in the upper forms of schools, this quite excellent volume contains no features calling for special comment. In common with many others of its kind, it covers the usual ground in suitable detail. Numerous diagrams are included, and a number of useful problems and practical exercises are appended to each chapter. Exactly why it was called "Advanced" is not very clear, but the term, of course, has only a comparative and arbitrary significance.

Notes on Practical Physics. By C. G. Barkla, D.Sc., F.R.S., Professor of Natural Philosophy, and G. A. Carse, D.Sc., F.R.S.E., Lecturer on Natural Philosophy, University of Edinburgh. (3s. 6d. Gurney & Jackson.)

Describes, as concisely as possible, methods of carrying out a number of representative experiments, mostly with simple apparatus, on dynamics, heat, light, sound, electricity, and magnetism. The first chapter discusses the treatment of observations and the determination of possible error, while the second is devoted to a description of common measuring instruments and the mode of using them. The units to be employed might perhaps have been stated more frequently, but otherwise the descriptive matter is sufficiently clear to enable a student to carry out all the work without undue amount of attention. Diagrams and illustrations of apparatus are given. A book that will be found very useful in the case of students preparing for examinations of University Intermediate standard.

Wonders of Wild Nature. By Richard Kearton, F.Z.S.
(6s. Cassell.)

Mr. Kearton's work is so well known that we need only say with respect to this latest book of his that lovers of Nature have a special treat in store for them. Full of fascinating detail and anecdote concerning bird life round London, on the isles of Scotland, on the moors and polders of Holland, and on Norwegian mountains, it holds the reader's attention from beginning to end. The seventy-two full-page reproductions from photographs taken direct from Nature by the author and his daughter make it additionally attractive.

Electrical Engineering. Vol. I. By T. C. Baillie, M.A., D.Sc., A.M.I.M.E., Principal of the Croydon Polytechnic. (5s. net. Cambridge University Press.)

This volume does not profess to be more than a general elementary introduction. So far as the purely theoretical side of the work is concerned, the author confines himself to a concise, but clearly expressed, discussion of fundamental principles of electricity and magnetism, sufficient to render clear the general working of electrical machines and instruments. He goes, however, very fully into the methods of current and resistance measurement, describing the construction and use of the various instruments employed commercially and explaining how their calibration is effected. The potentiometer is, deservedly, given a chapter all to itself. The section dealing with cells is chiefly limited to commercial types, such as the Weston Standard, Leclanché, and storage cells, but also includes a brief account of electrolysis and electroplating. The last chapter is devoted to the question of electric lighting. The numerous illustrations and diagrams leave nothing to be desired. The printing, too, is excellent. Questions of a thoroughly practical type follow each chapter. Students taking the electrical engineering courses in technical schools and institutes will find the book particularly useful, but to fully appreciate it they should have already had, or be taking, a course in the more theoretical side of the work.

HYGIENE.

A First Book of Physiology and Hygiene. By G. D. Cathcart.
(1s. 6d. Macmillan.)

A plain, straightforward little book on physiology and hygiene is presented here. It has several interesting diagrams, of which those illustrating good and faulty positions, certain physical exercises, and the composition of foods, are the most attractive, though all are good. So also are the practical exercises and review questions. It would be a very suitable textbook for pupils even beyond the junior stage, though it modestly makes no claim to this. The brief reference to the reproductive system is hardly likely to do any good. It should either be treated more fully or omitted.

An Introduction to School Hygiene. By W. B. Drummond.
(3s. 6d. Arnold.)

Dr. Drummond's previous books are well known and highly esteemed, and there is no doubt that this one makes a considerable advance on the usual manual of school hygiene. It has been written so as to include only those things which are likely to be of actual practical value to the teacher, and, consequently, long

discussions of sanitation and buildings are not provided. These subjects are not neglected, but, as the preface says, they have been kept in their proper place. All the points which the lecturer on hygiene to teachers has learnt to regard as of highest importance are dealt with, but, unfortunately, the information given often just stops short of telling us what we want to know. For example, may a child who is preparing for a scholarship examination, where time is of extreme importance, attend school if he is suffering from ringworm? What should be done with a tuberculous child for whom admission to a special school cannot be obtained? Is he to be left in his home, or to receive special treatment at school? What steps can be taken by the teacher of a country school who discovers a case of discharging ears, if the nearest doctor is five miles away, and the next medical inspection due six months hence? In connexion with the closing of schools during epidemics of disease, Dr. Drummond overlooks the point that schools are not usually closed, in the first place, to check the spread of disease, but to prevent the loss of grant which follows from a serious drop in the average attendance. However, it is impossible to deal with everything in an introduction to the study of a subject, and Dr. Drummond's book will doubtless prove of very great value to many teachers, and be widely used.

PHYSICAL TRAINING.

Physical Training for Boy Scouts. By Lieut. A. G. Street, R.N. (7d. net. Mills & Boon.)

The exercises given in this book are those of the Swedish system, and the same principles as to progression, importance of correct performance, commanding, and so forth, are insisted upon here as in other good manuals. It agrees, for example, so far as it goes, very closely with the Syllabus of Physical Exercises recommended by the Board of Education. The distinctive feature is the use of the Scout's staff, which is intended to add to the interest of the exercises. It is an excellent manual and ought to be very useful.

SEWING.

The Little Girls' Sewing Book. Edited by Flora Klickmann. (1s. net. R.T.S.)

Some pretty and useful articles to be made by little girls are given in this book, and the descriptions would enable grown-up helpers to show them how to do it and what to buy. There seems to be no progression about the scheme, button-holing, setting in gathers, and feather-stitching being at the beginning of the book, while cross-stitch on canvas and work with beads conclude it.

HOUSEHOLD MANAGEMENT.

Household Management. By E. Stoddart Eckford and M. S. Fitzgerald. (2s. 6d. John Hogg.)

This book contains a good many directions for housekeeping which might be useful to a wealthy and ignorant housekeeper. The receipts and directions are all on a very liberal scale, and, to the frugally minded, it seems almost sinful to use milk or white of egg for cleaning patent leather shoes. Tin-lined saucepans are recommended, although the tin lining is a great nuisance when meat is being prepared for stews. But, if the existence of such defects is borne in mind, it will form a useful reference book.

