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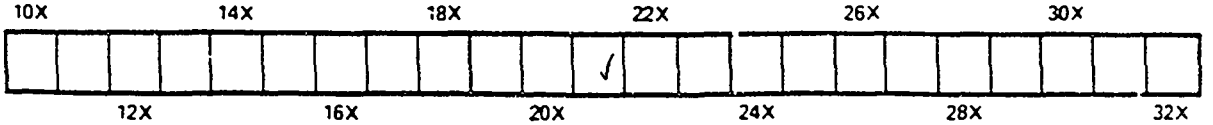

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HIGHER COMMERCIAL EDUCATION AT ANTWERP, LEIPZIG, PARIS AND HAVRE.

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I

In common parlance, the phrase "Commercial Education" is loosely used as covering a number of quite different things. First, it may signify the evening classes, in such subjects as book-keeping, typewriting and commercial arithmetic, which youths and young women attend in increasing numbers in all industrial countries, with a view to better equipping themselves in the technical qualifications of clerkship. Secondly the phrase may mean a sort of secondary, or intermediate training, the curriculum of which is exclusively occupied with "modern" studies and is so devised as at any rate "not to spoil a lad for business life by filling his mind with a lot of things which will be of no use to him afterwards." In German-speaking countries and in Scandinavia "modern" secondary education of this type has recently made important strides. The "Realschulen" are a principal cause of German success in modern commerce. Something is being done in this direction in our own country, but it must be confessed that in England the phrase "commercial education" still suffers from rather sordid associations. It is often rather a cry of angry protest against misplaced and mechanical kinds of classical education, than the mark of any very definite achievement in the direction of educational reform. In the mouths of some who use it, it rather implies active dislike of Latin grammar than a clear conception of some alternative discipline. In England, this kind of "commercial education" often enjoys the conventional epithet "sound," but it is apt to be more attractive in a prospectus than adequate to the purpose which it is supposed to have in view. "Modern" secondary education, if it is to hold its own against a good classical education, needs to be very good indeed. It has still to make its tradition. It has still to think out the fundamental principles of its curriculum. It has still to improve its methods of teaching, especially in the teaching of modern languages. But it will indisputably play a great part in the future.† Thirdly, the expression "commercial education" is used in yet a different, and even

† Reference may here be made to a paper by the present writer on "*The Realschulen of Berlin, and their bearing on questions of Secondary and Commercial Education*," printed in the "Special Reports on Educational Subjects," 1896-7. (London, Eyre & Spottiswoode.)

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higher, sense, viz., the highly specialized training which, coming as the crown of a broad secondary education, aims at doing the work, to quote Mr. Brereton's phrase, of a commercial Woolwich or Sandhurst.

Each of these grades or types of commercial education is receiving at the present time increasingly close attention on the part of the public, of governments, and of educational authorities, in all countries to which commercial prosperity is a matter of vital importance. The trend of opinion and of national activities is now so definitely in a commercial direction that educati n is naturally being so adjusted as the better to serve commercial ends. But it has already become clear that the three objects defined above are entirely distinct ; that they call for different treatment, different kinds of teachers, different methods of organization and supply ; and that nothing but confusion and waste result from attempts to mix them up or combine them.

The aim of the present paper is to describe certain efforts which are being made on the continent of Europe to provide the highest grade of commercial education—the kind of advanced and specialized training which a young doctor gets at the hospitals, a young lawyer in the lectures provided by the Inns of Court, a candidate for holy orders at a theological college, and a young publicist at the celebrated Ecole Libre des Sciences Politiques in Paris, or at our own School of Economics and Political Science in London. Whether, indeed, these analogies hold good, is a subject of controversy. Some of the most eminent leaders of commercial enterprise, both in this country and elsewhere, deny that any school of commerce can make a man of business, just as the headmasters of some great secondary schools in England (though not elsewhere) question whether any training school can make a competent man into a better teacher. Some of the pros and cons in this discussion are stated below ; but, in the meantime, it will be admitted that the fact of France, Germany and Belgium, not to speak of Austria-Hungary, Italy, the United States of America and Japan, all showing a steadily increasing interest in this highest branch of commercial education, is at least an indication of its importance under the changing conditions of international trade.

II.

The Institut Supérieur de Commerce at Antwerp aims at being a University for the future merchant and at the special training of those to whom the consular service of the country will ultimately be entrusted. It is a public institution. It is under the inspection of the State. Its professors are civil servants The Belgian Government pays three-quarters of its annual cost and the municipality of Antwerp the rest. The latter is responsible for the erection and up keep of the buildings, and for its equipment. The annual subsidy of the State amounts to £1,800; that of the municipality to £600. The spacious new buildings, to which the Institute has lately been transferred, have cost the city of Antwerp £20,000. In November, 1897, when I visited the institution, by permission of the Belgian Minister for Trade and Labor, and of Dr. Grandgaignage, its distinguished director, its students numbered 233. Of these no less than 90 were foreigners, the Belgian Government welcoming students from other countries, and finding that the associations thus formed are indirectly helpful to the further-

ance of Belgian trade. The Institute has a staff of fourteen professors, and two Répétiteurs or assistants, exclusive of the Director, who himself takes a small but important part in the instruction. The normal course extends over two years, but a supplementary, though optional, year's work has recently been added to the curriculum. Each student pays a fee of about £10 for the first year, and of about £12 for the second. These fees go towards increasing the salaries of the professors. The complete first year's course includes the following subjects: First and foremost, the routine of a merchant's office, including practical instruction in advanced commercial arithmetic, rates of exchange, average and marine assurance, bills of lading, the execution of charter parties, calculation of the values of foreign weights and measures, and commercial correspondence in various languages; next, the history of commercial products, political economy and statistics, commercial and industrial geography, the elements of commercial law, with the following modern languages: German, English, Dutch (obligatory on Belgian students), and either Spanish, Italian or Russian. The second year's course carries forward the instruction of the above subjects to a higher stage, laying special stress on commercial law, and on the study of tariffs, and adding a weekly practical discourse designed to acquaint the students with the main regulating conditions of modern shipbuilding.

The students fall into two categories—those who enter their names for certain subjects only, and those who undertake the full course. The latter form the majority. They are required to pass an examination for entrance, the subjects being a composition in French; a translation from French into English and German, physical geography, the outlines of universal history (a special period being announced beforehand), commercial arithmetic and the elements of book-keeping; the elements of algebra and geometry, the elements of physics and chemistry; commercial law and political economy. The entrance examination is held once a year, early in October, and is conducted by a Board nominated by the Minister of Trade. No one is advised to present himself for admission under the age of 17. Students, who have passed the leaving examination in a recognized Belgian secondary school, or have obtained the leaving certificate in a German secondary school with a nine years' course, are excused from the entrance examination, provided that their leaving or other certificate shows that they have a competent knowledge of all the subjects above named. Thus the work of the Institute bases itself upon the foundation of a liberal education, to be previously obtained by the student in a good secondary school. Students coming from classical schools have to pass the entrance examination in book-keeping, political economy, commercial law, arithmetic and chemistry. These regulations may be modified in the case of foreign students. Attached to the Institute is a preparatory course, in which those who so desire can obtain, at a fee of £4, special preparation for the entrance test This course lasts from Easter to the beginning of August. The student who has passed the entrance examination is recognized as an *élève de première annee.* At the end of the year he has to undergo an *examen de passage*, which is conducted by the teaching staff of the Institute. At intervals throughout the year the students are tested by oral and

written examinations, and the results of these frequent tests are reckoned into the aggregate of marks obtained in the annual examinations. The scales of marks awarded in the examinations are given in the appendix. In the case of the *examen de passage*, and of the *examen de sortie*, a student's place is fixed by averaging the place won by him in the examination itself and in the aggregate of the examinations held during the twelve months preceding. It is strongly felt by the authorities of the Institute to be undesirable to place a student according to the result of a single examination. His work during the whole year is taken into account, and this arrangement has a salutary effect on the student's industry and application. At the end of the student's second year comes the severe final test—the *examen de sortie*. The Board of Examiners in this case is nominated by the Government and municipality, but always includes some representative of the teaching staff. To show how practical is the point of view taken in the examination, it may be well to mention that last year the Board of Examiners included a retired consul general, who had served Belgium with distinction in many countries; one of the most eminent of the merchants in Antwerp engaged in foreign trade, and another very well-known merchant who himself writes with authority on economic questions. The first of these three gentlemen was specially chosen in order to judge the candidates' fitness for consular appointments. The second was specially chosen to conduct the examination in business knowledge, while the third was appointed with special reference to the examination in practical political economy. With these three examiners were associated a professor from the University of Brussels, and three professors from the staff of the Institute itself. This is a strong board—strong alike in practical knowledge and in academic qualifications. It awards to the candidates who are successful in the final examination, diplomas of merit (*diplômes de capacité*) But these diplomas are not lightly given. Last year two thirds of the candidates for the diplomas were, as we should say, "ploughed." Great stress is laid upon the necessity of keeping the standard high. I myself heard some of the students grumble at the rejection of a number of industrious students who, as they thought, had deserved success. But the professors are resolutely in favor of confining the diploma of the Institute to those who are both industrious and clever. "We do not want to give our diplomas to bookworms, however plodding," I heard one of them say; "we require distinct promise of business faculty, as well as a high standard of knowledge." There is no doubt that they are right. The reputation of the Institute will ultimately depend on their tenacity in maintaining the standard. Otherwise, its diplomas will come to mean very little—possibly worse than little—in the practical world of trade.

Already the diplomas are highly valued by business men. The fact that they are awarded by a Board of Examiners, thus combining practical knowledge with academic distinction, adds to their prestige They confer the title of "*Licencié en Sciences Commerciales*," and this, in a land where badges of honor are not lightly esteemed, is perhaps of more account in the Belgian work-a day world than it would be in London. Another and very real advantage conferred by the diploma is that it qualifies the student to obtain one of the travelling scholarships

awarded by the Government in order to encourage commercial enquiry and report. This is one of the most important features of the system. The State makes an annual grant of £1,800 a year to provide these travelling scholarships (*bourses de voyage* — travelling studentships for commercial research, as they may be called. This form of subsidy, which is additional to the annual grant made to the Institute, has been imitated by the French Government. The object of the travelling studentships is to enable young men to extend their practical knowledge of commercial life to that of non European countries. The studentships are worth £200 to £250 a year, according to the country which the student chooses to visit. It is important that the money value of these research studentships should be large. Otherwise they do not enable the holders to undertake journeys which, though costly at the time, may lead to the development of lucrative markets. They are tenable for three years. Students holding these scholarships have gone, in former years, to the Cape, the Argentine Republic, Brazil, the United States, Canada, Mexico, China, Japan, British India, Australia and New Zealand. It is a condition attached to these "prize fellowships for commercial research" that the holder should at half yearly intervals report to the Belgian Government as to openings for Belgian trade. In Antwerp I heard that the results of this system were regarded as highly satisfactory. The Belgian Government means to have skilled outposts in every part of the world, watching and reporting upon the course of trade. Most of the young men who started by holding these travelling scholarships have remained in business in the countries upon which they were originally sent to report. They find and seize business openings there. Some have been, or are, consuls or vice-consuls for Belgium at Calcutta, Sydney, Melbourne, Buenos Ayres, Odessa and Yokohama. The scheme is intended to have a close bearing on the future of the Belgian consular service. Most of the Belgian consuls of the future will be trained at the Institut Supérieur de Commerce at Antwerp. The third year of study there—now just introduced—will be one of the chief entrances to consular life, but the Government properly reserves to itself the right of free selection for consular vacancies, in case it thinks well to appoint an engineer, or other expert, trained elsewhere. In short, however, it may be said that the Belgian Government has resolved to create a highly trained commercial consular service to act as an intelligence department for Belgian trade. In the common room of the Institute I heard a professor read aloud from a report prepared by a former student, a list of the wares which it behoved Belgian traders to have ready for sale along the new line of railroad in course of construction by the Egyptian Government into the Soudan.

In this connection, it may be pointed out that such higher commercial institutes, as that of Antwerp, are likely to do a valuable work in training men who will be eminently fitted to write on commercial subjects for the press. The function of the special correspondent is becoming increasingly important. The courses at the Institute are well adapted to give a young man the kind of general knowledge of trade questions which would best fit him (if he possesses the journalistic faculty to start with) for the duties of a special correspendent commissioned to inquire

into and report on the trade openings in new or distant countries. I heard at Antwerp that a young man, who has recently passed through the Institute, is distinguishing himself by his management of a newspaper which pays special attention to commercial questions and to the development of new markets for Belgian goods

Besides those who are undertaking the full course, other students are allowed on what is called "*Inscription Spéciale*," to take one or more of the various courses of instruction offered in the programme. These "occasional students" are not required to pass any examination, nor of course are they entitled to sit for the diploma. They pay for each course, with the exception mentioned below, a fee of 30 francs, reduced to 15 francs in case of renewal. These students are admitted at any period of the course. For the "*Bureau Commercial*"—the course of instruction in business knowledge which is the pivot of the educational work of the Institute—they pay £4 a year. But no student may enter for the "*Bureau Commercial*" unless he takes at least four other courses of either year.

