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## CONTENTS OF THIS NUMBER:

PAGE

I. PAPERS ON MILITARY SCHOOL DRILL.—(1) Military Drill in our Public Schools. (2) School Drill an aid to Volunteering. (3) Drill at the Schools. (4) Military Training in our Public Schools. (5) Military Drill in the Schools. (6) Physical Exercises and Recreation for Girls.	145
II. PAPERS ON THE DEFENCE OF CANADA.—(1) British Connection. (2) Prussian Military System adapted to Canada. (3) The Force necessary for Canada to Organize	152
III. PAPERS ON EDUCATION IN CANADA.—(1) New Universities in Upper Canada. (2) Normal School for Upper Canada. (3) Rev. Dr. Bangs as a School Teacher in Canada.	154
IV. PROGRESS OF EDUCATION IN ENGLAND.—(1) Report of the English Committee of Council on Education. (2) University Examinations for Girls.	155
V. PAPERS ON SCIENTIFIC SUBJECTS.—(1) Ocean Telegraphy. (2) The Cyclones, or Circular Storms. (3) The recent Hurricane. (4) The Culloden Hurricane. (5) Abstract of Monthly Meteorological Results.	158
VI. EDUCATIONAL INTELLIGENCE.—Queen's University. Knox's College. Victoria University	160
VII. DEPARTMENTAL NOTICES.—Grammar School Registers. School Registers supplied through Local Superintendents. Common School Manual for Upper Canada. Public Library Books, Maps, Apparatus, and School Prize Books. Indistinct Post Marks.	160

## I. Papers on Military School Drill.

### 1. MILITARY DRILL IN OUR PUBLIC SCHOOLS.

The subject of military drill in our Grammar and Common Schools has so frequently been discussed by practical educationists among us, and at teachers associations and conventions, that we have gathered together a few papers on the subject, for insertion in this number of the *Journal*. The question has also been under the consideration of the Government; and the Militia Department has authorised the formation of drill associations in most of our colleges, higher seminaries and schools. It has also under consideration, we believe, a regulation requiring drill to be taught in all schools receiving public aid, as a part of its regular course of instruction. The subject of elementary military instruction in the Grammar Schools—not drill merely—has also been provided for by the legislature; and the following provision for it was made in the twelfth section of the Grammar School Amendment Act of 1865:—

“It shall be lawful for the Governor in Council to prescribe a course of Elementary Military Instruction for Grammar School pupils, and to appropriate out of any money granted for the purpose, a sum not exceeding fifty dollars per annum to any school, the Head Master of which shall have passed a prescribed examination in the subjects of the military course, and in which school a class of not less than five pupils has been taught for a period of at least six months; such classes and instruction to be subject to such inspection and oversight as the Governor in Council may direct.”

This twelfth section introduces a new feature into the instruc-

tion to be given in our Grammar Schools, and will enable them to become feeders to some Canadian Sandhurst, or West Point Military Academy, yet to be established. It does not relate to military drill in the school, but to a preliminary course of elementary military studies, such as military history, drawing, etc. No regulations have yet been prepared on the subject. The government propose leaving the matter to the consideration of the proposed new legislature of Upper Canada.

The first paper which we insert is taken from a lecture delivered before the Quebec Literary and Historical Society, by E. A. Meredith, Esq., LL.D., one of the Assistant Secretaries of the Province. This able and instructive address so thoroughly discusses the whole subject of “Military and Naval Drill” in our schools, in connection with “Shorter School Time,” that we give it almost entire. We would bespeak for this paper the careful consideration of Boards of School Trustees and Teachers.

The second paper is also an extract, from an address on “School Drill,” &c., delivered in Liverpool, by Rev. J. S. Howson, Principal of the Collegiate Institution of that City.

The remaining papers are chiefly extracts from the proceedings of public bodies and others in Canada, on the necessity and importance of military drill in our schools.

SHORT SCHOOL TIME, WITH MILITARY OR NAVAL DRILL: IN CONNECTION ESPECIALLY WITH THE SUBJECT OF AN EFFICIENT MILITIA SYSTEM. BY DR. MEREDITH.

In 1860 a Royal Commission was appointed in England to report upon the state of popular Elementary Education in that country. The Commission included the names of the late Duke of Newcastle, Mr. W. Nassau Senior, and many other eminent educational reformers, peculiarly qualified for a work of such national importance. The results of the Commissioners' labors are contained in six bulky volumes, which form a valuable Repertory on the subject of National Education.

Without at all undervaluing the importance of the labors of the Commissioners, it may be safely asserted that no part of their able and voluminous report is so suggestive, none so certain to bring about eventually a radical and permanent revolution in the whole system of education, as the short and unpretending communication, published in the appendix, addressed by Mr. Edw. Chadwick to Mr. Senior. It is to this paper of Mr. Chadwick, and to a subsequent explanatory letter from him on the same subject, also addressed to Mr. Senior, that I am mainly indebted for the facts and arguments which follow.

The object of Mr. Chadwick's paper is to establish that in ordinary public schools, too much time is devoted to book instruction, too little to the physical training of the pupil; that the mind is overworked—the body insufficiently exercised; that book-work is generally prolonged much beyond the capacity of the pupil, to the injury alike of his physical and mental powers. He further asserts that it is demonstrable, nay that it has been demonstrated by actual experiment, that by employing in the physical training of the pupils, more particularly in systematic military and naval drill, a portion of the time, now uselessly or hurtfully misspent on books, incalculable benefits, physical, moral, intellectual and economical, will result to the persons taught, and, as a matter of course, also to the nation.

The startling novelty of Mr. Chadwick's views, and the very magnitude of the benefits which he claimed as certain to follow from the general adoption of the plan of Education which he had inaugurated, had a tendency to make most people incredulous of the project, if not to reject it altogether as Utopian. The high reputation, however, of Mr. Chadwick, who had been for upwards of a quarter of a century an earnest and able laborer in the cause of social reforms, especially in matters connected with popular Education, would have amply sufficed with all thoughtful men to secure a respectful consideration for any opinion, however strange or paradoxical, which had received the sanction of his advocacy. But Mr. Chadwick did not rest satisfied with mere opinions or arguments in support of his views. He gave hard, unanswerable facts—facts sustained by the concurrent testimony of the most intelligent and experienced school teachers and of some of the most able military men in Great Britain.

Mr. Chadwick's theories gave rise, as might be expected, to no little discussion in England. France and Germany, and other European countries, took up the question, and on this continent too, especially among our practical neighbors in the States, Mr. Chadwick's views attracted not a little attention. Here, and there too, but particularly in England, the system was put to the true test, that of actual experiment. And it may be asserted, beyond controversy, that all the discussions which have taken place upon the merits of Mr. Chadwick's system, all the experience of its working, wherever it has been fairly tried, have alike served to establish more and more its infinite superiority over the old *regime*.

We shall now proceed to point out some of the evils, so far at least as over mental work is concerned, of the system of education usually followed in our public schools, and we shall then explain the half-time system more in detail, noting the sort of physical training—military and naval drill—which Mr. Chadwick advocates; and lastly, the enormous benefits to the individual and the nation which may be expected to flow from the general adoption of the new system; under the last head will be described, at some length, the important bearing of the proposed reformation in our school system upon one of the great questions of the day in Canada,—the question, namely, of our national defences.

*Present routine of Education at the Schools.*—First, then, let us consider briefly the routine of education at present pursued in the majority of our public schools, and examine what are its effects upon the mental and bodily health of those who are subjected to it.

We shall here quote the words of a recent able writer in the States, who has discussed this subject with reference to the school system of the Union. His remarks, however, are as applicable to the school system of Canada as to that of the United States:—

“Six hours a day, for the most part, is the allotted school time in this part of the country. Occasionally we find it five, and as often probably seven. The rooms, with some exceptions, are badly warmed and badly ventilated, the thermometer ranging, in winter, from 55 to 80, and the air contaminated by the respiration of one or two hundred pairs of lungs, and the impurities that arise from a leaky, over-heated stove or furnace. The time not devoted to study is occupied in recitations, or exercises that require a considerable degree of mental activity. To accomplish all the tasks, the regular school hours are seldom sufficient, and more or less time must be given to study out of school. It may be a single hour; it may be two, three or four. The time will be determined by the amount of the tasks; by the ambition, capacity or excessive anxiety of the pupil. With quick-witted children, who have no very strong desire to excel, and those who have neither desire nor capacity to excel, it is short. On the contrary, with the sluggish, but conscientious intellects, with the ambitious who strive for distinction, and the morbidly sensitive and timid, it is long.”