PUBLICATIONS RECEIVED.

EDUCATION.

The Child: His Nature and Nurture. By W. B. Drummond. Enlarged and revised edition. Dent, 2s. 6d. net.

The Practical Conduct of Play. By Henry S. Curtis. Macmillan, 6s. 6d. net.

CLASSICS.

A History of Latin Literature. By Marcus Southwell Dimsdale. Heinemann, 6s.

Cæsar's Gallic War: A Vocabulary. Compiled by George G. Loane. Clarendon Press, 1s. 6d.

Verse Translations from Classic Authors. (Sophocles, Lucretius, Catullus, Horace.) By C. E. F. Starkey. New and revised edition. Cambridge, Hove, Sussex, 5s. net.

FRENCH.

The Oxford Treasury of French Literature. Vol. I. Medieval, Renaissance, and Seventeenth Century. By Albert G. Latham. Clarendon Press, 3s. 6d.

Bérénice. By Jean Racine. Edited with introduction and notes by R. E. Pellissier. Milford, 2s. net.

French Composition for Students and Upper Forms. With revision of syntax in French. By G. W. F. R. Goodridge. Milford, 2s. 6d.

La Jeunesse de Cyrano de Bergerac. With notes and retranslation exercises by T. B. Rudmose-Brown and Kathleen M. Linton; and French-English vocabulary by H. A. Jackson. Hachette, 3s.

Histoire d'un Conscrit. Par Erckmann-Chatrian. With a selection of Poems on Napoleon I. Adapted and edited by Otto Siepmann. Macmillan, 2s. 6d.

Extracts for Translation into French (Intermediate and Advanced). Edited by Percival Edwards. Hachette, 8d.

Co que j'ai vu de la Guerre. Par Jeanne Rolin. Constable, 1s. 6d.

RUSSIAN.

First Russian Book. By Nevill Forbes. Clarendon Press, 2s. 6d. net.

Lessons in Russian. A graduated course, with exercises, notes, vocabulary, &c. Sampson Low, 1s. 6d. net.

ENGLISH.

The Art of Story-Telling. By Marie L. Shedlock. Preface by Prof. John Adams. Murray, 5s. net.

Sprindrift: Salt from the Ocean of English Prose. Edited by Geoffrey Callender. Cambridge University Press, 3s. net.

A Book of Victorian Poetry and Prose. Compiled by Mrs. Hugh Walker. Cambridge University Press, 3s.

The Elements of Style: An Introduction to Literary Criticism. By David Watson Rannie. Dent, 4s. net.

A Book of Verse for Boys and Girls. Part I. Compiled by J. C. Smith. Clarendon Press, 3s. 6d.

This England: An Anthology from her Writers. Compiled by Edward Thomas. Milford, 2s. 6d. net.

An Anthology of English Prose: For use in Schools and Colleges. With introduction and glossary by S. E. Goggin and A. R. Weokes. Clive, 2s. 6d.

Modern Lays and Ballads (Oxford Garlands). Selected by R. M. Leonard. Milford, 7d. net.

A Manual on Essay Writing: For Students in the Workers' Educational Association and Tutorial Classes. By B. L. K. Henderson and Arnold Freeman. Bell.

Macaulay: Essay on Bacon. Edited, with introduction and notes, by H. White. Clarendon Press, 2s.

Notes on English Literature. By William Edwards. Part I: From Skelton to Shakespeare. Rivingtons, 3s. net.

Essays on Addison. By Johnson, Macaulay, and Thackeray; with twelve Essays by Addison. Edited by G. E. Hadow. Clarendon Press, 2s. 6d.

Everyman's Library.—The Peace of Europe; The Fruits of Solitude; and Other Writings. By William Penn. Dent, 1s. net.

Books for the Bairns. Might or Right? A topical play for boys and girls. By Rebbie F. Wright. Stead, 1d. net.

Sir Walter Scott. By Amy Cruse. Harrap, 1s.

An English Course for Army Candidates. By S. P. B. Mais. Sidgwick & Jackson, 1s. 6d. net.

HISTORY.

History of the Latin and Teutonic Nations (1494-1514). By Leopold von Ranke. A revised translation by G. R. Dennis. With introduction by Edward Armstrong. Bell.

The Revolutionary Period in Europe (1763-1815). By Henry Eldridge Bourne. Bell, 7s. 6d. net.

How Wars were Won: A Short Study of Napoleon's Times. By George Townsend Warner. Blackie, 5s. net.

A Short British History. Period II: James I to George V. By W. S. Robinson. Rivingtons, 1s. 4d.

A Military and Imperial History of England. By George Guest. Bell, 1s. 6d.

Everyman's Library.—A Short History of the English People. By John Richard Green. Two volumes. Dent, 1s. each.

An Historical Atlas of Modern Europe (1789-1914). By G. Grant Robertson and J. G. Bartholomew. Oxford University Press, 3s. 6d. net.

A History of France. By J. R. Moreton Macdonald. In 3 volumes. Methuen, 22s. 6d. net.

Oliver Cromwell. By Estelle Ross. Harrap, 1s.

William the Conqueror. By René Francis. Harrap, 1s.

The Indian Heroes. By C. A. Kincaid. Milford, 2s.

GEOGRAPHY.

Descriptive Handbook to the Relief Model of Wales. By Wallace E. Whitehouse. Introduction by H. J. Fleure. Published by the Museum at Cardiff, 6d.

RELIGION.

The Gospel according to St. Mark. Edited by the Rev. G. E. J. Milner. Oxford University Press, 1s. net.
 A Short New Testament History. By the Rev. A. R. Whitham. Rivingtons, 2s. 6d.

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MATHEMATICS.

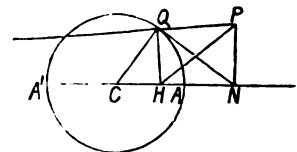
Readers desiring to contribute to the *Mathematical columns* are asked to observe the following directions very carefully:—

- (1) To write on one side only of the paper.
- (2) To avoid putting more than one piece of work on a single sheet of paper.
- (3) To sign each separate piece of work.

18043. (W. F. BEARD, M.A.)—PN is the ordinate of a point P on a hyperbola, NQ is a tangent to the auxiliary circle. Prove geometrically that PQ envelops a conic.