The courses begin in the second week of October in each year. There are three vacations—the first from 24th December to 5th or 6th January, the second extending from the Monday in Holy Week to the Tuesday sen'night after Easter, and the "long" from August 15th to the second Tuesday in October. The lectures are given in French. The work of the *Bureau Commercial* is conducted in the principal modern languages. It will thus be seen that a good knowledge of foreign tongues is an indispensable qualification for the courses. Without it a student would get little advantage from the Institution. I was told by one of the professors that an ordinary English boy would fail in the entrance examination in foreign languages. Not that my informant thought by any means that the Englishman is naturally ill-fitted for the study of living languages. There is indeed abundant proof to the contrary. But he maintained, and doubtless with good reason, that the ordinary methods of teaching foreign languages in use in most English schools are behind the time. Happily there are many signs of reform, and the Modern Language Association is helping forward a movement which may revolutionize the position of modern language teaching in our schools. There is great and urgent need for this reform. It is the foundation of the best preparation for modern commercial life. Without it, much other commercial teaching will be comparatively fruitless. Belgium, Germany, and Scandinavia have much to teach us in this matter. What is really wanted is the training of a much larger number of highly skilled and highly educated English teachers of modern languages. Many such are already working in our schools—but we need far more, and we also need a higher standard of public expectation in the matter of foreign-language teaching. Other countries have shot ahead of us in this branch of education They have found that foreigners cannot do the work so well as their own people can, if the latter are properly trained. But the training is an arduous and costly business, and it requires, as an essential pre condition, a high standard of general culture in the teacher. An ill-educated man cannot master the principles on which all good language-teaching depends. Of the bearing of the good teaching of modern languages on our commercial interests

it is hardly necessary to say much. The need explains itself. Our consular reports frequently deplore the inferiority of the average English commercial traveller in the use of foreign tongues. To quote only one of these, Mr. Wilfrid Powell, H.M. Consul at Stettin, in his report of October 21st, 1897, thus alludes to the question:—

"How many British boys on leaving school or the universities to face life in a business which is world-wide, can speak with fluency or even tolerably any language other than their own? They have—it is true—a certain knowledge of Latin, which is very useful, and a smattering of Greek, which is useful probably for the Church or in the learned professions alone, but could they proceed to France or Germany or Spain and be able to make themselves understood?

"Undoubtedly the far greater majority of British lads on the completion of their education become what is vaguely termed men of business, and at the present day it is an absolute necessity for the carrying on of that business against the keen competition—which, owing to European peace, has manifested itself in foreign lands during the last twenty-five years—that we, as 'a nation of merchants,' should be able to deal with our customers in their own tongues, and for this purpose it is of the utmost importance that the youth of Great Britain should be instructed for the most part in living languages."*

Elsewhere in the present volume the wider bearings of this educational question are discussed. It is not only for commercial reasons that first-rate teaching of modern languages is needed in secondary schools. The purely intellectual as well as the commercial interests of the nation seem to call for it. But for commercial purposes it is obviously an urgent need. And this, not merely in order that our commercial travellers may, as has been humorously said, excel in "the arts of solicitation," but that our men of business generally may enjoy those facilities for at once divining the needs of foreign customers, and for studying the industrial and commercial conditions of foreign countries in foreign newspapers, books and reports, which are increasingly indispensable for success in modern trade.

The growing stress of the competitive struggle is forcing merchants to shake themselves free from a good deal of old routine. They have to put more brain than heretofore into certain parts of the business of distribution, which, under older conditions, could be left more or less to the chapter of accidents or to the discretion of distant agents. The manufacturer for export (or the merchant who virtually directs him by explicit orders) has to picture to himself more vividly than before the actual conditions under which his goods will be offered for sale in each of a number of distant countries. He has to think out beforehand the point-of-view of the remote customers whom he wishes to attract. He has to project himself in imagination into a number of far off markets and to adjust his plans to their whims and traditional prejudices. He has to pack his goods as his customers are likely to prefer them packed. He has to design his goods and his advertisements so as to appeal to their fancies. He needs, for commercial purposes, that faculty of imagination by which, as Adam Smith said, "We place ourselves in another man's situation, enter as it were into his body and become in a measure him, and thence form some idea of his sensations and even feel something which, though weaker in degree, is not altogether unlike them." In other words, the successful exporter to distant markets needs a realistic imagination. At

*Foreign Office, 1897, Miscellaneous Series, No. 434. Report on Subjects of General and Commercial Interest. Report on the Association for the Promotion of Foreign Commercial Relations in Stettin. (C. 8649—5. 1d.)

school, therefore, his imagination should be stimulated and trained, not, however, by attempts to make him prematurely realize commercial conditions, but by the searching and appropriate discipline of a liberal education. The latter, if it is rightly administered, will give him precision of thought, accuracy of observation and exactness in expression without at the same time inducing inertness or insensibility of imagination. The power of putting yourself at another person's point of view is as capable of development by skilful training as is the power of casting figures or of handling a cricket bat A boy who has been taught at school vividly to realize the actual circumstances of the siege of Syracuse or of the struggle of the Puritan Revolution, will find himself in after life more able to picture to himself the actual conditions of distant markets in China or on the Congo than if he had been brought up on the meagre fare of shorthand and mere cram-books of commercial geography. The longer way round is often the shortest in the end. What he needs to learn is the habit of taking the necessary trouble to acquire the exact knowledge of remote conditions upon which his imagination has to play. While fortifying his powers of imagination on the one hand we have to drill him into the habit of steadying his imagination by the necessary ballast of laboriously acquired facts. This is what he will get by the best kind of training at a good secondary school. And then, when the proper time comes he will be able to avail himself of opportunities for acquiring precise knowlege of the particular conditions of the foreign markets under which his various ventures will be carried on. But it will be necessary for him to go on acquiring and deepening this knowledge all through his commercial life. Hence he will need the intellectual habit of finding out things for himself, of quickly grasping opportunities for extending his knowledge, of using books of reference and travel not mechanically and lethargically, but with ready power of applied imagination. And, in order to do this, he will require the trained faculty of learning new languages, at any rate up to the point which will give him access to the necessary literature.

Thus, the true foundation for commercial instruction is to be laid in the efficient secondary school, but experience is showing, more clearly every day, that if the modern secondary school is to turn out the right kind of material for the higher ranks of modern business life, it must give a good *general* education, and not be driven or tempted into the fallacy of premature specialization in subjects which a boy may indeed "cram up" (an industrious boy can be got to "cram up" anything), but which are unsuitable for his age, and themselves crowd out other and more appropriate forms of intellectual discipline.

This may be the best place to report on what I heard in Antwerp about the characteristics of some of the foreign students who have attended the Institute. The Belgians are all necessarily good linguists. The geographical position of their country compels them to be so, and the excellent instruction in modern languages given by the Belgian secondary schools greatly develops their linguistic aptitude. The Russian students at Antwerp are some of them very poor, but very industrious. They often earn a few francs a day by retailing the substance of the early lectures to students who are themselves too lazy to get up in time to hear them. It

may be explained, in passing, that the first lesson always begins at eight o'clock in the morning. The Germans, though not always clever, are invariably eager and keen "If I look round my class," a professor said to me, "and mark the most industrious face, it is nearly always the face of a German." The Belgians and Germans are very keen about commercial advancement, and have thrown themselves into commercial life with the keenness and enthusiasm which lead to success in any branch of study. Of late years there has been only one English "*regular*" student at the Institute. He went through the first year and did very well. But, during the summer vacation between his first and second year of study, an insurance office in Manchester offered him a post, which he accepted, and thus he never completed his full course at the Institute.

III.

The Institut Supérieur de Commerce at Antwerp is under the direct supervision, not of the Belgian Education Department, but of the Board of Trade. It has not always been so. Owing to successive changes in the organization of the Belgian Department of State, the Institute has passed under the charge of various offices, but it has now settled definitely under that of the Minister of Commerce and Industry, just as the Higher Agricultural Schools are under the supervision of the Department of Agriculture. I found on all hands an agreement that this is the best plan. It is said to bring the Institute into close connection with practical men of business. The primary object of the Institute is technical, not in the stricter sense educational. Its severance from the Education Department is said, by those who have given special thought to the matter, to have guaranteed to the Institute a healthy intimacy with commercial, as distinguished from purely educational, interests. There is a general desire to prevent its work from becoming mixed up or confused with the work of Evening Continuation Schools, or of Secondary Education. This separation is held to be for the good of both sides. The Institute is doing work of a kind which requires *fresh* and very special knowledge of commercial needs and of commercial life. Once cut off from the tendencies of commercial circles, it might (it is said) get into a sort of educational backwater. Its life and growing success depend on the support, the confidence, and the continuous criticism of men actively engaged in commerce. The interest taken in education in Belgium is so widespread that the methods of instruction adopted in the Institute are naturally based on the best principles of educational science. The professors are trusted, being experts at the work. The inspection is wise and fair. The inspectors do not interfere in the purely educational side of the Institute's work The Ministry takes counsel from experts as to the plans of study, and is careful not to prescribe what is educationally impossible. Thus the care for the educational interests of the Institute is secured and what remains—the care, namely, for its efficiency according to commercial standards—is (it is held) best left to the Ministry whose first care is commerce. It is interesting to note that a similar view is taken in France, where the Schools of Commerce, including the *École des Hautes Études Commerciales* at Paris, and the *Écoles Supérieures de Commerce* at Havre and elsewhere, are under the supervision,

not of the Education Department, but of the Ministry of Commerce and Industry. The same tendency may be noted in the different States of Germany, where the Technical High Schools are not under the care of the Education Departments, but of the Ministers of Trade and Industry. It should be added that, in the latter case, the friends of Higher Technical Education think that the Technical Institutes get more funds from the State under the present arrangement than they would if they were massed with all other kinds of instruction under the Education Department. But the fundamental reason alleged for the connection of all these forms of higher technical education with the corresponding Ministers of Trade, is that these branches of instruction are more really allied in interest to the Departments of Commerce than to the Departments of Education. It will be noted, however, that this arrangement implies for its success, and for the avoidance alike of waste of money and of conflict of purpose, close concert between the different Departments concerned, and the existence, among the public at large, of a high standard of enlightenment as to the principles of educational administration. It is because German manufacturers, for example, are themselves well informed as to the aims and work of the secondary schools and thoroughly convinced by personal experience of the value of a liberal secondary education that they cordially support the authorities of the Higher Technical Institutes in requiring, as a necessary condition for entrance, the leaving certificate from a first rate secondary school. Were there any distrust, on the part of merchants or manufacturers, of the value of a liberal secondary education, the effect of giving them so much influence over the course of professional training might be the framing of regulations which would indirectly induce premature specialation in the schools which form the avenue to the institutes for higher technical and professional studies

The Director of the Institute, Dr. Grandgaignage, who courteously gave me much valuable information, extracted for me the following statistics from his records :

Year.	Total Number of Students in the Institute.	Of these were (*a*) Belgians.	(*b*) Of foreign nationality
1895	219	142	77
1897	247	166	81

The entrance lists for the session, which at the time of my visit had but recently begun, were not yet complete. The total number of students in the Institute had risen to 255, of whom 22 were in their third year. Of the residue, 143 were Belgians, and 90 of foreign birth.

It may be of interest if I describe some of the lectures which I was permitted to hear. They were still being given in the old buildings in the *Rua de Chêne*, centrally situated but quite inadequate to the present importance of the work of the Institution. By the time, however, that these words are printed, the Institute will have moved into the palatial building recently erected for it by the municipality—an edifice in every way well planned for the work, and marking by the dignity of its elevation the high place which the Institute enjoys in the public life of Antwerp.* The first lecture in the

* The plans for the new building can be seen at the Education Department Library. They include a large lecture theatre, numerous class-rooms, a museum of products, and a Director's house.

morning was given by Professor William Layton, the Professor of English, of whose kind assistance to me in this inquiry, both at the time of my visit and afterwards, I desire here to make fitting acknowledgment. Sixty-eight students were present at the lecture. About ten minutes after it began a *répétiteur* came round and marked the attendances. The professor began in French. He said he would read a passage from the commercial intelligence in an English newspaper. Producing a cutting from the *Times*, he read aloud that "a large contract for the supply of 20,000 tons of best colliery-screened Monmouthshire steam coal had recently been placed at ———, and that great interest had been excited in the trade at the size of the order." He proceeded to read the market quotations for different kinds of coal. A student was then called upon to translate into French the dictated passage, which had been taken down in English. The whole lesson, which formed part of the first year's course, was an admirable disquisition on the meaning of a large number of technical terms used in English trade, and on their equivalents in French. After thoroughly working through such a course, a young Belgian or German would have much less difficulty in understanding the commercial intelligence in an English newspaper than if he had to rely on the best of dictionaries.