The author from whom I have quoted then gives several examples of the lessons learned in a day in several public schools taken at random, and adds:—

“These may be considered as average examples of the amount of work now put upon the youthful brain. They are the first that

came to hand, but I have reason to believe that additional statistics of this kind would oftener show a larger than a smaller requirement. They will enable every one to judge for himself with sufficient accuracy, whether the strain to which they subject the mind, is or is not, compatible with the highest degree of healthy endurance.

*Evening Study.*—“In connection with this matter of out-of-school study, it must be considered that much of it is pursued in the evening, often until a late hour,—a practice more pernicious to the health, in youth or adult, than any other description of mental exercise. The brain is in no condition for sleep immediately after such occupation. The mind is swarming with verbs and fractions and triangles, and a tedious hour or two must pass away before it falls into a restless, scarcely refreshing slumber. Jaded and dispirited it enters upon the duties of the day with little of that buoyancy which comes only from ‘nature's sweet restorer.’

“Thus it is that in all our cities and populous villages, the tender mind is kept in a state of the highest activity and effort, six or eight hours a day, for several years in succession, with only such intervals of rest as are furnished by the weekly holiday, and the occasional vacation. Sunday can hardly be admitted among these intervals, for that day has also its special school, with its lessons and rewards. In other words it is subjected to an amount of task-work which, estimated merely by the time it requires, is greater than what may be considered a proper allowance to a cultivated adult mind.” \* \* \* \*

*Physical Evils Experienced.*—But beside these evils to the mental health of children, resulting from the strain upon their mental powers, there is the physical evil resulting from the prolonged and unnatural physical restraint and sedentary confinement of children. We have high authority for stating that the enforced stillness of growing boys or girls in a school-room, however well warmed and ventilated, for five or six hours in the day, is a violation of the primary laws of physiology. The restlessness and inattention of the unfortunate little victims of our modern system, after a few hours schooling, their irrepressible eagerness to escape from their restraint, notwithstanding all the artifices of the teacher to interest them, might of themselves warn us that we are doing violence to nature. “The chief question,” writes Dr. Schreiber, of Leipsic, is, “how are our children brought up? Is it according to the laws of nature? The answer is no, or we should not see so many children who were rosy and healthy before going to school, become pale and bloodless after attending school.” Another writer says: “Nature commands children to play and romp, just as she does young colts and lambs. Pen them up in school, fetter their limbs, shut them out from God's sunshine and vivifying breezes, and what do we make them? Their physical integrity is certainly impaired, but is not their intellectual, nay, is not their moral integrity also affected by their unnatural and artificial system?” In their zeal for the mind, our modern educationists would seem to have altogether lost sight of the body. They forget that for the perfect man we must have the “*mens sana in corpore sano*”; they consider not that intimate “consent between mind and body,” by virtue of which the former must suffer, if the latter is neglected.

In our modern system of education the physical training of children has, for the most part, been left altogether to nature or to accident. The evil effects of the system have, therefore, shewn themselves, as might have been anticipated, more among girls than boys; because the former are less likely than the latter to seek for themselves those out-door sports and amusements which counteract, to some extent, the injurious effect of excessive mental labor and bodily confinement.

*Proof of the Evil.*—But it may be alleged that we have exaggerated the evil effects of our present school system on the mental and physical health of the children attending school; we may be challenged to produce proof of our assertion. Innumerable instances are adduced of persons who gave gone through the ordeal without any appreciable impairment of their mental or bodily health, and hence the inference is somewhat hastily drawn that the system is innocent of the evils which we have laid at its door.

On this point it will suffice to cite the opinion of Dr. Ray, who, from his well-known ability and large experience in mental diseases, is peculiarly competent to speak with authority upon the subject:—

“The manner in which the evil (resulting from excessive mental application in schools) is manifested, is not very uniform, but however various the results, they agree in the one essential element of a disturbed or diminished nervous energy. It rarely comes immediately in the shape of insanity, for that is not a disease of childhood or early youth. It impairs the power of concentrating the faculties, and of mastering difficult problems, every attempt therat producing confusion and distress. It banishes the hope and buoyancy natural to youth, and puts in their place anxiety, gloom, and apprehension. It diminishes the conservative power of the animal economy to such a degree, that attacks of disease, which otherwise would have passed off safely, destroy life almost before danger is

anticipated. Every intelligent physician understands that, other things being equal, the chances of recovery are far less in the studious, highly intellectual child than in one of an opposite description. Among the more obvious, and immediate effects upon the nervous system, are unaccountable restlessness, disturbed and deficient sleep, loss of appetite, epilepsy, cholera, and especially a kind of irritability and exhaustion, which leads the van of a host of other ills, bodily and mental, that seriously impair the efficiency and comfort of the individual.

"I have said that insanity is rarely an immediate effect of hard study at school. \* \* \* When a person becomes insane, people look around for the cause of his affection, and fix upon the most recent event apparently capable of producing it. *Post hoc propter hoc*, is the common philosophy on such occasions. But if the whole mental history of the patient were clearly unfolded to our view we should often find, I apprehend at a much more early period, some agency far more potent in causing the evil, than the misfortune, or the passion, or the bereavement, or the disappointment which attracts the common attention. Among these remoter agencies in the production of mental disease, I doubt if any one, except hereditary defects, is more common at the present time, than *excessive application of the mind when young*. The immediate mischief may have seemed slight, or have readily disappeared after a total separation from books and studies, aided, perhaps, by change of scene; but the brain is left in a condition of peculiar impressibility which renders it morbidly sensitive to every adverse influence."

*The failure of Clever Boys.*—Is it not in consequence of this unduly severe mental toil together with the absence of proper physical training, that we find that many a boy of high promise, the delight of his parents, the *dux* of his school, is found to "unbeseech the promise of his youth" and turn out a very common place, if not a dull and heavy man? Is not this the reason why so many intellectual and interesting children are like medlars rotten before being ripe, and does it not supply us with the true answer to Dr. Johnson's query; "What becomes of all those prodigies?"

*Ancient and Modern System.*—Before leaving this part of my subject it may not be out of place to note very briefly the great and characteristic difference in this particular between the modern system of education, and that which obtained among some of the leading nations of antiquity. It is curious and instructive to mark the different degrees of importance assigned to the physical part of education in the ancient and the modern world.

"Among the Persians" we are told, "the entire education of the youth from their fifth to their twentieth years was confined to three things: riding, shooting with the bow, and *speaking the truth*." Here physical education is the chief, almost the only element, and mental education is not even mentioned. This is just such a system of education as we might expect to find among a people removed only a few degrees from the savage state. Advancing to times of civilization we come to the Greeks and Romans. Both these nations recognized, as we all know, the necessity and importance of mental education; and it formed, accordingly, an essential part of their system of education. But still physical training was by no means neglected; on the contrary, it was regarded as an essential if not the most important part of the training of the youth. The very names, indeed, of the Greek and Roman schools—*Gymnasia* and *ludi*—indicate places intended primarily for physical exercise.

Looking at the Greek and Roman plan of education we, with our modern views as to the paramount importance of intellectual culture, may feel inclined to impeach it as giving too much importance to physical training, to the disparagement or neglect of mental cultivation. But when we call over the bright muster-roll of poets, statesmen, orators, and historians which both of these nations produced, we must pause before we condemn the system of education which can point to such splendid results.

Mr. Chadwick refers with satisfaction to the fact that the authorities of the venerable University of Oxford have recently recognized the necessity of systematised bodily training in connection with the mental labor of the University, and expresses the hope "that we may have from the university an example of the revival of a really classical education, an education founded on the precepts of Plato, Aristotle and Galen, which divided the public education into three parts, of which one was for mental training in the schools, one for bodily training in the gymnasium, and the third tuition in accomplishments as music," &c.

*First remedy for the Evil.*—Having dwelt so fully upon the grounds upon which Mr. Chadwick, and other educational reformers following in his track, have impeached the modern system of education, it is almost unnecessary to say that the remedies for the evil of which they complain are two-fold.

1st, A reduction to the proper limits of the time set apart in

schools for book instruction;\* and, 2nd, Systematic physical training of the children; including in that training for the male portion of the school population, naval or military drill, or both.

The extent to which the time usually devoted in schools to book-instruction may be advantageously reduced is a question of detail which cannot probably be conclusively established until the half-time system has been submitted for a few more years to the test of actual experience. Mr. Chadwick, indeed, asserts, and the testimony of the able and intelligent witnesses examined by him, fully bear out the assertion, that the ordinary school hours may be reduced one-half, without, in the slightest degree diminishing the amount of book-instruction acquired by the pupil in a given time.