Solution by the PROPOSER and Prof. R. SRINIVASAN, M.A.

Draw QH perpendicular to PQ to meet ACA' at H. Join HP, CQ.



Let the axes of the hyperbola be 2a, 2b.

Then $PN^2/b^2 = (CN^2 - a^2)/a^2 = NQ^2/a^2$, because $CQ = a$;

therefore $PN/QN = b/a$ (1),

$$\angle CQH = 90^\circ - \angle HQN = \angle NQP,$$

$$\angle QCH = 90^\circ - \angle QNC = \angle QNP;$$

therefore the angles QCH, QNP are similar;

therefore $CH/CQ = PN/QN = b/a$, from (1);

therefore $CH = b$.

Thus H is a fixed point, HQ is perpendicular to PQ, and Q lies on the auxiliary circle; therefore PQ must envelop a conic with H as focus and the same auxiliary circle.

N.B.—If $b < a$, the envelope is an ellipse;

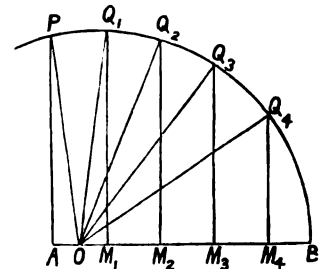
if $b = a$, that is, if the hyperbola is rectangular, PQ goes through A or A';

if $b > a$, the envelope is a hyperbola.

18242. (D. BIDDLE.)—A floor is uniformly ruled with parallel straight lines, and a thin straight rod of length equal to four intervals is thrown at random on it. Prove that in ten thousand trials the rod as it lies will cross 0, 1, 2, 3, 4 lines about as follows, namely, 800, 1655, 1865, 2640, 3040 times respectively.

Solution by A. M. NESBITT, M.A.

Let AP, MQ, ... be five of the lines, and let the end O of the rod fall between A and M₁. Clearly if the rod falls in the angle POQ₁, the rod crosses no line; if in the angle Q₁OQ₂ it crosses one line; if in angle Q₂OQ₃, two lines; if in angle Q₃OQ₄, three lines; if in angle Q₄OQ₅, four lines. Let



$$AO = h,$$

$$AM_1 = M_1M_2 = \dots = a : OP$$

$$= OQ_1 = \dots = AB = 4a.$$

The respective chances of its so falling are proportional to the mean values of these five angles.

Now angle $POQ_m = \sin^{-1}(ma-h)/r + \sin^{-1}h/r$ ($m = 1, 2, 3, 4$), and angle $POB = \sin^{-1}h/r + \frac{1}{2}\pi$; therefore mean value of

$$\angle POQ_m = 1/a \int_0^a POQ_m dh.$$

$$\text{Also } \int_0^a dh \sin^{-1}(ma-h)/r = m \sin^{-1} \frac{1}{2}m - (m-1) \sin^{-1} \frac{1}{2}(m-1) + \sqrt{(16-m^2)} - \sqrt{[16-(m-1)^2]}.$$

$$\int_0^a \sin^{-1} h/r = \sin^{-1} \frac{1}{2} + \sqrt{(15)-4} = X, \text{ say}$$

so that the mean value of

$$\begin{aligned} \angle POQ_1 &= 2[\sin^{-1} \frac{1}{2} + \sqrt{(15)-4}] = 2X, \\ \text{of } \angle POQ_2 &= [2 \sin^{-1} \frac{1}{2} - \sin^{-1} \frac{1}{2} + \sqrt{(12) - \sqrt{(15)}}] + \sin^{-1} \frac{1}{2} + \sqrt{(15)-4} \\ &= 2 \sin^{-1} \frac{1}{2} + \sqrt{(12)-4}, \\ \text{of } \angle POQ_3 &= 3 \sin^{-1} \frac{1}{2} - 2 \sin^{-1} \frac{1}{2} + \sqrt{7 - \sqrt{(12)}} + X, \\ \text{of } \angle POQ_4 &= 4 \sin^{-1} \frac{1}{2} - 3 \sin^{-1} \frac{1}{2} - \sqrt{7} + X, \\ \text{of } \angle POB &= \frac{1}{2}\pi + X. \end{aligned}$$

But $\sin^{-1} \frac{1}{2} = 14^\circ.29' = .253$ in circ. measure, and $\sqrt{(15)} = 3.872$; so that $X = .125$, and $\angle POQ_1$ has for mean value .25. Also

$$2 \sin^{-1} \frac{1}{2} = 1.047, \quad \sqrt{(12)} = 3.464,$$

giving mean values for $\angle POQ_2 = .511$. Again,

$$3 \sin^{-1} \frac{1}{2} = 145^\circ.48' = 2.546, \quad \sqrt{7} = 2.645,$$

so that mean value of $\angle POQ_3 = 5.191 - 4.511 + .125 = .805$,

and $\angle POQ_4 = 2\pi - 5.191 + .125 = 1.217$,

while $\angle POB = \frac{1}{2}\pi + X = 1.696$.

Thus our mean values for the angles $POQ_1, Q_1OQ_2, Q_2OQ_3, Q_3OQ_4, Q_4OB$ are proportional to 250, 261, 294, 412, 479; the last four are very nearly in ratios 1655, 1862, 2609, 3035. But surely Mr. Biddle's first figure is astray? $\angle Q_1OQ_2$ cannot have twice as great a mean value as $\angle POQ_1$: I make it 1584.

Note.—[The Proposer says that he is glad to find Mr. Nesbitt's calculations so closely in accord with his own in regard to four of the probabilities, and feels confident that, if his investigations had been continued throughout the semicircle instead of stopping short when a little over the first quadrant, his probability as to the crossing of no line would have been half of what it now is. But the sum of his probabilities is only 1696, or with t a first halved 1567, instead of 10,000 as according to the Question it should be.]

18007. (R. F. DAVIS, M.A.)—Upon the circumference of a semi-circle, whose bounding diameter is AB, arc taken two points P, Q such that AP.AQ is constant. Two parabolas are then described, each with focus A, having BP, BQ for their respective directrices. Prove that the locus of the intersection of these curves is a conic having B for focus and A for the foot of its directrix. (Suggested by Mr. W. F. Beard's Question 17961.)