The next lecture was on Civil Law. The professor began by slowly dictating some notes, which were taken down by the whole class—about eighty-nine in number. He then broke out into an animated and interesting address, listened to with much attention by the students, on the Belgian law of domicile, on the position of aliens in Belgium, on naturalization, and on the right of expelling strangers who were suspected of fomenting civil disturbance. The students were diligent in taking notes. They looked mostly of about eighteen to twenty years of age, some older. Here and there was a young fellow in military uniform. On this point I may say that the law of military service has no such influence on the number attending the Antwerp Institute, as I was informed in Paris was the case in the French *Écoles Supérieures de Commerce*. In France, a young man who gains the diploma of a recognized *École Supérieure de Commerce* is now excused two out of three years of compulsory military service.* And I was told by many competent observers in Paris that this new privilege has had a great deal to do with the increased popularity of the French higher schools of commerce. But this is not the case in Antwerp. In Belgium, it is true, all young men are nominally required to serve in the army, but in point of fact only about one in eleven draws an unlucky number in the ballot. A parent can, indeed, insure against his son's drawing an unlucky number by pledging a sum of £64 (1,600 francs). Those few students at the Institute who are actually attending its courses of instruction during their period of military service are virtually exempted by the Government from the more arduous part of their military duties. They have, it is true, to answer to their name at roll call in barracks once a day, to wear uniform and to take part in the autumn manœuvres. But otherwise they are excused real service with

* The Décret du 22 Juillet, 1890, extends to recognized Ecoles Supérieures de Commerce in France the privileges granted under Article 23 of the Loisur le Recrutement de l'Armée of July 15, 1889, as further specified by the Décret du 31 Mai, 1890.

the colors. And if a private in the army, after thus serving and studying at the same time, comes out high in the final examination, he may look with some confidence to getting a good place from the Government. For example, a young man who recently studied at the Institute under these conditions has been given by the Government a consular appointment in Japan. But, though the terms of military service are thus mitigated in the case of those students who have drawn an unlucky number in the ballot, these alleviations do not, as a matter of fact, count for much in increasing the number of Belgian students at the Antwerp School. Foreign students, however, from Russia and Italy, who succeed in winning the diploma, are exempted by their Governments from some part of their military service.

The most important branch of the course of instruction given at the *Institut Supérieure de Commerce* at Antwerp, is that which is known as the *Bureau Commercial.* On this branch converge the various courses of theoretical teaching. It aims at introducing the student, in a systematic course of two years, to all the usual incidents encountered in the course of foreign trade. It is practical from first to last. This does not mean that the Institute attempts to reproduce what one may call the stage properties of commercial life. There are no rooms elaborately furnished like the office of a commercial house—no *facsimiles* of the furniture and equipment of a merchant's office. In Paris, indeed, there is a "Business College," as the Americans would call it, which does make in its advertisements a great show of these accessories. But this is not one of the Higher Commercial Schools to which this paper refers. I found that the graver supporters of commercial education were more than a little inclined to doubt whether it is prudent to attempt to combine even the appearance of such realistic methods with serious and systematic instruction. It is said that the idea of doing so came from America, and it is of such an American school of commerce that R. L. Stevenson and Mr. Lloyd Osbourne made their amusing travesty in the first chapter of the "Wrecker." But nothing of this kind finds a place in the Institute at Antwerp. The work done in the Bureau is hard and systematic, and has nothing in it approaching to educational theatricals. And yet, in a true sense, it is what the Germans call "*Auschauungs-Unterrtcht,*" vivid, real, based on the things of life It aims at presenting the whole of a representative variety of international business transactions from their start to their finish. And the matter so far as it refers to different countries is discussed and dealt with in the language of those countries. This does not mean that merely a succession of commercial transactions are taken in turn and explained to the students. The course is carefully graduated, and the principles of commercial arithmetic, of calculation, of insurance, and of law are explained systematically in orderly sequence, so that the students get a grasp both of the theory and practice of foreign trade. A number of different courses by different teachers are brought into concentration on this point. The lectures on the history of commercial products; those on commercial history and geography; those on economics,on law, on tariffs, and to some extent the classes in foreign languages are in large measure brought into focus on this course as the pivot round which the whole scheme of study turns.

Let it suffice to say that the students are first familiarized, by an exacting discipline, with the more difficult branches of applied commercial arithmetic. These initial difficulties mastered, the pupils are given a carefully graded series of problems so designed as to illustrate the normal operations of a firm engaged in extensive foreign trade. It is at this point—in the selection of what Monsieur Eugène Léautey, in his admirable book on Commercial Education, calls "*les operations de commerce fictif*"—that the heaviest demand is made upon the good sense and educational skill of the teachers. Of these details of their work I am not myself able or competent to speak, but I can only report that others, possessing the necessary knowledge and authority, have passed high commendations on the way in which this difficult task has been fulfilled.

At the time of my visit to the "Bureau of the first year," the course was still near to its beginning. The class met in a large room, plainly furnished with office desks. Of 50 students enrolled for this class, 43 were present. Each year's batch of students is divided into two halves for the Bureau. The one I visited was confined to Belgians, the foreign students being taught in a parallel division where there was more dictation. The problem was concerned with a purchase of San Domingo coffee, the purchase being supposed to have been made in New York. It involved a number of complicated factors —commission, insurance, freight, etc. Other problems followed. After a few words of lucid explanation, the students were set to work out the calculation for themselves. Subsequently, the professor gave an admirable analysis of the problem in clear and logical language, the students following him with the closest attention. They did the work in pairs, but this is not permitted in the actual examinations. The professor kindly showed me one of the note-books of one of the students in the second year. I was struck by the range of work which it covered. The aim of his first year's teaching, he told me, is to compel the young men to reckon in an exact, rapid, and practical manner. In the latter part of the course, the simulated operations become more complex and difficult. Each of these lessons in the Bureau lasts for two hours, and evidently calls for hard work on the part of the students. I subsequently heard a lesson on commercial products given to the second-year students of the "Bureau." It was on jute—a careful lesson fully illustrated by specimens and diagrams.

The teaching is not all done in the class-rooms. The visits paid by the students to docks and factories, under the guidance of the professors, and with other expert assistance, are said to be very useful These visits are not confined to Antwerp, but embrace a number of the important centres of Belgian industry. Exhibitions are also used for an educational purpose, and no one who has visited the more important recent exhibitions in Germany and elsewhere can fail to have been struck by the way in which their admirably classified contents lend themselves to this kind of use.

It will be seen by a glance at the curriculum of the Institute, printed in the appendix to this paper, that the course of study comprises a great number of different subjects. On this point, I gathered in conversation with some of the students that some dissatisfaction exists. Those with whom I talked considered that there were too many subjects in each year's work. The

force of the criticism is admitted by some of the professors. It is possible that the addition of a third year to the course of study may enable the authorities to relieve in some measure the congestion of the curriculum.—*Special Reports, Education Department, London.*

To be continued.

THE UNSOLVED PROBLEMS OF ASTRONOMY.

By Professor Simon Newcomb.

Our readers already know what the solar system is: an immense central body, the sun, with a number of planets revolving round it at various distances. On one of these planets we dwell. Vast indeed are the distances of the planets when measured by our terrestrial standards. A cannon-ball fired from the earth to celebrate the signing of the Declaration of Independence, and continuing its course ever since with a velocity of 1,800 feet per second, would not yet be half-way to the orbit of Neptune, the outer planet. And yet the thousands of stars which stud the heavens are at distances so much greater than that of Neptune that our solar system is like a little colony, separated from the rest of the universe by an ocean of void space almost immeasurable in extent. The orbit of the earth round the sun is of such size that a railway train running sixty miles an hour, with never a stop, would take about 350 years to cross it. Represent this orbit by a lady's finger-ring. Then the nearest fixed star will be about a mile and a half away; the next more than two miles; a few more from three to twenty miles; the great body at scores or hundreds of miles. Imagine the stars thus scattered from the Atlantic to the Mississippi, and keep this little finger-ring in mind as the orbit of the earth.

One of the most beautiful stars in the heavens, and one that can be seen most of the year, is a *Lyrae*, or Alpha of the Lyre, known also as Vega. In a spring evening it may be seen in the northeast, in the later summer near the zenith, in the autumn in the northwest. On the scale we have laid down with the earth's orbit as a finger-ring, its distance would be some eight or ten miles. The small stars around it in the same constellation are probably ten, twenty, or fifty times as far.

Now, the greatest fact which modern science has brought to light is that our whole solar system, including the sun, with all its planets, is on a journey toward the constellation Lyra. During our whole lives, in all probability during the whole of human history, we have been flying unceasingly toward this beautiful constellation with a speed to which no motion on earth can compare. The speed has recently been determined with a fair degree of certainty, though not with entire exactness; it is about ten miles a second, and therefore not far from three hundred millions of miles a year. But whatever it may be, it is unceasing and unchanging; for us mortals eternal. We are nearer the constellation now than we were ten years ago by thousands of millions of miles, and every future generation of our race will be nearer than its predecessor by thousands of millions of miles.

When, where, and how, if ever, did this journey begin; when, where, and how, if ever, will it end? This is the greatest of the unsolved problems of astronomy. An astronomer who should watch the heavens for ten thousand years might gather some faint suggestion of an answer, or he might not. All we can do is to seek for some hints by study and comparison with other stars.

The stars are suns. To put it in another way, the sun is one of the stars, and rather a small one at that. If the sun is moving in the way I have described, may not the stars also be in motion, each on a journey of its own through the wilderness of space? To this question astronomy gives an affirmative answer. Most of the stars nearest to us are found to be in motion, some faster than the sun, some more slowly, and the same is doubtless true of all; only the century of accurate observations at our disposal does not show the motion of the distant ones. A given motion seems slower the more distant the moving body; we have to watch a steamship on the horizon some little time to see that she moves at all. Thus it is that the unsolved problem of the motion of our sun is only one branch of a yet more stupendous one: What mean the motions of the stars; how did they begin, and how, if ever, will they end? So far as we can yet see, each star is going straight ahead on its own journey, without regard to its neighbors, if other stars can be so called. Is each describing some vast orbit which, though looking like a straight line during the short period of our observation, will really be seen to curve after ten thousand or a hundred thousand years, or will it go straight on forever? If the laws of motion are true for all space and all time, as we are forced to believe, then each moving star will go on in an unbending line forever unless hindered by the attraction of other stars. If they go on thus, they must, after countless years, scatter in all directions, so that the inhabitants of each shall see only a black, starless sky.

Mathematical science can throw only a few glimmers of light on the questions thus suggested. From what little we know of the masses, distances, and numbers of the stars we see a possibility that the more slow-moving ones may, in long ages, be stopped in their onward courses, or brought into orbits of some sort by the attraction of their millions of fellows. But it is hard to admit even this possibility in the case of the swift-moving ones. Attraction, varying inversely as the square of the distance, diminishes so rapidly that, at the distances which separate the stars, it is small indeed. We could not, with the most delicate balance that science has yet invented, even show the attraction of the greatest known star. So far as we know, the two swiftest-moving stars are, first, Arcturus, and second, one known in astronomy as 1830 Groombridge, the latter so called because it was first observed by the astronomer Groombridge, and is numbered 1830 in his catalogue of stars. If our determinations of the distances of these bodies are to be relied on, the velocity of their motion cannot be much less than 200 miles a second. They would make the circuit of the earth every two or three minutes. A body massive enough to control this motion would throw a large part of the universe into disorder. Thus the problem where these stars came from and where they are going is for us insoluble, and is all the more so from the fact that they are moving in different directions, and seem to have no connection with each other or with any known star.

It must not be supposed that these enormous velocities seem so to us. Not one of them, even the greatest, would be visible to the naked eye until after years of watching. On our fingering scale, 1830 Groombridge would be some ten miles, and Arcturus thirty or forty miles away. Either of them would be moving only two or three feet in a year. To the oldest Assyrian priests Lyra looked much as it does to us to-day. Among the bright and well-known stars Arcturus has the most rapid apparent motion, yet Job himself would not to-day see that its position

had changed, unless he had noted it with more exactness than any astronomer of his time.

Another unsolved problem among the greatest which present themselves to the astronomer is that of the size of the universe of stars. We know that several thousand of these bodies are visible to the naked eye; moderate telescopes show us millions; our giant telescopes of the present time, when used as cameras to photograph the heavens, show a number past count, perhaps 100 millions. Are all these stars only those few which happen to be near us in a universe extending out without end, or do they form a collection of stars outside of which is empty, infinite space? In other words, has the universe a boundary? Taken in its widest scope this question must always remain unanswered by us mortals, because, even if we should discover a boundary within which all the stars and clusters we ever can know are contained and outside of which is empty space, still we could never prove that this space is empty out to an infinite distance. Far outside of what we call the universe might still exist other universes which we can never see.

It is a great encouragement to the astronomer that, although he cannot yet set any exact boundary to this universe of ours, he is gathering faint indications that it has a boundary, which his successors not many generations hence may locate so that the astronomer shall include creation itself within his mental grasp. It can be shown mathematically that an infinitely extended system of stars would fill the heavens with a blaze of light like that of the noonday sun. As no such effect is produced, it may be concluded that the universe has a boundary. But this does not enable us to locate the boundary, nor to say how many stars may lie outside the farthest stretches of telescopic vision. Yet by patient research we are slowly throwing light on these points and reaching inferences which, not many years ago, would have seemed forever beyond our powers.