*Limit of a pupil's attention.*—Without, however, attempting, here, to fix with mathematical nicety the precise number of hours during which book-instruction may be profitably carried on in schools: it may, at least, be laid down as an axiom that such instruction ceases to be profitable, and should, therefore, be given up, when the pupil is no longer able to give his entire attention to what is taught. The instant the pupil becomes fatigued and tired, the instant he loses the power of *bright voluntary attention* (as one of the witnesses aptly calls it), it is time to stop the lesson. Everything done after that is either unprofitable or hurtful, or both. If a boy makes an extraordinary effort to keep his attention fixed on the subject before him, when his capacity of voluntary attention is exhausted, the mental effort is injurious. If, on the other hand, the boy merely makes believe that he is attending to his lesson when his thoughts are on his marbles or his tops, he is acquiring a dishonest *moral* habit, that of pretending to do what he is not doing; a fatal *mental* habit, too likely to cling to him through life, of looking at a book without thinking of what he is reading, a habit of dawdling over work; a habit the very opposite to that which is so invaluable in real life, that of doing earnestly the business of the moment; of thinking of it and nothing else for the time, in obedience to the teaching of the golden maxim "whatever thy hand findeth to do, do it with thy might." \* \* \*

*Instruction through the Senses.*—This is not the place to enforce the truths, which are now happily beginning to be at least dimly recognized: that children should be made to learn as much as possible by and through their senses, by their own powers of observation: that when it is possible they should be made to study natural objects, the things themselves, rather than the signs of things—words: that the senses themselves, as well as the reasoning powers, should be carefully cultivated: and that the right education of our senses, especially of the eye, not only contributes much to our comfort and enjoyment in life, but, in the case of the working classes, adds very materially to their usefulness and efficiency, and consequently to their value as workmen.

*Mistaken views of Education.*—I cannot, however, refrain from alluding, in passing, to the very narrow and mistaken view which many persons take of education. Physical education they wholly ignore, and of intellectual education they take a very one-sided view. With them intellectual education means nothing more than imparting to the child a certain amount of knowledge, and they gauge the value of education by the quantity of information acquired in a given time. Whereas the aim and object of education should be, as the word itself might teach us, to secure the healthy growth and development of the whole man—of all his powers and faculties, physical, moral, and intellectual. The value even of the intellectual training which a boy receives at school or college is not to be tested solely or chiefly by the amount of knowledge he has acquired, the number of dates or facts he may have learned; but rather by the mental discipline he has undergone, the mental power and force he has acquired, the intellectual tastes and habits he has formed; not by the information he has stored up, but by his thirst for information, his power of grasping facts, his faculty of judging rightly; not in fact, by what he has done, but what he has the power and the will to do; not by what he is *in esse* but what he is *in posse*. The mistake to which I have referred, as to the objects of education has led to the "cramming" or forcing system which is the bane of modern education. We insist that everybody shall know everything. As one of our most delightful modern Essayists writes:—"We may in sober seriousness apply to the present age the remark which Sydney Smith, in the fulness of his wisdom and his fun, applied to the master of the Pantologies at Cambridge—'*Science is our forte; omniscience is our foible.*'" The advocates for this universal knowledge forget that the mind, as Montaigne says, must be *forged* rather than *furnished*—*fed* rather than *filled*. They forget that of the mental pabulum which we are forced to take at school, none is of any real use to us, but that portion (and

\* The official regulations for other public schools of Upper Canada do not prescribe the number of school hours, but it is expressly provided that they "shall not exceed six." They may be three, four, or five, at the discretion of the trustees.—*Ed. J. of Edu.*

it is generally a very homoeopathic portion of the whole) which we can digest and assimilate and make to all intents and purposes our own. All the rest is useless, or rather it is worse than useless; because it tends to impair the tone and vigour of the mental faculties; just as an excess of bodily food weakens the digestive organs and impairs the physical health generally.

*Second remedy for the Evil.*—The second remedy for the evils of the present school system is to be found in a proper course of physical training for the pupil, including in that training (for boys) regular instruction in military or naval drill, or both.

It is almost needless to say that no system of physical education should supersede that voluntary physical training, those manly outdoor games which are the delight and glory of the school-boy: cricket, foot-ball, prisoner's base, and all such field-games, are, in many respects, the very best possible physical training that a boy can have. But there are many schools where such games cannot possibly be resorted to, and what shall we do with these? Establish a system of gymnastics for them. I am quite willing to admit that when it is impossible to procure other exercises, gymnastics may be used advantageously for boys and girls, but I think there is a tendency now-a-days to over-rate the value of artificial gymnastic exercises, and to mistake muscular strength for health; and on this point I may quote the words of a recent able writer on physiology:

"Gymnastics certainly encourage the development, and increase the power of certain muscles; and those who exercise their muscles in this way will be so far stronger than others. But it does not follow that such persons are healthier than those who take ordinary exercise. It is a remark as old as the time of Hippocrates, that men who practise gymnastics are in a dangerous state of health. They may increase the power of their muscular system, but, if they do so, it is at the expense of the rest of the body, and it was remarked of old, that the athletes and others, who practised gymnastic exercises, were subject to violent disorders, and seldom long-lived.

"It is difficult to prevent boys from taking too much exercise. During the period of growth great fatigue injures the general health. But even when gymnastic exercises are so managed as to avoid this inconvenience, and when they succeed in imparting to the boy an extraordinary degree of muscular development, I am perfectly convinced that the natural adjustment of the functions is thus prevented; for, however well fitted the frame of youth may be for feats of agility, nature has not adapted it for strength, the attainment of which she defers until the period of growth is passed; and, consequently, her plans are deranged, when muscular strength is artificially and prematurely obtained."

But admitting, as I am ready to do, that gymnastics, *under proper regulations*, may be made useful for the bodily training of youth, for teaching boys the proper use of their hands and limbs generally, a matter of no slight importance; yet it would be found costly and difficult to introduce systematized gymnastics into the schools of the poorer classes; but, further, and this is a more important consideration, their usefulness would terminate in the physical benefits derived from them. Their intellectual and moral effects would be nil.

To occupy a portion of the time taken from book-instruction, Mr. Chadwick therefore advocates the introduction of regular military or naval drill, as affording, under every aspect, the best kind of physical training for the scholars.

*Evidence in favour of the plan suggested.*—The paper which was submitted by Mr. Chadwick to the commissioners contains the evidence of a number of intelligent witnesses, principally school-teachers and military men, most of whom speak as to the results produced in schools, where the half-time system, accompanied by military and naval drill, had actually been tried. That evidence Mr. Chadwick triumphantly appeals to as establishing conclusively the great value of military drill, whether regarded with reference to: 1st, The present welfare of the individual pupil; or, 2nd, The interests of the nation.

As to the first head he holds that the evidence shews that the new system is attended with the following sanitary, moral, and economical benefits to the individual pupil. We quote Mr. Chadwick's words:—

1. *Sanitary.*—That the drill is good (and for defective constitutions requisite) for correction of congenital bodily defects and taints, with which the young of a very large proportion of our population, especially the young of the poorer town populations, are affected; and that for these purposes the climbing of masts, and other operations of the naval drill, and swimming, are valuable additions to the gymnastic exercises of the military drill, and when properly taught are greatly liked by boys.

2. *Moral.*—That the systematized drill gives an early initiation

to all that is implied in the term discipline, viz., duty, order, obedience to command, self-restraint, punctuality, and patience.

3. *Economical.*—That it is proved, when properly conducted by suppling the joints, rendering the action prompt as well as easy, by giving promptitude in concurrent and punctual action with others, to add, at a trifling expense, to the efficiency and productive value of the pupils as laborers or as foremen in after life.

*Mental gain.*—As to mental gain Mr. Chadwick clearly brings out this point. "A boy," he says, "who has acquired the same amount of knowledge in one half the time of another boy, must have obtained a proportionately superior habit of mental activity." And this is found practically to be the case; the employers of labor giving the preference to "short-timers" as against "long-timers" wherever they can make the choice.

*Interest of the nation in the matter.*—On the second chief topic, as regards the interest of the nation; Mr. Chadwick argues that the general introduction of the drill is called for, and will be of the same use as was of old the parochial training\* to the use of the bow, he holds that it is proved on practical evidence of officers engaged in the drill:—

1. That military and naval drill are more effectively and permanently taught in the infantile and juvenile stages than in the adolescent or adult stages.

2. That at school it may be taught most economically, as not interfering with productive labor; and that 30 or 40 boys may be taught naval and military drill at 1½d per week, per head, or as cheaply as one man is now taught; that the whole juvenile population may be drilled completely in the juvenile stage, as economically as the small part of it is now taught imperfectly on recruiting or in the adult stage; and that, for teaching the drill, the services of retired drill sergeants, and naval as well as military officers and pensioners, may be had economically in every part of the country.

3. That the middle and higher class schools should have, in addition to the foot drill, the cavalry drill, which the parents of that class of pupils may afford.