Solution by F. H. PEACHELL, M.A.

The parabolas must meet at a point O, such that BO bisects $\angle PBQ$ externally.

Draw AT the tangent at A, OU perpendicular to QB, OZ perpendicular to AT.

Let $\angle QBP = 2\alpha,$

$PBA = \theta, \quad BAO = \delta.$

Then $\angle OBA = 90 - \theta - \alpha,$

$OBU = 90 - \alpha.$

Now

$AO = OU = OB \cos \alpha \dots (1),$

and $OZ = OA \cos \delta;$

therefore $BO = OZ / \cos \alpha \cos \delta \dots (2),$

From $\triangle OBA \quad OB/OA = \sin \delta / \cos(\theta + \alpha) \dots (3);$

therefore, from (1), $\cos(\theta + \alpha) = \cos \alpha \sin \delta;$

therefore $\cos^2 \delta = \frac{\cos^2 \alpha - \cos^2(\theta + \alpha)}{\cos^2 \alpha} = \frac{\sin \theta \sin(\theta + 2\alpha)}{\cos^2 \alpha}.$

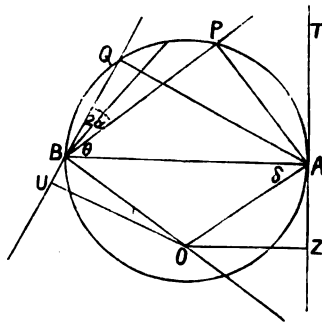
Now AP.AQ is constant;

therefore $AB^2 \sin \theta \sin(\theta + 2\alpha) = \text{constant} = K^2 AB^2;$

therefore $\cos^2 \delta = K^2 / \cos^2 \alpha;$

therefore, from (2), $BO = OZ/K,$

or locus of O is a conic, focus B, and AT directrix.



18025. (A. M. NESBITT, M.A.)—The equation to the pair of normals which can be drawn to the ellipse $x^2/a^2 + y^2/b^2 = 1$ at its points of intersection with the polar of (hk) is

$$(a^2k^2 + b^2h) [x^2(a^2 - h^2) + y^2(b^2 - k^2) - 2xyhk] + c^2 [c^2(a^2 - h^2)(b^2 - k^2) + 2a^2ky(b^2 - k^2) - 2b^2hx(a^2 - h^2)] = 0.$$

Solution by J. MACMILLAN, M.A.

The polar of (h, k) is $b^2hx + a^2ky - a^2b^2 = 0.$

Let $(a \cos \theta, b \sin \theta)$ be one of its points of intersection with the ellipse; therefore $bh \cos \theta + ak \sin \theta = ab.$

This gives the two equations

$$(a^2k^2 + b^2h^2) \sin^2 \theta - 2a^2bk \sin \theta + b^2(a^2 - h^2) = 0,$$

$$(a^2k^2 + b^2h^2) \cos^2 \theta - 2ab^2h \cos \theta + a^2(b^2 - k^2) = 0;$$

therefore if θ_1, θ_2 are the eccentric angles of the intersections of the polar and the ellipse,

$$\sin \theta_1 + \sin \theta_2 = \frac{2a^2bk}{a^2k^2 + b^2h^2}, \quad \sin \theta_1 \sin \theta_2 = \frac{b^2(a^2 - h^2)}{a^2k^2 + b^2h^2},$$

$$\cos \theta_1 + \cos \theta_2 = \frac{2ab^2h}{a^2k^2 + b^2h^2}, \quad \cos \theta_1 \cos \theta_2 = \frac{a^2(b^2 - k^2)}{a^2k^2 + b^2h^2}.$$

Also $\cos(\theta_1 + \theta_2) = \frac{b^2h^2 - a^2k^2}{a^2k^2 + b^2h^2};$

therefore $\sin(\theta_1 + \theta_2) = \frac{2abkh}{a^2k^2 + b^2h^2}.$

Now the combined equation of the normals at (θ_1) and (θ_2) is

$$\{ax \sin \theta_1 - by \cos \theta_1 - (a^2 - b^2) \sin \theta_1 \cos \theta_1\} \times \{ax \sin \theta_2 - by \cos \theta_2 - (a^2 - b^2) \sin \theta_2 \cos \theta_2\} = 0.$$

Multiplying out and substituting the above values for

$$\sin \theta_1 + \sin \theta_2, \dots,$$

we get the required result, in which $c^2 = a^2 - b^2.$

18033. (T. MUIR, LL.D.)—For the zero-axial determinants of the 4th and 5th orders Cayley, in 1859, gave the expressions

$$\Sigma \{ (12.21)(34.43) \} - \Sigma (12.23.34.41),$$

$$- \Sigma \{ (12.21)(34.45.53 + 35.54.43) \} + \Sigma (12.23.34.45.51)$$

respectively. Find the similar expression for the corresponding determinant of the 6th order.

Solution by C. M. ROSS, M.A.

Let $D = \begin{vmatrix} 0 & 12 & 13 & 14 & 15 & 16 \\ 21 & 0 & 23 & 24 & 25 & 26 \\ 31 & 32 & 0 & 34 & 35 & 36 \\ 41 & 42 & 43 & 0 & 45 & 46 \\ 51 & 52 & 53 & 54 & 0 & 56 \\ 61 & 62 & 63 & 64 & 65 & 0 \end{vmatrix},$

where 12, ..., stands for a_{12}, \dots , be the 6th order zero-axial determinant.

By Laplace's theorem we have

$$D = \Sigma (12.23.31 + 13.32.21)(45.56.64 + 46.65.54)$$

$$- \Sigma (12.23.34.45.56.61),$$

which is the value sought.

The group of terms under the first Σ is the sum of the products of 3rd order zero-axials two-at-a-time; whilst the group of terms under the second Σ is the sum of the products of 3rd order determinants, with the 1st element in the 2nd row and the 2nd element in the 3rd row both zero, two-at-a-time.

18056. (J. J. BARNIVILLE, B.A.)—Prove that

$$x^{23} + 2.7^{12}x^{14} - 7^{17}x^7 + 7^{21}$$

is divisible by $x^4 + 7x^3 + 7^3.$

Solution by the PROPOSER.