Every one now knows that the Milky Way, that girdle of light which spans the evening sky, is formed of clouds of stars too minute to be seen by the unaided vision. It seems to form the base on which the universe is built and to bind all the stars into a system. It comprises by far the larger number of stars that the telescope has shown to exist. Those we see with the naked eye are almost equally scattered over the sky. But the number which the telescope shows us becomes more and more condensed in the Milky Way as telescope power is increased. The number of new stars brought out with our greatest power is vastly greater in the Milky Way than in the rest of the sky, so that the former contains a great majority of the stars. What is yet more curious, spectroscopic research has shown that a particular kind of stars, those formed of heated gas, are yet more condensed in the central circle of this band; if they were visible to the naked eye, we should see them encircling the heavens as a narrow girdle forming perhaps the base of our whole system of stars This arrangement of the gaseous or vaporous stars is one of the most singular facts that modern research has brought to light. It seems to show that these particular stars form a system of their own; but how such a thing can be we are still unable to see

The question of the form and extent of the Milky Way thus becomes the central one of stellar astronomy. Sir William Herschel began by trying to sound its depths; at one time he thought he had succeeded; but before he died he saw that they were unfathomable with his most powerful telescopes. Even to day he would be a bold astronomer who would profess

to say with certainty whether the smallest stars we can photograph are at the boundary of the system. Before we decide this point we must have some idea of the form and distance of the cloud-like masses of stars which form our great celestial girdle. A most curious fact is that our solar system seems to be in the centre of this galactic universe, because the Milky Way divides the heavens into two equal parts, and seems equally broad at all points. Were we looking at such a girdle as this from one side or the other, this appearance would not be presented. But let us not be too bold. Perhaps we are the victims of some fallacy, as Ptolemy was when he proved, by what looked like sound reasoning, based on undeniable facts, that this earth of ours stood at rest in the centre of the heavens!

A related problem, and one which may be of supreme importance to the future of our race, is, What is the source of the heat radiated by the sun and stars? We know that life on the earth is dependent on the heat which the sun sends it. If we were deprived of this heat, we should in a few days be enveloped in a frost which would destroy nearly all vegetation, and in a few weeks neither man nor animal would be alive, unless crouching over fires soon to expire for want of fuel. We also know that, at a time which is geologically recent, the whole of New England was covered with a sheet of ice, hundreds or even thousands of feet thick, above which no mountain but Washington raised its head. It is quite possible that a small diminution in the supply of heat sent us by the sun would gradually reproduce the great glacier, and once more make the Eastern States like the pole.

To the question of our world-supply of heat science has an answer, but not a very confident one. The sun is supposed to be growing smaller, and its contraction constantly generates the heat which it so lavishly radiates to earth and planets. What is true of the sun we may suppose to be true of the stars and nebulæ. All are supposed to be contracting into a smaller volume in consequence of the mutual gravitation of their parts, and this contraction generates the heat which they give off and the light by which we see them. This theory has the great merit that it may be made the subject of exact mathematical calculation. Knowing the size of a body, no matter whether star or nebulæ, and the quantity of matter which it contains, we can calculate exactly how much it must contract in order to generate a given amount of heat. We know this in the case of the sun, and find that the contraction necessary to produce all the heat it gives off is very slow indeed; it would have to go on for thousands of years before astronomers could find, by comparing its size at various times, that it had grown any smaller. Contracting at this slow rate, it will be millions of years before it gets as dense as the earth. Still, it does not follow that the amount of heat given off will remain exactly the same during all this period. What we can say with confidence is that observations of temperature in various countries for the last two or three hundred years do not show any change in climate which can be attributed to a variation in the amount of heat received from the sun.

The acceptance of this theory of the heat of those heavenly bodies which shine by their own light—sun, stars, and nebulæ—still leaves open a problem that looks insoluble with our present knowledge. What becomes of the great flood of heat and light which the sun and stars radiate into empty space with a velocity of 180,000 miles a second? Only a very small fraction of it can be received by the planets or by other stars, because these are mere points compared with

their distance from us. Taking the teaching of our science just as it stands, we should say that all this heat continues to move on through infinite space forever. In a few thousand years it reaches the probable confines of our great universe. But we know of no reason why it should stop there. During the hundreds of millions of years since all our stars began to shine has the first ray of light and heat kept on through space at the rate of 180,000 miles a second, and will it continue to go on for ages to come? If so, think of its distance now, and think of its still going on, to be forever wasted! Rather say that the problem, What becomes of it? is as yet unsolved.

Thus far I have described the greatest of problems; those which we may suppose to concern the inhabitants of millions of worlds revolving round the stars as much as they concern us. Let us now come down from starry heights to this little colony where we live, the solar system. Here we have the great advantage of being better able to see what is going on, owing to the comparative nearness of the planets. When we learn that these bodies are like our earth in form, size, and motions, the first question we ask is, Could we fly from planet to planet and light on the surface of each, what sort of scenery would meet our eyes? Mountain, forest, and field, a dreary waste, or a seething caldron larger than our earth? If solid land is there, would we find on it the homes of intelligent beings, the lairs of wild beasts, or no living thing at all? Could we breathe the air, or would we choke for breath, or be poisoned by the fumes of some noxious gas?

To most of these questions science cannot as yet give a positive answer, except in the case of the moon. Our satellite is so near us that we can see it has no atmosphere and no water, and therefore cannot be the abode of life like ours. The contrast of its eternal deadness with the active around us is great indeed. Here we have weather of so many kinds that we never tire of talking about it. But on the moon there is no weather at all. On our globe so many things are constantly happening that our thousands of daily journals cannot begin to record them. But on the dreary rocky wastes of the moon nothing ever happens. So far as we can determine, every stone that lies loose on its surface has lain there through untold ages, unchanged and unmoved.

We cannot speak so confidently of the planets. The most powerful telescopes yet made, the most powerful we can ever hope to make, would scarcely show us mountains, or lakes, rivers, or fields at a distance of fifty millions of miles. Much less would they show us any works of man. Pointed at the two nearest planets, Venus and Mars, they whet our curiosity more than they gratify it. Especially is this the case with Venus. Ever since the telescope was invented observers have tried to find the time of rotation of this planet on its axis. Some have reached one conclusion, some another, while the wisest have only doubted. The great Herschel claimed that the planet was so enveloped in vapor or clouds that no permanent features could be seen on its surface. Some recent observers think they see faint, shadowy patches, which remain the same from day to day, and which show that the planet always presents the same face to the sun, as the moon does to the earth. Others see differently, and the best opinion probably is that these patches are simply variations of light, shade, and color, caused by the reflection of the sun's light at various angles from different parts of the planet.

There is also some mystery about the atmosphere of this planet. When Venus passes nearly between us and the sun, her dark hemisphere is turned

toward us, her bright one being always toward the sun. But she is not exactly on a line with the sun except on the very rare occasions of a transit across the sun's disk. Hence, on ordinary occasions, when she seems very near on a line with the sun, we see a very small part of the illuminated hemisphere, which now presents the form of a very thin crescent like the new moon. And this crescent is supposed to be a little broader than it would be if only half the planet were illuminated, and to encircle rather more than half the planet. Now, this is just the effect that would be produced by an atmosphere refracting the sun's light around the edge of the illuminated hemisphere.

The difficulty of observations of this kind is such that the conclusion may be open to doubt. What is seen during transits of Venus over the sun's disk leads to more certain, but yet very puzzling, conclusions. The writer will describe what he saw at the Cape of Good Hope during the transit of December 5, 1882. As the dark planet impinged on the bright sun, it of course cut out a round notch from the edge of the sun. At first, when this notch was small, nothing could be seen of the outline of that part of the planet which was outside the sun. But when half the planet was on the sun, its outline off the sun was marked by a slender arc of light. A curious fact was that this arc did not at first span the whole outline of the planet, but only showed at one or two points. In a few moments another part of the outline appeared, and then another, until, at last, the arc of light extended around the complete outline. All this seems to show that while the planet has an atmosphere, it is not transparent like ours, but is so filled with mist and clouds that the sun is seen through it only as if shining in a fog.

Not many years ago the planet Mars, which is the next one outside of us, was supposed to have a surface like that of our earth. Some parts were of a dark greenish gray hue; these were supposed to be seas and oceans. Other parts had a bright warm tint; these were supposed to be continents. During the last twenty years much has been learned as to how this planet looks, and the details of its surface have been mapped by several observers, using the best telescopes under the most favorable conditions of air and climate. And yet it must be confessed that the result of this labor is disappointing. We are less confident than before that the so called seas are really seas. When it comes to comparing Mars with the earth, we cannot be certain of more than a single point of resemblance. This is that during the Martian winter a white cap, as of snow, is formed over the pole, which partially melts away during the summer. The conclusion that there are oceans whose evaporation forms clouds which give rise to this snow seems plausible. But the telescope shows no clouds, and nothing to make it certain that there is an atmosphere to sustain them. There is no certainty that the white deposit is what we call snow; perhaps it is not formed of water at all.

To make the matter worse, there is no agreement among observers as to minuter details of light and shade on the surface of the planet, though they agree as to the main features. Where some see broad hazy streaks, others see fine dark lines, and yet others nothing definite at all. The result is that the question of the real nature of the surface of Mars and of what we should see around us could we land upon it and travel over it is still one of the unsolved problems of astronomy.

If this is the case with the nearest planets that we can study, how is it with more distant ones? Jupiter is the only one of these of the condition of whose surface we can claim to have

definite knowledge. But even this knowledge is meagre. The substance of what we know is that its surface is surrounded by layers of what look like dense clouds, through which nothing can certainly be seen.

I have already spoken of the heat of the sun and its probable origin. But the question of its heat, though the most important, is not the only one that the sun offers us. What is the sun? When we say that it is a very hot globe, more than a million times as large as the earth, and hotter than any furnace that man can make, so that literally "the elements melt with fervent heat" even at its surface, while inside they are all vaporized, we have told the most that we know as to what the sun really is. Of course we know a great deal about the spots, the rotation of the sun on its axis, the materials of which it is composed, and how its surroundings look during a total eclipse. But all this does not answer our question. There are several mysteries which ingenious men have tried to explain, but they cannot prove their explanations to be correct One is the cause and nature of the spots. Another is that the shining surface of the sun, the "photosphere," as it is technically called, seems so calm and quiet while forces are acting within it of a magnitude quite beyond our conception. Flames in which our earth and everything on it would be engulfed like a boy's marble in a blacksmith's forge are continually shooting up to a height of tens of thousands of miles. One would suppose that internal forces capable of doing this would break the surface up into billows of fire a thousand miles high; but we see nothing of the kind. The surface of the sun seems almost as placid as a lake.

Yet another mystery is the corona of the sun. This is something we should never have known to exist if the sun were not sometimes totally eclipsed by the dark body of the moon. On these rare occasions the sun is seen to be surrounded by a halo of soft white light, sending out rays in various directions to great distances. This halo is called the corona, and has been most industriously studied and photographed during nearly every total eclipse for thirty years. Thus we have learned much about how it looks and what its shape is. It has a fibrous, woolly structure, a little like the loose end of a much-worn hempen rope. A certain resemblance has been seen between the form of these seeming fibres and that of the lines in which iron filings arrange themselves when sprinkled on paper over a magnet. It has hence been inferred that the sun has magnetic properties, a conclusion which, in a general way, is supported by many other facts. Yet, the corona itself remains no less an unexplained phenomenon.

A phenomenon almost as mysterious as the solar corona is the "zodiacal light," which any one can see rising from the horizon just after the end of twilight on a clear winter or spring evening. The most plausible explanation is that it is due to a cloud of small meteoric bodies revolving round the sun. We should hardly doubt this explanation were it not that this light has a yet more mysterious appendage, commonly called the *Gegenschein*, or counterglow. This is a patch of light in the sky in a direction exactly opposite that of the sun. It is so faint that it can be seen only by a practised eye under the most favorable conditions. But it is always there. The latest suggestion is that it is a tail of the earth, of the same kind as the tail a comet.

We know that the motions of the heavenly bodies are predicted with extraordinary exactness by the theory of gravitation. When one finds that the exact path of the moon's shadow on the earth during a total eclipse o

the sun can be mapped out many years in advance, and that the planets follow the predictions of the astronomer so closely that, if you could see the predicted planet as a separate object, it would look, even in a good telescope, as if it exactly fitted over the real planet, one thinks that here at least is a branch of astronomy which is simply perfect. And yet the worlds themselves show slight deviations in their movements which the astronomer cannot always explain, and which may be due to some hidden cause that, when brought to light, shall lead to conclusions of the greatest importance to our race.

One of these deviations is in the rotation of the earth. Sometimes, for several years at a time, it seems to revolve a little faster, and then again a little slower. The changes are very slight; they can be detected only by the most laborious and refined methods; yet they must have a cause, and we should like to know what that cause is.