4. The drill when made generally prevalent (without superseding), will eventually accomplish, in a wider and better manner, the objects of volunteer corps and of yeomanry, which, as interrupting productive occupations, now becoming more absorbing, is highly expensive, rendering all volunteer forces dependent on fitful zeal, and eventually comparatively ineffective; that the juvenile drill, if made general, will accomplish better the object even of the militia; that the juvenile drill will abate diffidence in military efficiency, and will spread a wide pre-disposition to a better order of recruiting for the public service, will tend to the improvement of the ranks of the regular force, whether naval or military, and will produce an immensely stronger and cheaper defensive force than by the means at present in use or in public view.

And, finally, that the means of producing this defensive force, instead of being an expense will be a gain to the productive power and value of the labor of the country.

*Influence on the Discipline of Schools.*—We have not noticed, hitherto, the influence of the new system upon the morale and discipline of schools. On this head there is a singular unanimity among the masters of the schools where the experiment has been tried. They all consider the drill as an invaluable help to them in enforcing the ordinary school discipline. And they ascribe the usefulness of drill in this particular to the habits of order, punctuality, of prompt, unquestioning obedience and of respect for their superiors which the boys necessarily acquire during their lesson in drill. Indeed several instances are adduced by Mr. Chadwick's witnesses, where the military drill having been, from one cause or another, discontinued in a school, the spirit of insubordination became such that the unhappy master was compelled to reestablish the drill in order to restore the discipline of the school. It would be difficult to find a better practical commentary on the moral value of the new system.

Sir Francis Bond Head gives his opinion on the moral value of drill in very characteristic and forcible language: "The dull sounding, but magic little words of command—'Eyes right!' 'Eyes left!' and 'Stand at ease!' 'Attention!' &c., instil into the minds of a lot of little boys, the elements, not of war, but of peace. Instead of making them ferocious—to use Mr. Rarey's expression—these words 'gentle' them. By learning to be subservient not to their own will, but to the will of others, they become fit in every possible department to serve their country.

*Military drill more effectually taught in Youth.*—That military drill can be taught to boys at school more effectively and economically than afterwards, is a proposition which few probably will be

\* It is perhaps not generally known that up to the end of the fifteenth century, and even later, archery formed part of the ordinary education of the boys of England, and was practised at many public schools. The last Act by which boys were required to be taught archery was passed in 1541,



disposed to dispute. Many, however, may feel inclined to ridicule the idea of "naval drill" in inland schools. On this point one of Her Majesty's School Inspectors, Mr. Tuffnel, cites the opinion of the late Recorder of Doncaster—Dr. Hall:—

"When I first saw," wrote Dr. Hall, "the contrivance (a ship rigged with masts and ropes at a school) at Mettray, in France, I could not refrain from intimating a doubt as to its practical utility. But I found that I was quite mistaken. In France the experiment was tried at the suggestion of the Minister of the Marine himself, and the youths so exercised are received on board ship as sailors, not as lads. At Ruysselede the success is still more striking. In the course of last year, the second of the experiment, no fewer than sixty-four colonists (youths educated at the institution) entered the mercantile marine and the military marine, and their conduct has been so superior that the establishment is overwhelmed with applications from ship-owners."\* The success of the naval drill, wherever it has been tried in English schools, has, as might have been expected, been quite as satisfactory as in France.

*Gain to the Productive Energy.*—The gain to the productive energy of the country, resulting from the drill system, is a subject of which the importance cannot be overrated. In an opening address delivered by Mr. Chadwick before the British Association for the Advancement of Science, in 1862, he returns to this topic, and discusses it in considerable detail. In that address he shows conclusively the immensely superior efficiency of educated labor over uneducated labor, of those educated under his system over those brought up under the old routine. "On the practical testimony," he says, "of such men as the distinguished members of this association, large employers of labor, Mr. W. Fairburn and Mr. Whitworth, it is established that for all ordinary civil labor, four partially trained or drilled men are as efficient as five who are un drilled. In other words, considering the educated child as an investment made by the State, for a trifling expense of about one pound per head, the productive power of that investment may, by physical training, be augmented by one-fifth for the whole period of working ability. Some distinguished authorities," he adds, "consider that he understates the gain of productive power when he put it down as one-fifth, and assert that it is practicable to give to three men by this system the working-power of five." Now, what does this mean? It means that we can, by a change of our mode of education, add as much to the productive energies of the nation as if we had added one-fifth, if not two-fifths, to the number of the working classes, and this "without the expense of educating the additional one-fifth, feeding, clothing, housing them or administering their public affairs."

*School Drill and Natural Defence: Upper Canada.*—We now proceed to say a very few words upon the last topic which we propose to discuss in connection with this subject, namely: the bearing of the half-time system with military drill on the question of our national defence.

From the Reports of the Chief Superintendent of Education for Upper Canada, it appears that the number of boys attending the Common Schools in that part of the Province was, in 1860, in round numbers, 172,000; in 1861 the number was 178,000; in 1862, 185,000; in 1863, 192,000; in 1864, 198,000; and in 1865, 204,000.

The number of boys attending the Common Schools in Lower Canada, for 1860, is not stated in the Report of the Superintendent for Lower Canada. The total number of pupils, however, is given, and assuming the proportion between boys and girls to be about the same as in Upper Canada, the number of boys attending schools that year may be put down at about 80,000. The total number of boys, therefore, in Upper and Lower Canada, attending school in 1860, would be about 250,000 or a quarter of a million.

\* In the number of *The Athenaeum* for December 31st, 1864, there is an interesting account of the results of the "half-time" system in the children's establishment at Limehouse in England:—

"The school is conducted on what is called 'half-time,' a system much recommended, and found to work extremely well. Mr. Moseley, the intelligent and earnest superintendent, gave it as his decided testimony, that the children came to their lesson-books brighter and fresher and give more close and efficient attention when they are on half-time. The children are in school on alternate days, half of them being in the school, and the others employed in industrial occupations. The children are not occupied more than eighteen hours in the week in close book-instruction, the other portion of their time being employed in industrial training.

"The addition of physical training is a wonderful improvement in the system of education. The influence of the drill gives the boys self-respect; they become smart, active, clean-limbed, adroit; they acquire the control over their own limbs. Systematized drill gives the boys, early, an initiation into the virtues of duty, order, obedience to command, self-restraint, punctuality, patience,—no small addition to the value of a man's heritage in himself! Cheerfulness and prompt obedience seemed the characteristics of the children, both boys and girls."

Assuming, however, one-fifth of this number to be, from physical or other causes, incapable of drill, and this is, doubtless, an over-estimate, there would still remain 200,000 boys undergoing drill in our common schools—if the system was universally carried out. At the end of ten or twelve years from the first inauguration of such a system in Canada we should have, probably, half a million of youths who had undergone a regular course of drill; a very large proportion of whom would be capable of bearing arms, and, should the emergency arise, could be readily converted into good and serviceable soldiers. Our common schools would thus be made the nurseries of our militia.\*

*Our duty in this matter.*—It is not very long since the heart of our people was stirred at the near prospect of a struggle between the Mother Country and the States. That struggle has been for the present happily averted; but who shall say for how long? It is to be hoped that if the danger which then threatened us should hereafter actually come upon us we may not be found as hopelessly unprepared to meet it as we then were. And, assuredly, we shall not be unprepared for such an emergency, if, we shall have previously established military drill as part of the ordinary instruction given in all our public schools.

It has been wisely said by one of our ablest statesmen, referring to the recent threatened difficulties with our neighbours: "That it is the first point of patriotism with us to create an enthusiastic attachment among all orders of men for our Constitution." If this be the first point of patriotism, I should say that the second is to give all orders of men in our State the skill and ability necessary to enable them to stand forth confidently in the hour of danger in defence of their altars and their homes.

It is to be remembered, too, that within the last few years the position of Canada, both as regards the Mother Country and the States, is entirely changed. To England we had been in the habit of looking with confidence for protection from every danger, and from the States we thought there was no danger to be apprehended. Now, on the contrary, we have received warning from England that we must take measures to protect ourselves, and, at the same time, we have received warning from our neighbors that we need to do so. It is this peculiar crisis in our colonial history which gives to the question of our national defences such paramount interest at the present moment. In the energy and zeal with which, on the recent occasion to which we have referred, men of all ranks, from one end of the Province to the other, responded to the call to enrol themselves for the defence of the country, we have an earnest and a proof of the spirit which animates the people. It will be the wisdom of our statesmen to foster and encourage this spirit of patriotism, and to turn it to the best account.