If $x^4 + 7x^3 + 7^3 = \Pi(x + \alpha),$

then $\Pi(x^7 + \alpha^7) = x^{23} + 7^7x^{21} + 7^{21} - (7x)^7(x^7 - 7^3).$

The quotient may be written $A^2 + 343B^2$, where

$$6A = 7(x^{12} + 7^3x^9 + 7^9) - (x^4 + 7x^3 + 7^3)^3,$$

and $2B = x^{11} - 7x^{10} + 7^2x^8 - 7^4x^6 - 7^5x^4 + 7^6x^3.$

18077. (A. M. NESBITT, M.A.)—Give an independent proof of the theorems obtained by reciprocating Mr. Beard's theorem 17986 with respect to C.

Solution by the PROPOSER.

The two theorems are:—

P is a common point of two confocal parabolas, PL and PM the tangents at P. Prove that the directrix of a third confocal parabola which touches PL and PM makes equal angles with the other two directrices; and that its latus rectum is a mean proportional between their latera recta.

Let Z, Z' be the images of S in PL, PM, so that SY = YZ. Take LY = YS; then LS is the axis of the parabola which touches PL, and ZO (perpendicular to LS) is its directrix. So Z'O' is the

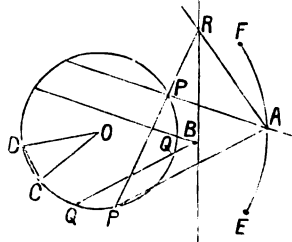
second directrix, and clearly ZZ' is the third. Now
 $\angle YZO = \angle PLS = \angle SPL = \angle AZ'S$
 (SA being perpendicular to ZZ'). Similarly $\angle Y'Z'O = \angle AZS$;
 whence $\angle AZO = \angle AZ'O'$. Also, by similar triangles,
 $SO/SA = SZ/SZ' = SA/SO'$,
 so that $SO.SO' = SA^2$.

10982. (Professor COUPEAU.)—Mener par deux points donnés deux parallèles qui interceptent sur un cercle donné une corde de longueur connue.

18067. (T. LAKSHMANA.)—Through two fixed points to draw a pair of parallels to meet a given circle, so that they cut off a chord of given length.

Solution by C. E. YOUNGMAN, M.A.

Let O be the centre of the circle, CD a chord of the given length, A and B the fixed points. Find E and F such that the triangles OAE and OFA are similar to OCD; draw AR parallel to BE to meet, at R, the radical axis of point A and circle (O); and find P on the circle by means of RP parallel to BF. Then AP and a parallel BQ are a pair such as required.



To verify, take $xy = 1$ as the circle and $(a, a), (b, b), (1, 1), (d, \delta), (p, \pi)$ as the co-ordinates of A, B, C, D, P; then for Q, E, F we have $(pd, \pi\delta), (ad, a\delta),$ and $(a\delta, ad)$; supposing $PQ = CD$. [$p\pi = 1 = d\delta$].

AP parallel to BQ requires that
 $(a - \pi)(b - pd) = (a - p)(b - \pi\delta)$,
 which is the condition that P lies on
 $x(\beta - ad) + y(ad - b) + ab - a\beta + d - \delta = 0$ PR,
 and this is parallel to

$$x(\beta - ad) + y(a\delta - b) + abd - a\beta\delta = 0$$
 BF.

Forming the similar equation of BE, we get for AR
 $x(\beta - a\delta) + y(ad - b) + ab - a\beta - a\alpha(d - \delta) = 0$ AR,
 whence, by subtraction, R lies on

$$ax + ay - a\alpha - 1 = 0,$$

$$i.e., \quad xy - 1 = (x - a)(y - a),$$

which is the radical axis of A and (O).
 The construction fails when B happens to lie on EF; but then only needs an interchange of A and B.

18016. (Professor J. C. SWAMINARAYAN, M.A.)—Without departing from the determinantal form, show that the determinant

$$\begin{vmatrix} b^2w + c^2v - 2bcu', & bcw' - cav + abu' - b^2v' \\ bcv' + cau' - abw - c^2w', & -bcu + cav' + abv' - a^2u' \end{vmatrix}$$

is equal to the determinant

$$\begin{vmatrix} u, & w', & v', & a \\ w', & v, & u', & b \\ v', & u', & w, & c \\ a, & b, & c, & 0 \end{vmatrix}$$

multiplied by bc .

Solution by Professor NANSON.

Denoting by U, V, ..., the co-factors of u, v, \dots , in the four-line determinant, the two-line determinant has the value

$$\begin{vmatrix} U, & V' \\ W', & U' \end{vmatrix}$$

and therefore, by Jacobi's theorem concerning the minors of the adjunct of a general determinant, is equal to the four-line determinant multiplied by

$$-\begin{vmatrix} u', & b \\ c, & 0 \end{vmatrix},$$

i.e., by bc .

18024. (Professor NEUBERG.)—En un point M(x, y) de l'hyperbole équilatère $xy = 1$ on mène la normale qui recoupe la courbe en M₁; la normale en M₁ recoupe la courbe en M₂; la normale en M₂ la recoupe en M₃, et ainsi de suite. Trouver les coordonnées des points M₁, M₂, ..., M_n, et les relations entre les coefficients angulaires des normales successives MM₁, M₁M₂, M₂M₃, ...

Solution by C. M. ROSS, M.A.

The equation of the normal at M(x', y') is
 $xx' - yy' = x'^2 - y'^2$.
 The normal cuts the hyperbola again in the point M₁, whose ordinate is given by the equation

$$y^2y' + y(x'^2 - y'^2) - x' = 0.$$

One root of this equation is y', hence the other root is $-x'/y'^2$. The abscissa of the point is $-y'^3/x'$.

Thus M₁ is the point $(-y'^2/x', -x'/y'^2)$, i.e., $(-1/x'^3, -1/y'^3)$, since $x'y' = 1$.

If M₁ is (x₁, y₁), it is clear that in a similar way we can find that M₂ is the point $(-1/x_1^3, -1/y_1^3)$, but $x_1 = -1/x'^3$ and $y_1 = -1/y'^3$, hence M₂ is the point $\{(x'^3)^3, (y'^3)^3\}$.