The moon shows a similar irregularity of motion. For half a century, perhaps through a whole century, she will go around the earth a little ahead of her regular rate, and then for another half century or more she will fall behind. The changes are very small: they would never have been seen with the naked eye, yet they exist. What is their cause? Mathematicians have vainly spent years of study in trying to answer this question.

The orbit of Mercury is found by observations to have a slight motion which mathematicians have vainly tried to explain. For some time it was supposed to be caused by the attraction of an unknown planet between Mercury and the sun, and some were so sure of the existence of this planet that they gave it a name, calling it Vulcan. But of late years it has become reasonably certain that no planet large enough to produce the effect observed can be there. So thoroughly has every possible explanation been sifted out and found wanting, that some astronomers are now inquiring whether the law of gravitation itself may not be a little different from what has always been supposed. A very slight deviation indeed would account for the facts, but cautious astronomers want other proofs to regard the change as established.

Many readers have doubtless wondered how, after devoting so much work to the study of the heavens, anything can remain for astronomers to find out. It is a curious fact that, although they were never learning so fast as at the present day, yet there seems to be more to learn now than there ever was before. Great and numerous as are the unsolved problems of our science, knowledge is now advancing into regions which, a few years ago, seemed inaccessible. Where it will stop none can say.

Here are a few figures that might be not inaptly termed the romance of the railway. The London and North-Western Company own over 2,900 engines, operating upon 2,900 miles — an engine for every mile. These engines' work is equal to a journey round the world every three hours; their performance is equal to a trip to the moon in twenty-nine hours. A journey to the sun would be longer, the estimate being "about" fifteen months. There are 78,000 persons employed by the company; 79,000 special trains are run every year on this one system, and 82,000,000 passengers are carried; 60 tons of tickets are issued annually. If placed end-to-end for ten years, the tickets would make a 1¼-inch belt round the world.

TALKS TO TEACHERS ON PSYCHOLOGY.

WILLIAM JAMES.

THE WILL.

Since mentality terminates naturally in outward conduct, the final chapter in psychology has to be the chapter on the will. But the word "will" can be used in a broader and in a narrower sense. In the broader sense it designates our entire capacity for impulsive and active life, including our instinctive reactions, and those forms of behavior that have become secondarily automatic and semi unconscious through frequent repetition. In the narrower sense, acts of will are such acts only as cannot be inattentively performed. A distinct idea of what they are, and a deliberate "fiat" on the mind's part, must precede their execution.

Such acts are often characterized by hesitation, and accompanied by a feeling, altogether peculiar, of resolve, a feeling which may or may not carry with it a further feeling of effort. In my February paper I said so much of our impulsive tendencies that I will restrict myself in what follows to volition in this narrower sense of the term.

All our deeds were considered by the early psychologists to be due to a peculiar faculty called the will, without whose fiat action could not occur. Thoughts and impressions, being intrinsically inactive, were supposed to produce conduct only through the intermediation of this superior agent. Until they twitched its coat tails, so to speak, no outward behavior could occur. This doctrine was long ago exploded by the discovery of the phenomena of reflex action, in which sensible impressions, as you all know, produce movement immediately and of themselves. The doctrine may also be considered exploded as far as ideas go. The fact is that there is no sort of consciousness whatever, be it sensation, feeling, or idea, which does not directly and of itself tend to discharge into some motor effect. The motor effect need not always be an outward stroke of behavior; it may be only an alteration of the heartbeats or breathing, or a modification in the distribution of the blood, such as blushing or turning pale, or else a secretion of tears, or what not. But in any case it is there in some shape whenever consciousness is there; and a conception as fundamental as any in modern psychology is the belief that conscious processes of every sort, conscious processes merely as such, *must* pass over into motion, open or concealed.

The inner pulses of deliberate volition, strictly and narrowly so called, form then only one peculiar kind of antecedent to conduct. But the part they play is so vital and momentous in the life of educated people that they are a topic of absorbing interest to the teacher.

The least complicated case of volition is the case of a mind possessed by only a single idea. If that idea be of an object connected with a native impulse, the impulse will immediately tend to discharge. If it be the idea of a movement, the movement will tend to occur. Such a case of action from a single idea has been distinguished from more complex cases by the name of ideo-motor action, meaning action without express decision or effort. Most of the habitual actions to which we are trained are of this ideo-motor sort. We perceive, for instance, that the door is open, and we rise and shut it; we perceive some raisins in a dish before us, and extend our hand and carry one of them to our mouth without interrupting the conversation; or, when lying in bed, we suddenly think that we shall be late for breakfast, and instantly we get up,

with no particular exertion or resolve All the ingrained procedures by which life is carried on, the manners and customs, dressing and undressing, acts of salutation, etc., are executed in this semi-automatic way, unhesitatingly and efficiently; the very outermost margin of consciousness seeming to be concerned in them, whilst the focus may be occupied with widely different things.

But now turn to a more complicated case. Suppose two thoughts to be in the mind together, of which one, A, taken alone, would discharge itself in a certain action; but of which the other, B, suggests an action of a different sort, or a consequence of the first action, calculated to make us pause. The psychologists now say that the second idea, B, will probably arrest or *inhibit* the motor effects of the first idea, A. One word, then, about "inhibition" in general, to make this particular case more clear.

One of the most interesting discoveries of physiology was the discovery, made simultaneously in France and Germany fifty years ago, that nerve currents not only start muscles into action, but may check action already going on, or keep it from occurring as it otherwise might. *Nerves of arrest* were thus distinguished alongside of motor nerves. The pneumogastric nerve, for example, if stimulated, arrests the movements of the heart; the splanchnic nerve arrests those of the intestines, if already begun. But it soon appeared that this was too narrow a way of looking at the matter, and that arrest is not so much the specific function of certain nerves as a general function which any part of the nervous system may exert upon other parts, under the appropriate conditions. The higher centres, for instance, seem to exert a constant inhibitive influence on the excitability of those below. The reflexes of an animal with its hemispheres wholly or in part removed become exaggerated. You all know that common reflex in dogs whereby, if you scratch the animal's side, the corresponding hind leg will begin to make scratching movements, usually in the air. Now, in dogs with mutilated hemispheres, this scratching reflex is so incessant that, as Goltz first described them, the hair gets all worn off their sides. In idiots, the functions of the hemispheres being largely in abeyance, the lower impulses, not inhibited, as they would be in normal human beings, often express themselves in most odious ways. You know, also, how any higher emotional tendency will quench a lower one. Fear arrests appetite, maternal love annuls fear, respect checks sensuality, and the like; and in the more subtle manifestations of the moral life, whenever an ideal stirring is suddenly quickened into intensity, it is as if the whole scale of values of our motives changed its equilibrium. The force of old temptations vanishes, and what a moment ago was impossible is now not only possible, but easy, because of their inhibition. This has been well called the expulsive power of the higher emotion.

It is easy to apply this notion of inhibition to the case of our ideational processes. I am lying in bed for example, and think it is time to get up; but alongside of this thought there is present to my mind a realization of the extreme coldness of the morning and the pleasantness of the warm bed. In this situation the motor consequences of the first idea are blocked, and I may remain for half an hour or more with the two ideas oscillating before me in a kind of deadlock, which is what we call the state of hesitation or deliberation. In a case like this, the deliberation can be resolved and the decision reached in either of two ways:

(1) I may forget for a moment the thermometric conditions, and then the

idea of getting up will immediately discharge into act; or

(2) Still mindful of the freezing temperature, the thought of the duty of rising may become so pungent that it determines action in spite of inhibition. In the latter case I have a sense of energetic moral effort, and consider that I have done a virtuous act.

All cases of wilful action, properly so called, of choice after hesitation and deliberation, may be conceived after one of these latter patterns. So you see that volition, in the narrower sense, takes place only when there are a number of conflicting systems of ideas, and depends on our having a complex field of consciousness. The interesting thing to note is the extreme delicacy of the inhibitive machinery. A strong and urgent motor idea in the focus may be neutralized and made inoperative by the presence of the very faintest contradictory idea in the margin. For instance, I hold out my forefinger, and, with closed eyes, try to realize as vividly as possible that I hold a revolver in my hand and am pulling the trigger. I can even now fairly feel my finger quiver with the tendency to contract; and if it were hitched to a recording apparatus it would certainly betray its state of tension by registering incipient movements. Yet it does not actually crook, and the movement of pulling the trigger is not performed. Why not? Simply because, all concentrated though I am upon the idea of the movement, I nevertheless also realize the total conditions of the experiment, and in the back of my mind, so to speak, or in its fringe and margin, have the simultaneous idea that the movement is not to take place. The mere presence of that marginal intention, without effort, urgency, or emphasis, or any special reinforcement from my attention, suffices to the inhibitive effect.

And this is why so few of the ideas that flit through our minds do in point of fact produce their motor consequences. Life would be a curse and a care for us if every fleeting fancy were to do so. Abstractly, the law of ideo-motor action is true; but in the concrete our fields of consciousness are always so complex that the inhibiting margin keeps the centre inoperative most of the time In all this, you see, I speak as if ideas by their mere presence or absence determined behavior, and as if between the ideas themselves on the one hand, and the conduct on the other, there were no room for any third intermediate principle of activity, like that called "the will."

If you are struck by the materialistic or fatalistic doctrines which seem to follow this conception, I beg you to suspend your judgment for a moment, as I shall soon have something more to say about the matter. But, meanwhile yielding one's self to the mechanical conception of the psycho-physical organism, nothing is easier than to indulge in a picture of the fatalistic character of human life. Man's conduct appears as the mere resultant of all his various impulsions and inhibitions. One object, by its presence, makes us act, another object checks our action; feelings aroused and ideas suggested by objects sway us one way and another; emotions complicate the game by their mutual inhibitive effects, the higher abolishing the lower, or perhaps being itself swept away. The life in all this becomes prudential and moral, but the psychologic agents in the drama may be described, you see, as nothing but the "ideas" themselves—ideas for the whole system of which what we call the "soul" or "character" or "will" of the person is nothing but a collective name. As Hume said, the ideas are themselves the actors, the stage, the theatre, the spectators, and the play. This is the so-called "associa-

tionist" psychology, brought down to its radical expression: it is useless to ignore its power as a conception. Like all conceptions, when they become clear and lively enough, this conception has a strong tendency to impose itself upon belief, and psychologists trained on biological lines usually adopt it as the last word of science on the subject. No one can have an adequate notion of modern psychological theory unless he has at some time apprehended this view in the full force of its simplicity.

Let us humor it for a while, for it has advantages in the way of exposition.

Voluntary action, then, is at all times a resultant of the compounding of our impulsions with our inhibitions.

From this it immediately follows that there will be two types of will, in one of which impulsions will predominate, in the other inhibitions. We may speak of them, if you like, as the precipitate and the obstructed will, respectively. When fully pronounced, they are familiar to everybody. The extreme example of the precipitate will is the maniac; his ideas discharge into action so rapidly, his associative processes are so extravagantly lively, that inhibitions have no time to arrive, and he says and does whatever pops into his head, without a moment of hesitation.

Certain melancholiacs furnish the extreme example of the over-inhibited type. Their minds are cramped in a fixed emotion of fear or helplessness, their ideas confined to the one thought that for them life is impossible. So they show a condition of perfect "abulia," or inability to will or act. They cannot change their posture or speech, or execute the simplest command.

The different races of men show different temperaments in this regard. The southern races are commonly accounted the more impulsive and precipitate; the English race, especially our New England branch of it, is supposed to be all sicklied over with repressive forms of self-consciousness, and condemned to express itself through a jungle of scruples and checks.

The highest form of character, however, abstractly considered, must be full of scruples and inhibitions. But action, in such a character, far from being paralyzed, will succeed in energetically keeping on its way, sometimes overpowering the resistances, sometimes steering along the line where they lie thinnest.

Just as our flexor muscles act most firmly when a simultaneous contraction of the flexors guides and steadies them, so the mind of him whose fields of consciousness are complex, and who, with the reasons for the actions, sees the reasons against it, and yet, instead of being palsied, acts in the way that takes the whole field into consideration—so such a mind, I say, is the ideal sort of mind that we should seek to reproduce in our pupils. Purely impulsive action, or action that proceeds to extremities regardless of consequences, on the other hand, is the easiest action in the world, and the lowest in type. Anyone can show energy when made quite reckless. An Oriental despot requires but little ability: as long as he lives he succeeds, for he has absolutely his own way, and when the world can no longer endure the horror of him he is assassinated. But not to proceed immediately to extremities, to be still able to act energetically under an array of inhibitions—that indeed is rare and difficult. Cavour, when urged to proclaim martial law in 1859, refused to do so, saying: "Anyone can govern in that way. I will be constitutional." Your parliamentary rulers, your Lincoln, your Gladstone, are the strongest type of man, because they accomplish results under the most intricate pos-

sible conditions. We think of Napoleon Bonaparte as a colossal monster of will power, and truly enough he was so. But from the point of view of the psychological machinery it would be hard to say whether he or Gladstone was the larger volitional quantity; for Napoleon disregarded all the usual inhibitions, and Gladstone, passionate as he was, scrupulously considered them in his statesmanship.