*What our Neighbours are doing.*—Our neighbours across the lines have not been slow to perceive that the best way of promoting the growth of patriotism and a love of military life among their citizens is by following out the Chadwick system, and making military drill part of the ordinary business of their schools. The system has in fact been in practical operation for the last two or three years in many schools and colleges in the Union. The Governors of the States of New York and Massachusetts have, in their addresses to the State Legislatures, called attention to the subject as one of momentous importance. Educational reformers have advocated it, and measures have been introduced (if they have not been actually passed) into the Legislatures of certain States, to make military drill compulsory on all boys above ten years of age attending the schools which receive aid from the public purse. "*Fas est ab hoste doceri.*" We have learned from our neighbors many a lesson, which had far better been left unlearned; let us learn from them, in this at least, one good and useful lesson. A senator in Massachusetts lately, giving his views on the importance of military studies in colleges, says: "Let the drill be regular and compulsory, taking the place of the very irregular and inefficient physical exercise now in vogue, and our colleges would be vastly improved in their educational form, and the commonwealth would, in a short time, have a numerous body of intelligent men, well skilled in the military science and art, who will become teachers in our lower grades of schools, and be competent, when the alarm is sounded, to lead our citizen soldiers in the field."

*What is doing in the Canadian Schools.*—In view then of the present crisis of our national history, it is satisfactory to know that in Canada some steps are being taken towards "putting our house in order." In both sections of the Province the able Superintendents of Education have, of their own accord, established military drill in a large number of the grammar and common schools throughout the country. In the *Journal of Education* for Upper Canada, many

\* Drill when thoroughly acquired in youth, would, like swimming, riding, or skating, remain a permanent acquisition. So true is the maxim:

"Quo semel est imbuta recens servabit odorem testa dia."

admirable articles on the subject of military drill in schools have from time to time been published. The Chief Superintendent of Education in Upper Canada\*, informs me, that eighteen grammar schools reported military drill as part of their course of training in 1863, and he also states, what is perhaps even more important, that during the last six months of 1863, the students in the Normal School have formed themselves into a drill association, which he adds will doubtless contribute much to the general introduction of military drill into the Common Schools of Upper Canada.

In connection with the movement may be mentioned the encouraging fact, that the companies which have been formed in the schools and colleges, both in Upper and Lower Canada, are amongst the most proficient in the Province, and that they have received high encomiums on several occasions from the military officers who have inspected them. This is, indeed, only what might have been anticipated. Colonel Wily, of the Adjutant General's Department (himself an experienced soldier), on whose authority the preceding statement is made, has long earnestly advocated the introduction of military drill into schools, and he cites, as a proof of the practical results of the system, the admitted superiority of the militia of the Channel Islands, particularly of the Island of Jersey, of which he is a native.†

\* I have much pleasure in quoting the following extract from the Annual Report of the Chief Superintendent of Education for Upper Canada, for the year 1863, published since the date of my paper. Under the head of "Military drill in schools" the Superintendent writes:—

"The Board of Common School Trustees in the City of Toronto, have, with praiseworthy intelligence and public spirit, introduced a regular system of military drill among the senior male pupils of their schools; the Board of Trustees in Port Hope have done the same. The system of military drill can be easily introduced into the schools of all the cities, towns and villages in Upper Canada, and perhaps in some of the larger rural schools; and the military training of teachers in the Normal School, together with the large number of persons who are being taught and certificated in the Government Military School, afford great facilities for making military drill a part of the instruction given in the grammar and common schools referred to.

"In the neighboring States this subject is engaging the anxious attention of the governments and legislatures; and military drill is likely to become a part of the system of education in all the public schools of their cities and towns. The Legislature of Massachusetts, at its last session, passed a resolution directing the State Board of Education 'to take into consideration the subject of introducing an organization of scholars, above the age of twelve years, for military drill and discipline.' The Board appointed a Committee (of which the governor of the State was chairman) to investigate the subject, and to enquire into the result of an experiment which has been tried for two or three years in one of the towns of the State—the town of Brookline. The result of the enquiry is thus stated—'The boys in the older class can already be selected from their playmates by the improvement of their forms. Habits of prompt, instant, and unconditional obedience are also more successfully inculcated by this system of instruction than by any other with which we are acquainted. A perfect knowledge of the duties of the soldier can be taught to the boys during the time of their attendance at the public schools, thus obviating the necessity of this acquisition after the time of the pupil has become more valuable. A proper system of military instruction in the schools of our commonwealth would furnish us with the most perfect militia in the world; and we have little doubt that the good sense of the people will soon arrange such a system in all the schools of the State.'

The Committee adds the following remarks, which are as applicable to Upper Canada as they are to Massachusetts:—

"The public schools are maintained at the public expense, in order to prepare youth for the duties of citizenship. One of these duties is to aid in the defence of the Government whenever and however assailed. Surely, then, there is no incongruity, no want of reason, in introducing into the schools such studies and modes of discipline as shall prepare for the discharge of this equally with the other duties which the citizen owes to the State.

"But can this be done without detriment to progress in other branches? Can it be done without loss of time? The Committee is satisfied that it can, and that thereby a large amount of practical knowledge and discipline in military affairs may be attained, and, at the same time, a very great saving of time and labor be effected, which, under a system of adult training, would be withdrawn from the productive industry of the country."

† Under the admirable militia organization which has for centuries obtained there, every boy, between the age of fourteen and sixteen, is compelled to attend drill once a week, commodious drill sheds, and competent drill instructors being provided for the purpose. Into the details of the admirable and most economical militia organization of the Island of Jersey it would be out of place to enter here. I may, however, observe that those who are charged with the responsible task of organizing our militia might possibly find it not unprofitable to enquire into the working of a system which has produced, at a very trifling cost, a militia probably unequalled in the world. And it will probably be found that the great secret of the success of that system lies in the early military drill of every boy upon the island.

Drilling and volunteering have, for the last two years, been the order of the day in Canada, and most men under fifty and some over that age have been initiated in the "goose-step," and learned the mysteries of "forming fours." If from our drill experience we have learned nothing more, we must have at least learned this lesson: that soldiers are not made in a day, and that to expect to make an efficient militia by drilling men, taken from the plough or from the workshop, for three or four weeks in the year is simply absurd.

An English statesman once designated the militia as *depositories of panic*. And the great Dryden describes the militia of his day in far from flattering terms, as

"Mouths without arms, maintained at vast expense,  
In peace a charge, in war a weak defence."

If we desire to have in Canada a militia the opposite of this; a militia which will cost us little; one of which we may feel proud in peace, and upon which we may rely with confidence in time of war; a militia in a word which will recal the memories, and be ready to repeat the deeds of our ancestors in 1812; we must see that our sons, while at school, learn thoroughly their military drill. There let us instruct them in the first rudiments of the arts of war as well as peace. There let us teach them to regard it as their pride as well as their duty to be *ready, aye ready*, to stand forth, when the need comes, to do or die for their country. There let us imbue them with that high and noble patriotism, that spirit of intelligence and self-reliance which, aided by physical health and strength, will make them good men, good citizens, and good soldiers, the ornament at once, and best defence of their country.\*

## 2. SCHOOL DRILL AN AID TO VOLUNTEERING.

A SHORT ADDRESS, BY REV. J. S. HOWSON, PRINCIPAL OF THE COLLEGIATE INSTITUTION, LIVERPOOL.

The permanence of the Volunteer movement depends largely upon arrangements with which the Schoolmaster has little concern. But it can hardly be doubted that the systematic practice of drill in our large Schools will subserve this great national cause in a very real though unpretending manner. It was said by Colonel Wilbraham, on the occasion of distributing prizes, that "the introduction of drill into our public schools promises to form a valuable element of perseverance in the Volunteer movement," by enabling boys "at an age when every manly exercise is a pleasure, to get through that part of drill which, in after life, becomes more difficult and irksome, and which probably deters many from joining the ranks of the Volunteers." There may, therefore, be some advantage in briefly describing the arrangements which have been adopted in a case where the practice of School Drill has been successfully maintained. In many schools the introduction of drill is very recent. With us it has been a part of our regular system for many years. \* \* \*

School Drill, enlivened by the Volunteer movement, is a help towards the solution of an important problem which presses on schools situated in large towns: viz., how to make sure there of physical education and good employment of holiday time. It is, indeed, most important that Drill should not be substituted for Cricket and Football. But in schools, where the pupils are drawn daily from homes scattered widely over a large population, it is not always possible for all to be present at these games on a holiday afternoon. On the other hand, all have the benefit of the Drill. Where green fields are distant, some compensating provision for health and bodily energy is doubly important. And this should be added further, that this exercise is not exclusive, but associates together the older and younger pupils in cheerful combination. \* \* \*

Some persons have feared lest this interest in military exercises should excite in our boys a passion for military life. I am inclined to think it is likely to produce precisely the contrary effect. The

\* Schools for the military instruction of candidates for commissions in the Service Militia of Canada were opened, about the date of this paper, April, 1864, in Quebec and Toronto. These schools have been most successful, and by the end of the year upwards of two hundred and fifty persons had obtained first class certificates.† In connection with these schools there are two points which the year's experience of their working has, I think, conclusively established and to which I wish to call attention in corroboration of the general arguments advanced in the present paper:—

1st. That, as a general rule, the boys have mastered the drill more easily and more thoroughly than the men.