Similarly M₃ is $\left\{ -\frac{1}{(x'^3)^3}, -\frac{1}{[(y'^3)^3]} \right\}$

We can thus generalize, and find that the point M_n is (x'^{3ⁿ}, y'^{3ⁿ}) if n be even and $(-1/x'^{3ⁿ}, -1/y'^{3ⁿ})$ if n be odd.

The equations of the normals MM₁, M₁M₂, M₂M₃, ... are respectively

$$yy' = xx' - (x'^2 - y'^2),$$

$$y_1 \cdot 1/y_1^3 = x_1 \cdot 1/x_1^3 - (1/x_1^6 - 1/y_1^6),$$

$$y_2 \cdot y_2^3 = x_2 \cdot x_2^3 - [(x_2^3)^2 - (y_2^3)^2],$$

$$\dots \dots \dots$$

If $\tan \theta, \tan \theta_1, \dots \tan \theta_n$ are the angular coefficients in the equations of the normals, we have

$$\tan \theta = x'/y', \quad \tan \theta_1 = y'^3/x'^3, \quad \dots$$

From the first two equations we deduce the first relation, viz.,

$$\tan^3 \theta \cdot \tan \theta_1 = 1.$$

The other relations may be found in a similar way.

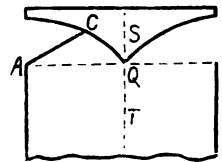
QUESTIONS FOR SOLUTION.

Note on Question 18103.—The PROPOSER desires to change the sign of the ordinates given in the lines 10, 14, and 18.

18122. (S. KRISHNASWAMI AIYANGAR, B.A.)—Rays of light emanate from the origin and fall upon the reflecting rectangular hyperbola $rp = a^2$. Find the caustic after reflection and add a tracing of the curve,

18123. (F. G. W. BROWN, B.Sc., F.C.P.)

—A symmetrically tapered propeller S is fixed near the open end of a cylindrical tube T, of radius a, so that its vertex lies in the plane of the end right section and with its axis collinear with that of the tube. If C is any point on the curve of taper, show that, for the area swept out by AC to be equal to the internal area of the tube, the polar equation of C, referred to AQ, is



$$r \sqrt{2} \sin \frac{1}{2} \theta = a - r.$$

Show also that the radius of curvature ρ , is given by

$$4a^2\rho^2(3a + r)^2 = r^2(r^2 + 2ar + 3a^2)^3.$$

18124. (C. M. ROSS, M.A.)—Prove that the n-th order determinant

$$\begin{vmatrix} a_1 & a_2 & a_3 & 0 & 0 & \dots & 0 & 0 & 0 \\ 0 & a_1 & a_2 & a_3 & 0 & \dots & 0 & 0 & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ 0 & 0 & 0 & 0 & 0 & \dots & a_1 & a_2 & a_3 \\ a_3 & 0 & 0 & 0 & 0 & \dots & 0 & a_1 & a_2 \\ a_2 & a_3 & 0 & 0 & 0 & \dots & 0 & 0 & a_1 \end{vmatrix}$$

is equal to $a_1^n + a_3^n - a_1^n - a_3^n$, where a_1, a_2 are the roots of the equation $x^2 + a_2x + a_3a_1 = 0$.

18125. (J. J. BARNIVILLE, B.A.)—Prove that

$$x^7 + 246x^{18} - 13605x^9 + 1$$

is divisible by $(x^3 - 3x + 1)(x^6 + 3x^4 + 2x^3 + 9x^2 + 3x + 1)$

$$\times \left\{ (x^3 - 3x^2 + 3x - \frac{1}{2})^2 + \frac{3}{4} \right\}.$$

18126. (B. HOWARTH.)—(a) If k be any positive integer which is not a multiple of 11, then a value of x can be found which will make $17^k \pm k$ a multiple of 11. (b) Hence determine the run of the values of x which satisfy the equations

$$(i) 17^k + 12345 = M(11),$$

$$(ii) 17^k - 12345 = M(11).$$

(c) Generalize (a) and give proof.

18127. ("SOLIDUS.")—If $f(p) = 1 + x + x^2 + x^3 + \dots + x^{p-1}$, prove that $[f(pq)]/[f(p)f(q)]$ is or is not integral according as p is or is

not prime to q ; and that in the former case, the coefficients of the powers of x in the quotient are each either +1 or -1 or 0. Denoting $[f(pq)]/[f(p)f(q)]$ by $F(p, q; x)$, prove that $F(p, q; x^n)$ has $F(p, q; x)$ as a factor if p, q, r are prime to one another, but not otherwise. More generally, if p, q, r, s, \dots are prime to one another, and $p^n + q^n + r^n + s^n + \dots = n$, and if Π_r denotes the product of all functions $f(pqr\dots)$ which involve t of the n letters, i.e., if the argument $pqr\dots$ of the function f is the product of any combination of p, q, r, \dots taken t at a time, then $\Pi_1 \Pi_2 \Pi_3 \dots \Pi_n$ is exactly divisible by $\Pi_{n-1} \Pi_{n-2} \Pi_{n-3} \dots$, where, if n is even, the last factor of the former will be Π_1 , and that of the latter Π_1 , but if n is odd, *vice versa*.

18128. (J. HAMMOND, M.A.)—If the coefficients of the cubic $ax^3 + 3bx^2 + 3cx + d$ satisfy the relation $a^2d - 3abc + 2b^3 = 0$, its three roots (α, β, γ) will be in arithmetical progression. Prove also that when $ac - b^2$ vanishes, $\alpha - \beta, \beta - \gamma, \gamma - \alpha$ are proportional to the three cube roots of unity.

18129. (Professor H. LANGHORNE ORCHARD, M.A., B.Sc.)—The product $1.2.3.4.5 \dots n$ being denoted by $n!$, find an expression for the sum of the series $1 + 2! + 3! + 4! + 5! + 6! + 7! + 8! + 9! + 10!$, and show that 99 is a factor of this sum.

18130. (C. E. YOUNGMAN, M.A.)—Given A, B, C in line, construct the cardioid which touches the line at A and cuts it at B and C.