A familiar example of the paralyzing power of scruples is the inhibitive effect of conscientiousness upon conversation. Nowhere does conversation seem to have flourished as brilliantly as in France during the last century. But if we read old French memoirs we see how many brakes of scrupulosity which tie our tongues to-day were then removed. Where mendacity, treachery, obscenity, and malignity are unhampered, talk can be brilliant indeed; but its flame waxes dim where the mind is sicklied all over with conscientious fears of violating the moral and social proprieties.

The teacher often is confronted in the schoolroom with an abnormal type of will, which we may call the "balky will." Certain children, if they do not succeed in doing a thing immediately, remain completely inhibited in regard to it; it becomes literally impossible for them to understand it if it be an intellectual problem, or to do it if it be an outward operation, as long as this particular inhibited condition lasts. Such children are usually treated as sinful, and are punished; or else the teacher pits his or her will against the child's will, considering the latter must be "broken." "Break you child's will, in order that it may not perish," wrote John Wesley. "Break its will as soon as it can speak plainly, or even before it can speak at all. It should be forced to do as it is told, even if you have to whip it ten times running. Break its will, in order that its soul may live." Such will-breaking is always a scene with a great deal of nervous wear and tear on both sides, a bad state of feeling left behind it, and the victory not always with the would-be breaker.

When a situation of the kind is once fairly developed, and the child has become all tense and excited inwardly, nineteen times out of twenty it is best for the teacher to apperceive the case as one of neural pathology rather than as one of moral culpability. So long as the inhibiting sense of impossibility remains in the child's mind he will continue unable to get beyond the obstacle. The aim of the teacher should then be to make him simply forget. Drop the subject for the time, divert the mind to something else, then, leading the pupil back by some circuitous line of association, spring it on him again before he has time to recognize it, and as likely as not he will go over it without any difficulty. It is in no other way that we overcome balkiness in a horse: we divert his attention, do something to his nose or ear, lead him round in a circle, and thus get him over a place where flogging would only have made him more invincible. A tactful teacher will never let these strained situations come up at all.

You perceive now, my friends, what your general or abstract duty is as teachers. Although you have to generate in your pupils a large stock of ideas, any one of which may be inhibitory, yet you must also see to it that no habitual hesitancy or paralysis of the will ensues, and that the pupil still retains his power of vigorous action. Psychology can state your problem in these terms, but you see how impotent she is to furnish the elements of its practical solution. When all is said and done, and your best efforts are made, it will probably remain true that the result will depend more on a certain native tone or temper in the pupil's psychological constitution than on any-

thing else. Some persons appear to have a naturally poor focalization of the field of consciousness; and in such persons actions hang slack and inhibitions seem to exert peculiarly easy sway.

But let us close in a little more closely on this matter of the education of the will. Your task is to build up a *character* in your pupils; and a character, as I have so often said, consists in an organized set of habits of reaction. Now, in what do such habits of reaction themselves consist? They are so many constant tendencies to act characteristically when certain ideas possess us, and to refrain characteristically when possessed by other ideas. Our volitional habits depend, then, first, on the stock of ideas which we have; and, second, on the habitual coupling of the several ideas with action or inaction respectively. How is it when an alternative is presented to you for choice, and you are uncertain what you ought to do? You first hesitate, and then you deliberate. And in what does your deliberation consist? It consists in trying to apperceive the case successively by a number of different ideas, which seem to fit it more or less, until at last you hit on one which seems to fit it exactly. If that be an idea which is a customary forerunner of action in you, which enters into one of your maxims of positive behavior, your hesitation ceases, and you act immediately. If, on the other hand, it be an idea which carries inaction as its habitual result, if it ally itself with *prohibition*, then you unhesitatingly refrain. The problem is, you see, to find the right conception for the case. This search for the right conception may take days or weeks.

I spoke as if the action were easy when the conception is once found. Often it is so, but it may be otherwise, and when it is otherwise we find ourselves at the very centre of a moral situation, into which I should now like you to look with me a little nearer.

The proper conception of the true head of classification may be hard to attain, for the case may be one with which we have contracted no settled habits of action. Or again, the action to which it would prompt may be dangerous and difficult, or the inaction may appear deadly cold and negative. And then, when our impulsive feeling is hot, it is extremely hard to hold the idea steadily enough before the attention to let it exert its adequate volitional effects. Whether it be stimulative or inhibitive, it is *too reasonable* for us; and the more instinctive passional propensity then tends to extrude it from our consideration. We shy away from the thought of it; it twinkles and goes out the moment it appears in the margin of our consciousness, and we need a resolute effort of voluntary attention to drag it into the focus of the field, and to keep it there long enough for its associative and motor effects to be exerted. Everyone knows only too well how the mind flinches from looking at considerations hostile to the reigning mood of feeling.

Once brought, however, in this way, to the centre of the field of consciousness and held there, the reasonable idea will exert these effects inevitably, for the laws of connection between our consciousness and our nervous system provide for the action then taking place. Our moral effort, properly so called, terminates in our holding fast to the appropriate idea.

If, then, you are asked, "*In what does a moral act consist*, when reduced to its simplest and most elementary form?" you can make only one reply. You can say that *it consists in the effort of attention by which we hold fast to an idea*, which but for that effort of attention would be driven out of the mind by the other psychological tendencies that are there. *To think*, in short, is the secret of will, just as it is the secret of memory.

This comes out very clearly in the kind of excuse which we most fre-

quently hear from persons who find themselves confronted by the sinfulness or harmfulness of some part of their behavior. "I never *thought*," they say. "I never *thought* how mean the action was, I never *thought* of these abominable consequences." And what do we retort when they say this? We say: "Why *didn't* you think? What were you there for but to think?" And we read them a moral lecture on their irreflectiveness.

The hackneyed example of moral deliberation is the case of an habitual drunkard under temptation. He has made a resolve to reform, but he is now solicited again by the bottle. His moral triumph or failure literally consists in his finding the right *name* for the case. If he says that it is a case of not wasting good liquor already poured out; or a case of not being churlish and unsociable when in the midst of friends; or a case of learning something at last about a brand of whiskey which he never met before; or a case of celebrating a public holiday, or a case of stimulating himself to a more energetic resolve in favor of abstinence than any he has ever yet made; then he is lost; his choice of the wrong name seals his doom. But if, in spite of all the plausible good names with which his thirsty fancy so copiously furnishes him, he unwaveringly clings to the truer bad name, and apperceives the case as that of "being a drunkard, being a drunkard, being a drunkard," his feet are planted on the road to salvation; he saves himself—by thinking rightly.

Thus are your pupils to be saved: first, by the stock of ideas with which you furnish them; second, by the amount of voluntary attention that they can exert in holding to the right ones, however unpalatable; and third, by the several habits of acting definitely on these latter to which they have been trained.

In all this, the power of voluntarily attending is the point of the whole procedure. Just as a balance turns on its knife edges, so on it our moral destiny turns. You remember that, when we were talking of the subject of attention, we discovered how much more intermittent and brief our acts of voluntary attention are than is commonly supposed. If they were all summed together, the time that they occupy would cover an almost incredibly small portion of our lives. But I also said, you will remember, that their brevity was not in proportion to their significance, and that I should return to the subject again. So I return to it now. It is not the mere size of a thing which constitutes its importance, it is its position in the organism to which it belongs. Our acts of voluntary attention, brief and fitful as they are, are nevertheless momentous and critical, determining us, as they do, to higher or lower destinies. The exercise of voluntary attention in the schoolroom must therefore be counted one of the most important processes of training that take place there; and the first-rate teacher, by the keenness of the remoter interests which he is able to awaken, will provide abundant opportunities for its occurrence. I hope that you appreciate this already, without any further explanation.

I have been accused of holding up before you, in the course of these talks, a mechanical and even a materialistic view of the mind. I have called it an organism and a machine; I have spoken of its reaction on the environment as the essential thing about it, and I have referred this, either openly or implicitly, to the construction of the nervous system. I have in fact received notes from some of you begging me to be more explicit on this point.

Now, in these lectures, I wish to be strictly practical and useful, and to keep free from all speculative complications. Nevertheless, I do not wish to leave any ambiguity about my own

position, and I will therefore say, in order to avoid all misunderstanding, that in no sense do I count myself a materialist. I cannot see how such a thing as our consciousness can possibly be *produced* by a nervous machinery, though I can perfectly well see how, if "ideas" do accompany the workings of the machinery, the *order* of the ideas might very well follow exactly the *order* of the machine's operations. Our habitual associations of ideas, trains of thought, and sequences of action might thus be consequences of the succession of currents in our nervous systems. And the possible stock of ideas a man would have to choose from might depend on his native and acquired brain powers exclusively. If this were all, we might indeed adopt the fatalist conception which I sketched for you but a short while ago. Our ideas would be determined by brain currents, and these by mechanical laws exclusively.

But after what we have just seen—namely, the part played by voluntary attention in volition—a belief in free will and purely spiritual causation is still open to us. The duration and amount of this attention *seem* within certain limits indeterminate. We *feel* as if we could make it really more or less, and as if our free action in this regard were a genuine critical point in nature, a point on which our destiny and that of others might hinge. The whole question of free will concentrates itself, then, at this same small point: "Is, or is not, this most natural appearance of indeterminism at this point an illusion?"

It is plain that such a question can be decided only by general analogies, and not by accurate observations. The free-willist believes the appearance to be a reality; the determinist believes that it is an illusion. I myself hold with the free willists; not because I cannot conceive the fatalist theory clearly, or because I fail to understand its plausibility, but simply because, if free will *is* true, it would seem absurd to have the belief in it fatally forced on our acceptance. Considering the inner fitness of things, one would rather think that the very first act of a will endowed with freedom should be to sustain the belief in the freedom itself. I accordingly believe in my freedom with the best of scientific consciences, and hope that, whether you follow my example in this respect or not, it will at least make you see that such psychological and psychophysical theories as I hold do not necessarily force a man to become a fatalist or a materialist.

One final word about the will, and I shall conclude both that subject and these lectures.

There are two types of will; there are also two types of inhibition. We may call them inhibition by repression or by negation, and inhibition by substitution, respectively. The difference between them is that, in the case of inhibition by repression, both the inhibited idea and the inhibiting idea, the impulsive idea and the idea that negates it, remain along with each other in consciousness, producing a certain inward strain or tension there; whereas, in inhibition by substitution, the inhibiting idea supersedes altogether the idea which it inhibits, and the latter quickly vanishes from the field.

For instance, your pupils are wandering in mind, are listening to a sound outside the window, which presently grows interesting enough to claim all their attention. You can call the latter back by bellowing at them not to listen to those sounds, but to keep their minds on their books or on what you are saying. And by thus keeping them conscious that your eye is sternly upon them you may produce a good effect. But it will be a wasteful effect and an inferior effect. For the moment you relax your supervision, the

attractive disturbance, always there soliciting their curiosity, will overpower them, and they will be just as they were before; whereas if, without saying anything about the street disturbances, you open a counter attraction by starting some very interesting talk or demonstration yourself, they will altogether forget the distracting incident, and without any effort follow you along. There are many interests that can never be inhibited by the way of negation. To a man in love, for example, it is literally impossible, by any effort of will, to annul his passion; but let "some new planet swim into his ken," and the former idol will immediately cease to engross his mind.

It is clear that, in general, we ought, whenever we can, to employ the method of inhibition by substitution. He whose life is based upon the word "no," who tells the truth, not impulsively, but rather because a lie is wicked, and who has constantly to grapple with his envious and cowardly and mean propensities, is in an inferior situation in every respect to what he would be if the love of truth and magnanimity positively possessed him from the outset, and he felt no inferior temptations. Your born gentleman is certainly, for this world's purposes, a more valuable being than your "Crump, with his grunting resistance to his native devils," even though, in God's sight, the latter, according to the phrase of the Catholic theologians, may be rolling up great stores of "merit."

Spinoza long ago wrote in his Ethics that anything that a man can avoid under the notion that it is bad, he may also avoid under the notion that something else is good. He who habitually acts *sub specie mali*, under the negative notion, the notion of the bad, is called a slave by Spinoza. To him who acts habitually under the notion of good he gives the name of freeman. See to it now, I beg you, that you make freemen of your pupils, by habituating them to act, whenever possible, under the notion of a good. Get them habitually to tell the truth, not so much by showing them the wickedness of lying as by arousing their enthusiasm for honor and veracity. Wean them from their native cruelty by imparting to them some of your own positive sympathy with an animal's inner springs of joy. And in the lessons which you may be legally obliged to conduct upon the bad effects of alcohol, lay less stress than the books do on the drunkard's stomach, kidneys, nerves, and social miseries, and more on the blessings of having an organism kept in life-long possession of its full youthful elasticity by a sweet, sound blood, to which stimulants and narcotics are unknown, and to which the morning sun and air and dew will daily come as sufficiently powerful intoxicants.