2nd. That the six or eight weeks' tuition in the drill-shed has served, in a way quite unexpected by the parents, not only to brighten and sharpen the boys' wits, but even to make them, in many cases more docile, useful and agreeable at home.

† Report on the state of the Militia for 1864, p. 8.

Volunteer movement itself is strictly defensive in its aim, and its details are bound up with the ordinary occupations of men who live at home. And exercises of this kind give a relief, as well as a discipline, to the natural restlessness of boyhood. A well-drilled school-boy will usually subside, on leaving school, into a common sense view of War and Peace: and if by these methods the few are discovered, who really do possess military talent, the country will be the gainer.

Colonel Wilbraham, C.B., who reviewed the boys of the school, said, in the course of his encouraging remarks, that he hoped and trusted that this pursuit, "so far from interfering with study, would tend to promote it, because he felt sure that the habits of discipline and obedience which the boys had to learn would stand them in good stead in the school-room;" adding, that "at Oxford the Volunteer movement, so far from doing harm, had done a great deal of good." In allusion to this School Review, Col. Wilbraham again said, on occasion of the distribution of the Hightown prizes in St. George's Hall, on Nov. 12th, "I am sure the Schools themselves will be as much benefited through this instruction as the Volunteers; for the boys cannot fail to carry into their hours of study those habits of discipline and obedience which they learn on parade." To which I may add the remark of the Rector of Liverpool, on occasion of the swearing in of the Engineers, on the 20th, "We wish to bring up the Collegiate boys in habits of order and discipline, and we believe the drill will have a most beneficial effect, both upon their habits and on their health."

### 3. DRILL AT THE SCHOOLS.

We would earnestly advocate, as we have always done, the immediate prosecution by Government of their scheme for introducing military drill into common schools. Had this been done at the time of the Trent affair we should have had to-day thousands of able militiamen that we have not got. Why are boys put to school in their youth, instead of leaving it till after they grow up? Because education is as natural to that period as bread-winning is to more advanced years. The plasticity and susceptibility of childhood are gone when power and necessity impose other duties. If, then, the country is to have a military education, it is folly,—a waste of men's time, and Government's money,—to give that education, when nature unbendingly refuses new ideas. Were every school teacher able to put a class through its facings, and every grammar-school master able to be a primary drill instructor, how much more thorough would the superstructure be, built on such a solid foundation. School cadets might, if properly looked after, be entrusted with rifles at thirteen or fourteen, with more safety than the same arms are at present carried by grown men; and a proficiency in the use of this arm is now what decides battles. A small prize for competition between the cadet corps might be a stimulus to practice. The long journey to the drill meeting, and the loss of time when engaged at an unwonted addition to their daily toil, would by this plan become the play hour of the necessary meeting for school exercises; and nothing would be lost if school hours were, as a general rule, shortened to admit of it. By this martial training, too, much of the nervous trembling which secretly follows the call to arms, would be done away with. This expression may be laughed at by many readers, and to those who are accustomed to the march of armed men, and to converse with professed soldiers, it is somewhat incomprehensible; but we could tell of whole battalions of rustic militia, we will not say in what career or what empire, who, being asked to volunteer for important and immediate duty, have declined to a man, although their valor stood out nobly when their officers reported their reply as a unanimous offer of services, which happily for them, were not wanted. This apparent pusillanimity was not the result of cowardice, they were naturally a fighting people, nor was it disloyalty, but the vague dread of warlike preparation, which like a visitation from an unseen world, was awful because not within the range of their experience. By a school-training, this weakness would be removed, without instilling any brutality or blood-thirstiness, or even love of war. Drill at school, too, would involve none of these temptations to intemperance which attach often to evening meetings of young men. Add to all this that our present system is incomplete. Only city volunteers understand battalion drill, and of the best city battalions only a few are practised riflemen; and military training, if incomplete, is, as a friend expressively observes, only the halter by which the victim of it is led to the shambles.—*Montreal Witness.*

### 4. MILITARY TRAINING IN OUR PUBLIC SCHOOLS.

The Council of the County of Ontario, at its recent session, adopted the following report on the subject of Military drill in our public schools:—

"The recent invasion of our peaceful country induces your com-

mittee to express their belief that great advantages would accrue to the youth of the country if the teachers of Common Schools were required to be possessed of a sufficient knowledge of Military drill to enable them to instruct their male pupils therein; which, if their services should at any time be required in defence of their country, would render them much more efficient; or if, fortunately, their services should not be so required, would be the means of giving an ease and propriety of carriage, so readily acquired by early instruction; and would recommend that provision be made compelling male teachers to acquire a knowledge of Military drill before obtaining certificates entitling them to Government money.

### 5. MILITARY DRILL IN THE SCHOOLS.

The Grand Jury of the County Court of Quarter Sessions held at Toronto, on the 15th inst., made the following presentment on this subject:—

"That in the opinion of the Jury, the school law should be amended, so as to require the teachers of all schools receiving public money, to obtain a certificate equal to the second class certificate granted at the Military School.

"That all the male children, over twelve years of age, should be drilled in military movements several times per week.

"That all the male children of each municipality, over twelve years of age, whether attending school or not, should be drilled together, at least four days per year.

### 6. PHYSICAL EXERCISES AND RECREATION FOR GIRLS.\*

In discussing this question, it is convenient to divide it into two parts: taking first, physical exercises, which do not profess to be play, though pleasure may be got out of them by the way, as out of other tasks dutifully performed; and secondly, recreation, in the sense of amusement, including all sorts of active sports. The distinction is not very definitely marked, but may be made sufficiently so for our present purpose.

The physical exercises practised by girls, and not professing to be play, are drilling, gymnastic and calisthenic exercises, dancing, and walking. *Drilling* is not much esteemed in girls' schools. *Gymnastics* and *calisthenic* exercises have great merits in the way of giving strength and elasticity to the muscles, and it is very desirable that schools should be provided with the necessary appliances for them. The system of Dr. Roth and Mr. Tyler are excellent, and may be learned from the books published on the subject. These exercises may almost be regarded as play; there is at least no doubt that many girls enjoy them very much. This is especially the case when they are accompanied by music, which, however, is not essential. *Dancing* has merits of its own, especially that of cultivating the musical sense. Graceful motion—melodious, in that it is modulated to a tune, and harmonious, in that it is the common and mutual action of many performers—is beautiful in itself, and if pursued for its beauty, and not as an occasion of individual display, can scarcely fail to be beneficial to both mind and body. And though it counts among lessons, and the practice of steps is certainly irksome work, it may be made a dignified kind of play in play hours. *Walking* can scarcely be dispensed with, though, taken by itself, there is not much to be said in its favour. Its dullness may be got over by giving it an object, but that is difficult in schools. Schoolmistresses cannot be perpetually inventing errands, and the girls themselves are not likely to have many. Much of course depends on the locality. Where it is possible to get free country rambles, they may be made very enjoyable, but these are scarcely within reach of ordinary London schools.

The merely physical exercises seem all to share in one common deficiency; they want life and spirit. They would be more beneficial even to the body if they had more heart in them. When the body is languid or tired by study, a force of some kind is required, either that of persuasion or command, or a sense of duty, or the prospect of pleasurable excitement, to impel a girl to take exercise. She wants either to go on with her lessons or to do nothing. And considering how many things there are, in school life as in all life, which must be done as duties, it seems very desirable that whatever form of relaxation from mental work is adopted, it should be looked forward to as a pleasure, not as another and perhaps the most irksome task. In order to make play really interesting, it seems essential that it should be competitive. Either it must be a game with sides, in which one party or the other wins, or there must be something to be done, some feat to be performed. All the most popular games contain this element of struggle, and it is a most important point to bear in mind, as the great difficulty with girls

\* The following paper is an epitome of the results obtained in discussion of the subject at a meeting of the London Association of Schoolmistresses, 10th May, 1866. (See, also, paper on page 155.)



seems to be that they do not care for play. Of course this does not apply to children, who if they are told to play will do it readily enough, but to girls from fourteen to twenty, who specially need the variety of hearty, vigorous play. They would rather read, or saunter about talking; and one cannot wonder at it, as the kind of play usually within their reach is either too stupid or too childish to interest them. Keeping specially in view the case of the older girls, we proceed to inquire what sports there are which are at once healthy, pleasant, suitable for girls, and practicable in London.