18181. (A. M. NESBITT, M.A. Suggested by Question 17987.)—P and Q are points on a circle, centre O, which subtend a right angle at a fixed point C; and Q' is the image of Q in OC. If Q'C cut the circle at R, find the locus of the mid-point of the chord PR. [Note.—If OC = c, OP = a, the locus is $2cx(x^2 + y^2) = (a^2 + c^2)x^2 - (a^2 - c^2)y^2$.

18182. (R. F. DAVIS, M.A.)—ABC is a triangle, and a parabola touches BC in a given point E, and also touches AB, AC. Prove the following construction for its focus S:—Take F in BC so that BF = FC, produce AF to intersect the circum-circle again in L, and draw the chord LS parallel to BC.

18183. (W. F. BEARD, M.A.)—Prove that a chord of a rectangular hyperbola which touches the auxiliary circle is in a constant ratio to the ordinate of its middle point.

18184. (E. G. HOGG, M.A.)—Through any four coneyelic points two conics S_1 and S_2 can be drawn having the same line as directrix: the foci corresponding to this directrix are inverse points with respect to the circle, and if ϵ_1, ϵ_2 be the eccentricities of S_1 and S_2 respectively, r the radius of the circle, and d the distance of its centre from the focus of S_1 , $\epsilon_2 = r/d \cdot \epsilon_1$.

18185. (Professor E. J. NANSON.)—The reciprocals of the intercepts made by a variable plane on four fixed concurrent lines are clearly connected by a linear homogeneous equation. Express the ratios of the coefficients of this equation in terms of the mutual inclinations of the four lines.

18186. (C. JOSS, M.A.)—From two points outside a circle straight lines are drawn to any point on the concave circumference cutting the circle at A and B. Find the locus of the mid-point of AB.

18187. (E. W. REES, B.A.)—A triangle ABC has H for orthocentre and K for Symmedian point, DEF being the pedal triangle for H. If through B and C lines BB_2C_2, CC_3B_3 be drawn parallel to EF meeting DE, DF in C_2, B_2, C_3, B_3 respectively, prove that B_3, C_2 lie on AK, and B_2, C_3 on the Symmedian line through H to the triangle HBC.

18188. (Professor R. W. GENESK, M.A.)—Show that two opposite angles of a convex quadrilateral may be projected *orthogonally* into right angles. With this lemma, the theorem concerning the mid-points of the diagonals of a completed quadrilateral becomes obvious, and the nine-point circle becomes a nine-point conic, any Cevian chords being substituted for the perpendiculars of a triangle.

18189. (R. GOORMAGHTIGH.)—In a triangle ABC, MM' is a diameter of the circum-circle; the tangent to the circle at M' cuts the sides in α, β, γ ; the images of α, β, γ through the middle points of the sides are α', β', γ' . Prove that the straight line $\alpha'\beta'\gamma'$ cuts the Wallace line for M in the point where the Wallace line touches its envelope.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS)

12257. (Professor CLIFFORD, F.R.S.)—If the intersections of two circles A = 0, B = 0 are concentric with the antipoci of the intersections of C = 0, D = 0, then *vice versa*; and, if this property hold for the pairs AB, CD, and also for the pairs AC, DB, it will hold for the pairs AD, CB.

12459. (I. ARNOLD.)—Construct a triangle that shall be equal to a given rectangle, and have the sum of the squares of the sides equal to a given square, and the difference of the segments of the base made by the perpendicular from the vertical angle a given difference.

12688. (D. BIDDLE.)—To divide a circle by parallel chords into three segments whose areas shall be in any required geometrical progression.

12892. (A. S. EVE, M.A.)—Find the evolute of the curve $r = a + b \operatorname{cosec} \theta$.

12710. (Professor ZERR.)—Prove that the probability that the distance of two points taken at random in a given convex area A shall exceed a given limit (a) is

$$\Delta = \iint (C^2 - 3a^2C + 2a^3) \operatorname{apd}\theta/3A^2,$$

where C is a chord of the area whose co-ordinates are p, θ , the integration extending to all values of p, θ which give a chord $C > a$. What is Δ when the area is a circle? If in the circle $a = r = \text{radius}$, $\Delta = 3 \cdot 3/4\pi$.

13164. (Professor HERMITE, LL.D.)—Soit

$$F(z) = (z-a)(z-b)(z-c),$$

on demande de démontrer que l'intégrale

$$J = \int_x^{\infty} \frac{(z-x)^n}{F^{n+1}(z)} dz$$

a pour expression $J = A \log(x-a) + B \log(x-b) + C \log(x-c) - P$, où A, B, C tous sont des polynômes entiers en x du degré n , et P la partie entière du développement de

$$A \log(x-a) + B \log(x-b) + C \log(x-c),$$

suivant les puissances descendantes de la variable.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor, Miss CONSTANCE I. MARKS, B.A., 10 Matheson Road, West Kensington, W.

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THE LONDON MATHEMATICAL SOCIETY.

Annual General Meeting, 11th November, 1915.—Prof. Sir Joseph Larmor, M.P., F.R.S., President, in the Chair.

The Rev. A. C. Ridsdale was elected a member of the Society; and Messrs. H. R. Hassé, J. Mercer, and C. Walsley were admitted to membership of the Society.

The President announced to the Society the deaths of two members, Sir Andrew Noble and Professor W. H. H. Hudson: he spoke briefly of their services to mathematics and to science in general.

The meeting proceeded to the election of a Council and Officers for the ensuing Session; Sir Joseph Larmor was re-elected President, and Mr. G. T. Bennett was elected a Secretary in the room of Mr. J. H. Grace, who was elected a Vice-President.

The Treasurer (Dr. A. E. Western) presented his report for the past Session, and Lt.-Col. Cunningham was reappointed Auditor.

Mr. G. H. Hardy read a paper "On Weierstrass's Non-differentiable Function."

Informal communications were made by Professor Hilton and by Mr. J. Hammond.

The following papers were communicated by title from the Chair:—

"The Second Theorem of Consistency for Summable Series": Mr. G. H. Hardy.

"The Kinetic Theory of the Motion of Ions in Gases": Mr. F. B. Pidduck.

"Some Singularities of Surfaces and their Differential Geometry": Mr. H. W. Turnbull.

"Periodic Solutions of the Problem of Three Bodies, in Three Dimensions": Dr. J. W. Campbell.