I have now ended these talks. If to some of you the things I have said seem obvious or trivial, it is possible that they may appear less so when, in the course of a year or two, you find yourselves noticing and apperceiving events in the schoolroom a little differently, in consequence of some of the conceptions I have tried to make more clear. I cannot but think that to apperceive your pupil as a little sensitive, impulsive, associative, and reactive organism, partly fated and partly free, will lead to a better intelligence of all his ways. Understand him, then, as such a subtle little piece of machinery. And if, in addition you can yourself see him *sub specie boni*, and love him too, you will be in the best possible position for becoming perfect teachers.

—*The Atlantic Monthly.*

EDITORIAL NOTES.

Deliver not the tasks of might
To weakness, neither hide the ray
From those, not blind, who wait for day,
Tho' sitting girt with doubtful light.

"That from Discussion's lips may fall
With Life, that working strongly, binds—
Set in all lights, by many minds,
So close the interests of all."

We have had another mid-summer examination of our Public Schools for admission, etc., to the High School. The annual result follows of widespread dissatisfaction with the examination papers. Our readers are fully aware that this magazine for years past has had to give voice to the annual dissatisfaction. We have felt compelled to do so, and to ask again and again why these papers are frequently so faulty? Where is the difficulty? Do the gentlemen who prepare these papers understand that it is not an easy matter to set good examination papers for our Public Schools?

Are they misled by the notion that the boys and girls of our Public Schools know but very little and, therefore, it is a matter requiring no special reading and but little thought, to prepare suitable papers for these children? If this is true or only partially true, then it is a pity. Reader, think of the harm inflicted on the scholars of our Public Schools, the injustice done to our teachers of these schools and the set-back given to the different educational interests of Ontario. We ask again a question we have asked before, are these examiners paid sufficently for the work they have by the Education Department undertaken to warrant them to read carefully and prepare conscientiously for the satisfactory performance of their duty in this respect? We feel called upon to apologize to them for hinting at this possible solution of a long-standing grievance. But we are so bewildered by the continuance of this long-standing weakness in our examinations, year after year, that we take the liberty of hinting at the possibility of unwise economy having something to do with this very undesirable state of things. Let the reason or reasons be what they may, it is high time that active measures were taken to apply a proper and effective remedy.

We are glad that the Deputy Minister of Education has published the circular given below, directing local examination boards to exercise a certain amount of discretionary power in dealing with unsuitable papers:

THE PHYSIOLOGY PAPERS.

To the editor of the *Mail and Empire*:

SIR,—In order to answer several enquiries, allow me to state, regarding the paper in physiology and temperance submitted at the recent High School Entrance Examination, that no mistake, as has been inferred, was made by the Education Department in using for that examination the question paper intended for the Public School Leaving Examination. The papers submitted to the various candidates correspond to the manuscript copies prepared by the examiners, with such alterations as were duly approved by the three members of the Board, before being printed. It is a rule of the Department to give no directions for printing off papers until the last revisions are duly certified to as correct by the examiners, all documents being preserved.

It may not be generally known that should any objection be raised respecting the character of an examination paper, no special action is

required to be taken by the Education Department, in view of the discretionary powers left in the hands of local boards of examiners under the provisions of regulation 26. In other words, local boards of examiners have authority to deal with any circumstance which might otherwise be deemed to cause an injustice.

Yours, etc., JOHN MILLAR.
Deputy Minister of Education.
Education Department, Toronto
11th July, 1899.

Salary is not everything. Perhaps not. But salary is something tangible as a means to an end, and nearly every reform the world has seen accomplished has been started from something tangible. The low status of the teaching profession is a recurring thesis in every educational periodical in the world. And yet after all our theorizing about the improvement of our methods and method-schools, all our efforts to impose stiffer tests in examination work, all our pleadings in behalf of better school houses, more intelligent trustees, and a more active inspection, how much higher has the professional status of the teacher been raised?

And why? Simply because the something tangible has been to a large extent lacking in our efforts, and while the scale of remuneration in other walks in life has been changed for the better, the remuneration of the teacher has advanced but little. But what are we going to do about it, as a facetious member once said to the Speaker of the House of Commons? How are we going to change what seems to be an unchangeable condition of affairs? In a word, how are we going to induce a community to pay more than sixteen dollars a month for a teacher, if there be certificated teachers enough and to spare, to be had for that remuneration? That is the problem, and if the spirit of co-operation among our teachers be not altogether dead, we would press for a solution from them of this most tangible of propositions, before proceeding to its fuller examinations in their interests.

It is beginning at last to be believed that our elementary teacher is altogether too elementary, though it is a remarkable circumstance that the pupil-teacher has continued to be employed for such a length of time in the communities of the old country, and that so many uncertificated teachers are still to be found teaching in some of our Canadian provinces at a remuneration even less than sixteen dollars a month. Sir Evelyn Oakeley has lately uttered words of condemnation against the pupil-teacher system, which is neither more nor less than a system founded on a policy of economy and not on a principle of education. He denounced in the strongest terms the practice of employing persons of unformed and ill-furnished minds in forming and furnishing the minds of others, and his words would form a ready appeal to the communities in our own Dominion which are still content to employ the cheapest material that comes to hand to supervise the forming of the minds of their children. It is not much such teachers have to do, as they say, is but an ignorant way of indicating the most important work any human being can be engaged in.

The condition of the pupil-teacher in England has, moreover, been under consideration of a commission, which means that the system is to be perpetuated under the following ameliorations in behalf of the pupil-teacher. In future the pupil-teachers of the first and second years are to teach only ten hours per week, while

those of the third and fourth years are to give fifteen hours a week to teaching. The duties of the juniors are to be confined to (*a*) the correcting of exercises, (*b*) the superintendence of the playground, (*c*) the reading of dictation, (*d*) the revising of lessons and (*e*) the assisting of an adult teacher in class management; while the duties of the seniors are to be of a more advanced character, including the conducting of classes under the direct supervision of the head master or his assistants. The pupil-teacher's hard life is thus to be ameliorated, but what of the system which still makes an experiment of the classes in a school under the supervision of a mere novice whose own education is sadly deficient?

The spelling reformers are getting anxious and violent in Chicago; almost as violent as they once were in Toronto and other sections of the Dominion, though perhaps not more anxious. The *Times-Herald*, of the former city, chanced to say the other day that "there is no phonetic spelling that can possibly represent the English language, none that can give us uniformity unless the number of our vowel sounds is reduced so that pronunciation and spelling are simplified at the same time. The great organic whole must be done over at every part, and this would be an impossible task even for a congress of philologists." And this is how the editor comes in for his punishment at the hands of one of the over-anxious spelling reformers: "Is there an idiot outside of the *Times-Herald* office who would say that no phonetic spelling can possibly represent the English language, and that we must reduce the number of vowel sounds which we utter in order to obtain any uniformity in our spelling? Such drivel does not deserve answer." There exists a Canadian committee on this question appointed at the last convention of the Dominion Educational Association, and the war raging in Chicago should be of interest to the members of that committee, if not to our teachers generally. Dr. Andrews, the new superintendent of schools in the great western metropolis, has sent a circular letter to his sub-superintendents and teachers, counselling some changes; but he has not escaped being condemned for encouraging the teaching of the children to spell in defiance of standard authority, and calls upon the Board of Education to intervene and not allow the taxes of the people to be used for teaching the children to mis-spell. We would hardly dare take part in the controversy, even if it were to be awakened or re-awakened in Canada, so many more serious educational questions demanding our attention; but if the movement is to be dignified with the name of reform there will be few of our educational reformers, with faith in the rightness of things, who will swallow such an ethical principle as this, even if it comes from such a pretentious centre of education as Chicago. "Expediency and not logic or consistency must be the watchword of reform, at least for a time. This principle the committee has fully accepted and announced in its recommendation of the two words about which a question has been raised. As one advocate of reform we are thankful that the committee decided not to be fettered by logic or rigid consistency. We would much prefer to see two simplified spellings, even if not perfectly logical, adopted by the masses, than to see a hundred words simplified with an ideal consistency and so spelled only by the theorists and doctrinaires."

There may be something in the

following paragraph for the Protestant Committee on Education in Quebec, which still runs its schools on the payment by results system. Robert Lowe, the prominent statesman who earned a peerage in his labours as a reformer in the British Parliament, and who once thought to protect the treasury by advocating his once famous "New Code," was the father of the system of payment by results in England, just as the Rev. Dr. Mathews, of Quebec, may be looked upon as the father of the Quebec idea. Most people have a notion that there is now no such system in existence. But as one of our contemporaries says, there never was a greater mistake. "Whitehall still drives a roaring trade in results, and the volume of business is to be measured by tens of thousands of pounds. It is true that the article sold is not worth much when it is bought, and that in order to produce it other articles that are worth infinitely more are sacrificed, but the Department cannot bring itself to abandon this last trace of the most mischievous policy that was ever pursued in our national education. What is the consequence of our present system of making piecemeal in stead of block grants? It is that schools are constantly tempted to take up more subjects than they can properly teach, a result which neces sarily involves the neglect of subjects that might be successfully taught."

The multiplicity of suggestions in behalf of an improved school curriculum has been a "wearisomeness to the flesh" to hundreds of our most conscientiously industrious teachers, and the legitimacy or illegitimacy of any "new branch" suggested by the Department or other of our educational masters is never an unimportant one to the educationist who knows no expediency. The utilitarian is always in the way of introducing sundry changes which the true educationists cannot but reject, though such rejection nearly always issues in the increasing popularity of the utilitarian and the overwhelming unpopularity of the true educationist, and yet it is strange that so few attempts have been made to improve the moral condition of our schools by the introduction of an improved moral drill or training, when there can be no question raised as to the legitimacy of such a reform. The lion in the way of a sound moral training in our schools is undoubtedly denominationalism, and it sometimes looks as if no remedy were possible, as long as the antagonisms of creed last. Would it not be possible, however, to have a committee appointed to formulate some kind of a programme which would be more satisfactory than the present haphazard listlessness?

One of our public men has lately said in connection with this matter: "As to the religious difficulty in education, the two parties always seemed to him to make two opposite mistakes. Those who took upon themselves to advocate what they called religious education, and almost always advocated it in respect of what they called dogmas and the distinctive element in religious teaching, did not care for it unless it was dogmatic and distinctive; and the other party were not content with denying that, but they went on to disparage religious education altogether, and said that they looked upon it as of very little importance or value, and would almost as soon it were left out. Neither of these views seemed to touch the essence of the matter. The teachers could approach it from an educational point of view, and would be able to throw a great deal of light upon the question.

There was a great value in religious education, but not of the kind often attributed to it. They could teach children two things by example and by precept—one was honor and the other was sympathy. They could give children up to fifteen or sixteen years of age an intelligent, appreciative idea of the history of the Old and New Testaments, and make them interested in it. Quite apart from religion, every person desirous of being educated ought to know the history of the Old and New Testaments. An attempt to bring to the minds of the children specific dogmas was almost hopeless, because either the child did not understand them or misunderstood them. Very often they remained mere words to the child who was taught to repeat them. He had never been able to see that practically there had followed in those church or school systems which had attempted to base their teaching either upon constant appeals to religious emotion or upon constant dwellings on distinctive dogmas any result for a moment commensurate with the pains spent."

The difficulties that beset the young Canadian, poor but ambitious, who is anxious to climb from a lower to a higher position in the social scale through his own efforts to educate himself, are becoming more and more insurmountable every year through the limitations of our greater universities and the intensifying of their curricula. The self-made man, from an educational standpoint, will soon be a thing of the past, and when all our minor colleges have become swallowed up by the great central scholastic institutions, the man that is born the son of "a hewer of wood and drawer of water" will have to take to his father's business for lack of means and opportunity of fitting himself educationally for the higher walks in life. Many of our most prominent citizens have often been heard to say with pride in public that they began life by teaching in some country academy or by making some other occupation a stepping-stone to a college course. In their days there was given to the aspiring Canadian youth many opportunities of making the most of his environment on his climb to a final settlement in life, but nowadays these opportunities are being steadily curtailed, perhaps with profit to the country at large, as some may say, though undoubtedly to the discouragement of those who are energetic enough to improve their circumstances, with the innate intellectuality necessary to do so. In the Lower Provinces there has often been raised a cry in favour of college amalgamation, but whatever the forces are that have kept the colleges of Nova Scotia and New Brunswick apart (whether these forces be economic, professional, or denominational) it is true that there are still no less than six degree granting institutions in that part of our Dominion. To educate a lad in any of these institutions a minimum of one hundred dollars has been found sufficient, and even yet a young man of ability and ambition may enter any of these schools without drawing very heavily on his parents or friends. The Province of Quebec until lately had also its minor colleges where the sturdy farmer's lad, with the call of genius on him, might find a footing on the lower rungs of the ladder that leads upward in life; but the last of them, we are told, is about to close its doors from circumstances which cannot well be enumerated without giving offence. In Ontario the process of centralizing has been carried to its fullest limit, and with the in-

tensifying of the curricula, which is going on in Toronto as in McGill, the opportunities for many of the "brightest and best" of our young Canadians may go on diminishing as the expenses of attending college go on increasing. It is said that the cost of a winter's attendance at any of our larger collegiate institutions costs more than the average farmer's profits for a whole year.