Among the active sports which are practised by women and girls may be mentioned, swimming, rowing, cricket, croquet, archery, la grasse, quoits, bowls, ninepins, skipping, battledore and shuttlecock, coronella, and other more childish games. *Swimming* has all sorts of advantages. It works the muscles, and gives play to the lungs; it is competitive, and therefore inspiring; it gives a sense of power; it may be a means of saving life; and finally, it is accessible to any school which is within walking distance either of the Marylebone Bath, or of the Ladies' Swimming Baths, York Terrace, Regent's Park. *Rowing* has many similar recommendations, and is not unattainable even in London. Boats may be hired in the Regent's Park for eighteenpence an hour, and with proper care, and by choosing suitable hours, they may be made use of by ladies' schools. *Cricket* is very popular in some country schools, and it is believed that cricket grounds might be hired in London. *Croquet* has the cardinal merit of being almost universally popular, and it requires little preparation. It has the disadvantages that there is a good deal of stooping over it and standing still. *Archery* is very good for expanding the chest and training the eye, but it requires more space than is usually available, and a great deal of preparation. The game of *quoits* is capital for training the eye, it exercises the muscles, is interesting, requires little space and no preparation. If iron quoits are found too heavy, those made of india rubber can be used. *La grasse* is a good game, and shares with *bowls*, *ninepins*, and *skipping*, the advantage that it can be played either indoors or out of doors, according to circumstances. The game of *fives* is strongly recommended by some people; by others it is said to be too severe. A good deal depends on whether it is played with or without bats, the former being much easier. *Battledore* and *shuttlecock* is lively, if played in parties, and the noise, which is its great drawback, may be avoided by using what are called racket-bats. *Coronella* is comparatively quiet, and requires more skill than *battledore* and *shuttlecock*, but it is not very interesting. The more childish games, which are very numerous, are passed over for the reason before given, that children can find amusement for themselves, and can be pretty well trusted to run about and make as much noise as other people can bear. It is for the girls who are neither children nor women that it is necessary to provide active amusement of an attractive sort.\*

A few remarks on matters connected with this question may here find place. And first, as regards dress. For many kinds of active sport girls' dress is very inconvenient. One does not quite see how this is to be got over, as it would not do for school girls to be dressed differently from other people. But it might at least be urged upon them to avoid tight clothes and thin boots. They might also perhaps be provided with some clothes which will stand rain. It is a reasonable objection to going out in wet weather, if a girl knows that she will come in with her dress ruined. To have access to food at convenient times is another requisite connected with physical exercise, as an active game may be over-exhausting to a hungry girl, and so do her more harm than good. In all cases, but especially where the constitution is not strong, over-exertion requires to be guarded against, and in proportion as play is made more interesting, watchfulness on this point will be necessary.

As bearing upon the subject of recreation, it may be mentioned that occasional excursions, say one in a term, to some place of interest within a reasonable distance are found very refreshing. In London, the Tower, Westminster Abbey, the Crystal Palace, the British Museum, the South Kensington Museum, and other objects of interest are within easy reach. Where expense is not a consideration, visits to more distant places can easily be arranged, and are looked back upon with pleasure for long after. It is suggested that both as regards games and other kinds of amusement, something might be done by a combination of resources. A croquet match between two schools would be more exciting than a game played by one school only. On wet days, schools which are near together might make the indoor games more lively by an interchange of girls. These considerations apply chiefly to small boarding schools. Large schools and day schools get variety in other ways.

In carrying out most of the foregoing suggestions, two great

obstacles present themselves—time and expense. Everything takes time, and most things cost money. As to the first difficulty, it can only be urged that, as a general rule, good results are not obtained by sacrificing any one part of our nature to another. If study takes up so much time that there is not enough left for play, there must be too much study going on. The lessons must be too many or too long, and ought to be curtailed. Probably in the end, the lessons would not suffer. It seems to be testimony of experience, that when we are bright and lively we do our best work, and a little time then goes a long way. To keep young people in quiet, equable, good spirits, neither languid nor over-excited, seems to be the great thing. This is of course greatly, it might almost be said mainly, dependent on moral causes. It would be a fatal mistake to imagine that any amount of good management of the body can ever take the place of a rightly ordered moral and spiritual life; and probably goodness and happiness do more for the body than mere physical health will do for the mind. It is, however, generally agreed that it is easier to be good and happy when the body is in a thoroughly sound condition, and it is therefore worth while, in every point of view, to give up as much time as circumstances may render necessary, in order to secure physical health.

The same considerations apply to the question of expense. It is clearly desirable that "physical exercises and recreation" should be made as little costly as possible—that money should not be squandered upon them. But it ought not to be taken for granted that money spent in this manner is thrown away upon superfluous luxury. In so far as the exercise or the recreation serves to make young people lively and vigorous, the outlay is as profitably bestowed as if it had been for food or clothes. It is certainly more in accordance with true economy to spend money in strengthening the constitution in early life than to pay it in after years for doctors, and tonics, and codliver oil.

## II. Papers on the Defence of Canada.

### 1. BRITISH CONNECTION.

WILLIAM PITTMAN LETT.

No prouder alliance than ours can be boasted,  
No grander or nobler descent can be known!  
Earth may have guerdons, but none more resplendent  
Than the birthright which Britons claim as their own.  
The old "wooden walls" with their long list of glories—  
The names of the heroes who manned them we claim,  
And ours, as our sires, is the brightest of stories,  
That gilds with its lustre the pages of Fame.

Ours are the Oaks and Druidical Temples,  
Alfred and William, the Lion heart King;  
Ours are the Barons who stood up for freedom,  
Ours are the songs of our country to sing—  
Songs full of fire and patriot feeling,  
Tales of the deeds of the mighty, at rest,  
The charm of the palace and peasant's lone sheeling  
Thrilling alike every true Briton's breast.

The wisdom, the glory, the might of that nation  
Which rose like the sun from the breast of the sea,  
And first 'mongst the powers of earth took her station  
"The land of the brave and the home of the free!"  
The cradle of genius, the birthplace of freedom,  
The soil whence wealth, honor and chivalry spring,  
Are ours all brighter than artist e'er painted,  
All nobler than poet or minstrel e'er sung.

Milton is ours, mysterious and mighty,  
And Shakespeare that lofty Colossus of song!  
Byron, Pope, Moore, Campbell, Dryden and Burns,  
Who's strains rolling ages will only prolong.  
Orators, warriors, poets and statesmen,  
Who made Britain famous or ruled her for good,  
Souls full of glory and tongues full of fire,  
Sheridan, Pitt, Curran, Grattan and Flood!

Long may the tie which unites us in spirit,  
Firm as the love of our country remain,  
Buoyant and strong as the swell of the billow  
That rises and falls, but still rises again.

\* The appliances required for gymnastic and calisthenic exercises, and for games of all sorts, as well as the fullest and latest information on the subject, may be obtained at the South Kensington Museum, on application to Mr Craven, Educational Department.

Never may traitorous hand cut asunder  
 One tie that is dear to a patriot's heart,  
 While the Bulldogs of Ocean still wield the Isles' thunder  
 No traitor or foeman can rend it apart — *Ottawa Citizen*.

## 2. PRUSSIAN MILITARY SYSTEM ADAPTED TO CANADA.

The Prussian army and militia, which have so thoroughly proved its efficiency, present to the people of Canada both a model of organization and an example of patriotism; and although it is always bad policy to attempt to graft on any people a foreign system whole and entire, we have long been convinced that it is to Prussia our statesmen should look when the much needed remodelling of our militia is undertaken in earnest. There is so much similarity, both geographical and political, between Prussia and Canada, that the study of the Prussian organization becomes doubly interesting, and we propose giving a short account of it without dwelling on internal details. These may be adapted to suit the differences of the English tactics under which we are trained, without affecting its fundamental principles.

The changes over which the King and the Parliament of Prussia have been quarrelling are changes of detail, only intended to keep men in the reserve and prevent them passing into the Landwehr for two years longer. But the system itself was devised by Scharnhorst and other gifted patriots at the time of their country's supremest need. During those dark days which succeeded the battle of Jena, when Prussia, stripped of half her territory, lay prostrate at the feet of the first Napoleon, she was yet allowed by her conqueror to keep on foot a small army. Though watched by French spies and compelled to smother their aspirations, the Prussian youth entered this army as fast as possible, learned their duty and then were dismissed on furlough or resigned, thus making way for others, until, by the time the fortunes of Napoleon had turned, so many had been drilled that a large and well-trained army sprang suddenly as by magic into being and restored the faded glory of the Prussian arms. The lesson then learned was not forgotten, and the idea of making the army a military college for the people, became rooted in the nation, and has borne fruit continually in spite of the opposition of its adversaries.