"Functions of Positive Type and Related Topics in General Analysis": Mr. C. R. Dines.

"Surfaces Characterized by certain Special Properties of their Directrix Congruences": Mr. C. H. Yeaton.

1915.

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The Second Course of Lectures (Forty-third Annual Series) began on Thursday, September 30th, at 7 p.m.

The aim of this Course is to enable teachers in actual practice to keep in touch with the current educational developments. The various subjects will be dealt with from the standpoint of the practical teacher, and the lecturer will assume on the part of his hearers that acquaintance with the actual conditions and difficulties of school life that arouses a desire to get all available knowledge of how others manipulate such conditions and overcome such difficulties. Those who attend the course will have opportunities for submitting any difficulties the treatment of which would prove of general interest.

SYLLABUS.

I. (Sept. 30.) *The so-called New Education.*—The characteristic modern note: no real novelties: method cycles from Plato onward: professional conservatism: quickened consciences of present-day teachers: danger of falling behind the times: each generation demands its own educational presentation: impossibility of eliminating theory: *via media* between fads and tradition: the doctrinaire and the empiric: the pedagogic type of mind: means of keeping in touch with new developments: canons of educational criticism.

II. (Oct. 7.) *Certain New Movements on their Trial.*—Heuristic Method has now reached its limits: Montessorianism a disturbing influence not merely at infants' stage: Mr. McMunn's development: general revolt against "bookishness" merely a revival of the old "realist" controversy: "one child one desk" principle: Superintendent Wirt's protest: the Gary scheme: tendency to lengthen school hours and eliminate school holidays: spread of specialism among teachers: teaching by relays: the open-air school: the school journey: the "big brother" attitude: the Renaissance of Play.

III. (Oct. 14.) *Experiment in School Work.*—Every teacher must experiment while learning his business: modern educators are systematizing experiment: desire to put education on a scientific footing: two main kinds of educational experiment: dangers of the "brass instrument" methods: the attraction and the danger of statistical and quantitative methods: correlation formulae and their application: intelligence tests of Binet and others: the Meumann School: the conservation of the interests of the pupil: the literature of experimental education.

IV. (Oct. 21.) *The Class.*—Origin of class teaching: nature of the class as an educational organon: element of compromise: contrast between class teaching and private coaching: "sympathy of numbers": the psychology of the class as part of general collective psychology: disintegration and reintegration: teaching the class through the individual and the individual through the class: basis of classification of school pupils: the class a homogeneous crowd: size of class in relation to the work of teaching: reaction against class teaching: the probable future of the class.

V. (Oct. 28.) *Class Control.*—Excessive importance attached to mere control: basis of teacher's authority: "the nature of things": discipline and its various meanings: power of control as innate: personality of the teacher: fabled power of the eye: different ideals of class control: "talking" in class: possibility of teaching on the control maintained by another: the old "discipline master": class leaders and their manipulation: the Honour System: indirect aids in maintaining control.

VI. (Nov. 4.) *The Pupil's Point of View.*—Textbooks on Method tend to treat everything from the teacher's point of view: modern demand for more consideration of the pupil's rights: excessive demands for freedom of the pupil: Madame Montessori's system: Count Tolstoy's anarchic school: Froebel's "a passivity, a following": these views are reconcilable: caprice *versus* freedom: self-realization *versus* self-expression: subjective limitations of freedom increase with the age of the pupil: corresponding regulation of school control: from educand to educator.

VII. (Nov. 11.) *Abnormal Pupils.*—Ninety per cent. of pupils may be regarded as normal: the exceptionally dull are probably slightly more numerous than the exceptionally brilliant: nature of dullness: its relativity to age and subject of study: the temporary dunce and the precocious pupil: the permanent dunce: the all-round dunce: scale of dullness: the "defective" point: problem of the segregation of dull pupils: the treatment of the exceptionally gifted pupils: slow, omnibus, and express classes in school.

VIII. (Nov. 18.) *The Teacher as Knowledge-monger.*—Popular view of the teacher's work: teacher's own view: comparison with the Greek Sophists: communication of knowledge always an essential part of teacher's work: knowledge for its own sake, and knowledge as discipline: current controversy: technical meanings of *information* and *instruction*: present reaction in favour of importance of knowledge of subject matter: difference between *knowing* and *knowing how to*: temporary and permanent knowledge: the case for cram.

IX. (Nov. 25.) *The Teacher's Tools.*—Textbooks and books of reference: the school library: use and abuse of the blackboard: special appeal to visual pupils: kind of writing suited for the blackboard: coloured chalks and turbid media: the optics of the blackboard: eye-strain and how to avoid it: mechanical aids to blackboard drawing: the optical lantern: graphic illustrations, temporary and permanent: models and their manipulation: maps and globes: the use of the pointer: the supply and care of general apparatus: advantages and disadvantages of home-made apparatus.

X. (Dec. 2.) *Written Work.*—Need for written work as a means of training in expression: progress from transcription to independent essay-writing: three stages—reports, criticisms, creation: difference between having to say something and having something to say: difficulty in giving sufficient practice in writing: excessive demand on teacher's time for "corrections": the pupil's responsibility and the class teacher's: schemes of conventional signs for correction: advantage of throwing on the pupil the burden of writing-in corrections.

XI. (Dec. 9.) *The Teacher's Manipulation of Vocabulary.*—Meaning of vocabulary: connexion between words and thinking: mental content and vocabulary: extent of vocabulary of young children, illiterate people, and educated people: methods of increasing deliberately the vocabulary of pupils: dynamic and static vocabularies: vocabularies of great writers: use of the dictionary and of lists of words in learning a foreign language: the three vocabularies we all possess in our mother tongue: manipulation of these by the teacher.

XII. (Dec. 16.) *The Teacher's Relation to Adults.*—Popular notion of the teacher as a sprat among minnows: need for intercourse with equals and superiors: implication of the phrase *in loco parentis*: true relation to parents: "foster parent" view: conflicting influences of fathers and mothers on school attitude of children: teacher must moderate between them: teacher's relation to officials: the official mind and how to manipulate it: the teacher's many masters: need to study adult psychology: legitimate and illegitimate external restrictions of the teacher's freedom of action in school.

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