The multiplying of university colleges in Great Britain, has brought this question even more prominently before us. In the case of the new university for Birmingham, an appeal is being made on its behalf so that its endowment may reach the low water mark of a million and a half of dollars before the classes are started. The appeal is signed by Mr. Chamberlain, and states that it is intended to provide for the higher education of the Midlands in the same way as the Victoria University, the Scottish universities, and the University of Wales, are intended to supply a similar demand in their respective districts. The older universities of Oxford and Cambridge are not only too expensive for the majority of students who are intended for an industrial and mercantile career, but the curriculum is not specially arranged for such students.

The last of the minor colleges of the Province of Quebec that is threatened with extinction is Morrin College. The staff has for the second time within a short period received notice that the college will not be re-opened after a given time.

The institution was organized by the Rev. Dr. Cook as late as 1860, and with an insufficient endowment left by Dr. Morrin, one of Quebec's prominent physicians, supplemented a few years ago by a liberal grant from the estate of the Hon. James G. Ross, has managed to keep its doors open up to the present year. With Dr. Cook's firm hand at the helm, the policy of the institution was directed in a large measure to the making of things easy for the student whose circumstances were not of the best; and many excellent men have been prepared in its classes for the battle of life who have taken a prominent after-position in our Canadian citizenship. To say that the later policy of inertness on the part of the governors has had much to do with the decline of the college interests would probably only force some one to say that the elements of success have never been about the institution. But the controversy, like the many other controversies which have marked its career, would tend to no purpose in saving the institution; and to save the institution should now become the firm policy of the board of governors, with all secondary questions left out of view. If the governors finally announce that they can do nothing to save the institution, then surely it is not asking too much to demand a reorganization of the board, with a stronger professional element in its *personnel.*

Two of our prominent "old schoolmasters" have passed away during the midsummer recess, the one being Principal Hicks, formerly of the McGill Normal School, and the other, Dr. Graham, formerly principal of St. Francis College, Richmond. The latter was a gentleman of matured literary experience, who at one time was one of Sir John A. Macdonald's most intimate political allies, and who might have been a member of his cabinet in 1867 had he cared to persevere in his public career. His work on Masonry is a standard work

among the members of the brotherhood, though we are told that its sale was too limited to remunerate the author for his labors of research. Though his life's labors were performed in the province of Quebec, his claims for scholastic honors were ignored by either of the universities of that province, and it was not until one of the degree-granting institutions on the other side of the line recognized his literary powers that he received his doctorship. Had he become a minister of Sir John A. Macdonald, his merits would perhaps have come in for readier recognition. Principal Hicks also labored for a long period at the head of the McLeod Normal School, one of the most important institutions of the province of Quebec, but his services failed to receive due recognition, even in face of Dr. Bourinot's late pleading against the university neglect of our best intellectual workers in Canada, though the authorities of McGill must have been aware of the worth of one who was for so many years so well known.

The fun of the ordinary newspaper reporter, when he finds that there is to be a meeting of teachers somewhere within his circuit, is too well known in Canada. But his cruel jokes, and silly literary revellings among such words as "pedagogues," and "schoolmarms," and "birch-wielders," are but mild when compared with the analysis which Mr. Harold Hodge gives of the English schoolmaster in a late number of *The Fortnightly*. The schoolmaster, as the *Journal of Education* says, will hardly like that gentleman's presentment. "A small, middle class person, with all the usual intellectual restrictions of his class—unintellectual, knowing hardly anything well, parochial in sympathies, vulgar in the accent and style of his talking, with a low standard of manners." Nor will he be much consoled by being told that he is "extremely respectable, correct morally, with a high sense of duty, as he understands it, and competent in the technique of his calling." A man had rather be called a loafer or a rip than be accused of dropping his *h's*. We are far from endorsing Mr. Hodge's charge, but there can be no offence in saying that, however exaggerated we may think it, we heartily support the practical moral he deduces, which is, that it would be vastly to the benefit of our National Schools if gentlemen (meaning men of higher culture) were to adopt in any number the profession. "The hundreds of men turned out year by year from Oxford and Cambridge who have nothing to do, and don't know how to get anything to do, would provide plenty of material." The *Oxford Magazine*, we observe, scoffs at Mr. Hodge as not knowing what he is talking about in reckoning one-sixth, at least, of incepting graduates as *déclassés;* but surely, if we include those who drift into a curacy or an ushership as a *pis aller*, the estimate is well within the mark.

The story comes from Europe that French, Swiss, and German schools accomplish more than English or Colonial Schools, and the reason is alleged, not that the children are more intelligent, the teachers more efficient and enthusiastic, but because the attendance is more regular, being secured by the compulsory clauses in the law.

The fussy, ill-informed critic of things as they are in the schoolroom came in for a rebuff the other day from Mr. C. H. Wyatt in his paper on "Commercial Education," read before a Brighton Convention

of Teachers, in which he commented on the ignorance of some of the self-constituted authorities who air their opinions in current literature. For instance, one writer recently informed them that the system of training elementary teaching was altogether wrong, that these teachers were socially and educationally narrow-minded and inferior, and that ladies and gentlemen were needed in our primary schools. Surely, Mr. Wyatt said, it was unnecessary for this very superior person of "culchaw" to lisparage the finest class of teachers in the world.

BOOKS AND MAGAZINES.

Mr. Riis contributes an article on "The Tenant" to the August number of the *Atlantic Monthly*. It is not only a pleasure but a duty to read whatever Mr. Riis writes. He is not merely concerned with his livelihood or his reputation, but is doing what he can to fulfil his own responsibility and that of others towards the poor. Miss Johnston's serial, "To Have and to Hold," continues to be interesting and beautiful, and is in this number much superior to the short stories, which is not always the case in the *Atlantic*.

The most charming contribution to the August *Century* is an article on negro "Spirituals" by Marion Alexander Haskell. This contains not only reminiscent pictures of a child's life among colored people who are peculiarly happy in their relations with children, but it contains, as well, numerous examples of the words and music of the sacred songs composed by the colored people. Among articles to be specially mentioned are: "Glimpses of Wild Life About My Cabin," by John Burroughs; "The River of Tea," by Eliza R. Scidmore, and "The Churches of Auvergne," by Mrs. Schuyler van Rensselar.

"Fortune's Vassals," by Sarah Barnwell Elliot, is the complete novel in the August *Lippincott*. The characters in the story are well drawn, some of them possess great charm. The heroine is a trifle too universal in her gifts, but that does not spoil her, and everyone must be sorry that the author will do nothing to make her lot a little less painful. "Noah's Ark," by I. Zangwill, is a story of a Jew who hoped to establish a new kingdom among his people on one of the islands above the Falls of Niagara when Buffalo was a village. As we all know he did not succeed.

"A Vexer and Unsettler," is a pretty story about an investigating girl in the *Youth's Companion* for August 10. She discovered among other things that a chicken does not want to have its neck wrung. She had tried it on herself a little, so she said. But a prairie fire came along and Lindy demonstrated that she could be of some use in the world. "Dog Outlaws" is a sad story of fallen sheep dogs.

What could have induced the editor of *Littell's Living Age*, who has always chosen so far to print good verse, to reproduce "Memorabile," by C. W. Stubbs?

"Education in the South" and "Play as a Factor in Education" are two valuable articles in the August *American Monthly Review of Reviews*. "The Alaskan Boundary Dispute," by William H. Lewis, and the "American Cup Race in 1899," are especially interesting to Canadians.

"When Knighthood Was in Flower," by Edwin Caskoden.

(Charles Major), George J. McLeod, Toronto.

This is one of the stories which has recently attained an enormous circulation. It is a romantic love story, pure in tone and motive, and, of course, interesting in its treatment. It is surely encouraging that so many people enjoy a story of this kind, but Mary Tudor, sister to King Henry the VIII., is a fascinating person.

"Life and Remains of the Rev. R. H. Quick," edited by F. Storr. Cambridge: At the University Press.

The late R. H. Quick will be remembered as the author of one of the few books on education which is of real use to teachers, "Educational Reformers." The present volume, chiefly made up of selections from forty note-books or journals is scarcely inferior in value. His opinions, his experience, his knowledge of professional difficulties make the pages of his note-books full of interest and instruction.

Three books of unusual merit and interest have been issued this summer by the Copp, Clark Company, Toronto. "Many Cargoes," by W. W. Jacobs, is a volume of short stories mainly dealing with the men who make short coasting voyages from London and back again to the River Thames. These stories are particularly enjoyable when read aloud. Mr. Jacobs, a new writer who has come into his own and deserves it, has a keen perception of the ridiculous, and an absolute genius for racy conversation.

The second of these books is "The Fowler," by Beatrice Harrâden, who will be remembered as the author of "Ships That Pass in the Night," a book that was widely read a few years ago. Miss Harraden has learned a great deal since then. Her art is to be respected, and her intellectual grasp of some of the problems with which she deals is clear and firm. The characters in "The Fowler," Nurse Isabel, Theodore Bevan, Nora and the Historian are sure to make a deep impression. Those who are fortunate enough and wise enough to read "The Fowler" will expect much of Miss Harraden.

The third book is "Richard Carvel," by Winston Churchill. Anyone who reads this historical novel will be ready to admit that the author has genuine ability and ambition. His story, which deals with the same period as Thackeray's "Virginians," is well told, and is presented with the fulness and vigor of one who means to produce good work. The author has evidently taken Thackeray as a model, and while it would be unkind to institute a close comparison, Mr. Churchill, who is a young man, is to be congratulated on his success, almost surprisingly great considering the circumstances.

From Macmillan & Co., London, through their Toronto agents, the Copp, Clark Company, have been received:

"The Etchingham Letters," by Mrs. Fuller Maitland and Sir Frederick Pollock. These are letters that are supposed to pass between a brother and sister, and which disclose, along with the affairs of an interesting family connection, two minds of remarkable versatility and charm. Refinement, a delicate and discriminating appreciation of the best things, and only the best things in the world, humor and depth of feeling are evident on every page of this delightful book, which should not be read hastily.

"A Drama in Sunshine," by H.A. Vachell. This is a clever, interesting, rather terrible story of California, which is sure to find many readers.

"The Game and the Candle," by

Rhoda Broughton. Those who are familiar with the work of this author will find the same entertaining, at times exciting love story, which, of course, is after all only the same in the degree of interest it arouses. Miss Broughton knows well how to tell a story.

Two good novels for summer reading, issued in Longman's Colonial Library, are "Castle Czvargas," a wholesome tale of the romantic adventures of two brothers, by Archibald Eirt, and "One Poor Scruple," by Mrs. Wilfrid Ward, an author of considerable strength and charm, who in this interesting story does not conceal, although she does not unduly manifest her belief in the vitality of the religious element in life.

Mr. George W. Morang, of Toronto, has recently issued a pleasing edition of Mrs. Harrison's "Forest of Bourg-Marie." All those who have been aware of Mrs. Harrison's undoubted ability and poetic gift will be glad to find in this novel a confirmation of their belief. It has won much praise from the best critical publications in England, and will enlarge the numbers of her admirers everywhere.

From the same publishing house have been issued "The Amateur Cracksman," by E. W. Hornung, and "The Black Douglas," by S R. Crockett. "The Amateur Cracksman" is an entertaining account of an extravagant conception, somewhat after the manner of Conan Doyle in "Sherlock Holmes." Mr. Hornung is Mr. Doyle's brother-in-law, and his dedication reads "To A.C.D. This form of flattery."

"The Black Douglas" is a historical novel in Mr. Crockett's well-known and interesting style, which has been lately rather over-worked. But in this book most of his readers will find that he has recovered himself. More than a word should be said in praise of the artistic appearance of this book, upon which Mr. Morang is to be congratulated.

Among the books recently issued by the W. J. Gage Company, of Toronto, are two novels of more than common merit. "Ragged Lady," by the well-known American writer, W. D. Howells, is the story of a poor girl of great attractiveness, who is adopted by a rich widow. This lady's character is drawn with all Mr. Howells' surprising skill. The American consul at Venice says that he knows more about her inside than he does about his own. What more explanation is needed?

"The Mormon Prophet," by Lily Dougall, is based upon the life of Mr. Joseph Smith, who had not only a remarkable belief in himself, but must have been remarkable in other ways. Miss Dougall's great instinctive knowledge of human nature, her earnestness and artistic worthiness find an ample justification in this volume.

Books received:

W. C. Heath & Co., Boston.

Moliére's Le Misanthrope, edited by C. A. Eggert.

Freytag's Aus dem Jahrhundert des Grossen Krieges, edited by L. A. Rhoades.

Racine's Andromaque, edited by B. W. Wells.

Ginn & Co., Boston.

Homer's Odyssey, book 12, edited by R. A. Minckwitz.

Von Chamisso's Peter Schlemihl, translated by F. H. Hedge, edited by W. R. Alger.

Plane Geometry, by G. A. Wentworth.

New Plane and Solid Geometry, by W. W. Beman and D. E. Smith.

William Briggs, Toronto.

Canadian Citizenship, by John Millar.