The whole system is based on the following fundamental ideas:—

- 1st. That every man owes to his country the duty of military service.
- 2nd. That the standing army should be a college for training the nation.
- 3rd. That to wear a soldier's coat is an honour, and that no one who has committed a disgraceful action is to be considered worthy of it.

Based on these principles, the fabric rapidly grew until the people of Prussia became the army of Prussia, and the merchant, the banker, the farmer and the clerk could all find their places in the ranks in any hour of danger; and when we contemplate this wonderful result of organization and patriotism, we must remember that this Prussian nation is the most highly educated in the world, and among the most industrious and prosperous.

The army of Prussia, then, consisted of—

1. The Standing Army, consisting of men from 20 to 25 years old, divided into—
  - a The Active Force..... 20 to 22 years.
  - b The Reserve..... 23 to 25 years.  
(or by new regulation..... 23 to 27.)
2. Landwehr, or militia army, consisting of men from 25 to 39 years, divided into,
  - a First Levy..... 26 to 32.  
(or by new regulation..... 28 to 32)
  - b Second Levy..... 33 to 39.

3. The Landsturm, "Home Guard," consisting of the remainder of the population, of which only
  - a Men between 39 and 50 are enrolled.

For the sake of clearness we have given the divisions of the nation at a glance. We will now consider them separately.

Every youth arriving at the age of 20 must enter into the standing army. The exemptions are exceedingly few, and no substitution is allowed. The heir to the throne and the son of a peasant are alike bound. The officers and sergeants of the standing army are permanently appointed as in the English service, but the privates are continually changing, and the trained officers are really their school masters. The term of service is three years, but any youth who will pay for his own equipment, and who gives proof on examination of superior education, may serve for one year only. He is then appointed an officer of Landwehr, and thus, while education is promoted, a superior class of officers is provided without trouble.

After serving three years in three in the actual standing army, the young man is passed on to the reserve. There he serves for two years longer, but he may engage in any business, for, excepting in case of war, he is called on for a few weeks only in the two years to drill with his regiment.

Arrived at the age of 25, the former youth (now a man,) his physique improved by drill and exercise, passes into the Landwehr. He may now settle down in life, marry, and engage as actively as he pleases in business. For six years longer he is liable to be called out every two years, and manœuvre with the standing army, but he is no expense to the country, though in his place he is always ready for an emergency.

At 32 years of age commences the second levy of Landwehr. This is never called out but in extreme peril, and is used as an army of reserve and for the garrisons of fortresses. Still, it is ready organized for service. The rolls are strictly kept, and the arms and accoutrements are ready in store.

Finally, at 39 years of age, the Prussian passes into the Landsturm. This we have designated by the American name of "Home Guard,"—a term of opprobrium as used here, but a useful force if Government know how to utilize it. It is really equivalent to our old, well-known Sedentary Militia, but made up, generally, of men who have been drilled. This class is never called beyond the district; it is truly a local force, and is available for garrison duty, or in case of actual invasion or imminent danger. All younger men exempted from any cause must fall in here.

Now it is specially to be noted that the arms, accoutrements and clothing of all this force are always ready. Each commandant of a district has sealed orders for calling out (mobilising) the reserves and landwehr. A simple telegram causes the orders to be opened, and in three days the reserves and in fourteen days the landwehr are assembled, armed and ready for the march. In reality, the privates of reserve and the landwehr are better troops than the standing army on account of their age and consequent steadiness and vigour.

Great care is taken in the most important point of instruction and appointment of officers. In the standing army the officers are all of the upper classes, the sergeants are picked men of inferior social position, but the greatest attention is paid to the education of all. The military colleges are numerous, and the examinations are so severe as to prevent any ignorant officer from being appointed. The officers of a regiment in any branch of the service may refuse to receive a comrade, if they consider that he is a man of honour, no matter what his position, acquirements, or influence may be. We have already explained that the Landwehr officers are appointed from those young of superior education who have paid for their own equipment and have served one year in the standing army. It may, however, well happen that, being immersed in business and distracted by other cares, the few weeks drill of the landwehr are not sufficient to enable them to keep up their knowledge. This difficulty is thus obviated. Each regiment of the line consists of three battalions, and has a corresponding regiment of landwehr consisting also of three battalions. Both regiments have the same number, and on service are brigaded together. Thus, say the 10th regiment is composed of 1st, 2nd and 3rd battalions of the line, and 4th, 5th and 6th of landwehr, and on service the experienced superior officers of the regular service have general supervision of all six battalions.

From the close relations thus established between the standing army and landwehr the garrisons are seldom changed, and the regiments are recruited from the Province where they are serving; so that every precaution is taken to interfere as little as possible with the occupations of the people. It must be evident that this might be admirably adapted to our country. Every battalion of volunteers, or active service militia under continual drill, could have a second class battalion attached to it, while experienced officers from the Queen's regular army might be carefully selected from regiments serving in the Province to take charge of brigades in time of war, to whom temporary or local rank might be given.

The whole army of Prussia, active and landwehr, is divided into nine army corps—one of the Guards—and the other eight corresponding to the eight Provinces of the kingdom. Thus the first army corps is always stationed in Prussia proper, the eighth in Rhineland. There are nine regiments of artillery, one to each army corps; nine reserve regiments of the standing army, and eight reserve battalions of landwehr. These reserve troops are in times of war continually feeding the army in the field with fresh troops and trained recruits. The engineers, pioneers, etc., form a separate body, and serve in detachments. There are also eight battalions of chasseurs; and it must be noted that these three last services, viz., Artillery, Engineers and Chasseurs have no landwehr attached to them, but that all who have passed through them return to their old regiments in case of war. We have not considered the cavalry separately, as it is organized in the same manner as the infantry,

each army corps having its due proportion, and each regiment of cavalry having its regiment of Landwehr.

The limits of a newspaper article will permit us to allude only to the admirable organization of the Transport corps, the Medical staff, the department of Military Justice, the military Telegraph, the factories of the now celebrated Needle rifle and of equipments. Everything necessary for war is provided during peace, and consequently Prussia, since she learned the bitter lesson in the school of NAPOLEON, has never been molested from without.—*Montreal Gazette*.

### 3. THE FORCE NECESSARY FOR CANADA TO ORGANIZE.

It is a matter of interest to enquire what force would be secured for Canada by an application or partial application of the Prussian System. The statement derived from the best French authorities republished on Saturday by us, sets the number of the French army at 700,000. That is indeed the number which the Government is authorized to call out and keep under arms, only from one-half to two-thirds doing duty in time of peace. This is about 1 in 57 of the population which is about 40,000,000. Prussia's 775,000 under the proposed system bears a wonderfully larger proportion to her total population of 19,000,000, or more than 1 to 25. France, like Britain, is left without an organized reserve when her 700,000 are exhausted. And Austria's system, which has just broke down, has been modelled after that of France. Prussia can put about 1 in 30 of her population in the field within a very few weeks of the call to arms. It is estimated that so soon as her added Provinces have raised her population to 23,000,000, and she has applied her military system to them, she will have of Army, Reserve and Landwehr 800,000 men, (or over 1 in 29) thus prepared for an emergency, besides the Landsturm at the back of them. We ought to be able to do proportionally as much. The grown up males of an ordinary population may be reckoned at about 1 in 5 or 1 in 6; the able bodied fighting population at 1 in 10. According to the last census we had a population of 2,500,000, and we ought to have a trained body, so soon as we have set an effective system fully in operation of 45,000 men, if we come up to the Prussian standard, with a backing of two or three times as many more in the various classes of Militia. Before the next census—nay, probably in the next year we may count upon a population of 4,000,000, in all these Colonies. Then at the same rate we should muster 72,000 the total fighting population being 400,000. So long as the obligation to serve does not include constant garrison duty, the youths learning their work need not be with their corps all the year round. Service ranging from 3 to 6 months in each of the earlier years of their enrolment would be amply sufficient,—in this approaching move nearly to the Swiss than the Prussian system. With this lighter duty we might at least have in our first and second classes 1 in 25 of our population, which would give us now over 100,000 men. Nay, if the terms of service were made light enough we might approach very nearly to the full number of 1 in 10 of the population fitted for duty, and this of course ought to be aimed at whenever practicable. The law of Canada has long set down 18 as the age at which military duty becomes obligatory and 45 as that in which men should pass out into the Reserve or Home Guard.—Thus we begin two years earlier than in Prussia or in France and allow retirement five years sooner than the former. Let us suppose the law to require an enrolment and training of all young men not physically disabled or exempted for some special cause—very few such cases ought to be recognized—like being in holy orders. Let us suppose that the preliminary service of the first levy for the active force should be three to six months duty under arms in each of three years from 18 to 21. According to the census we had in Canada somewhere between 75,000, and 85,000 youth of that age in 1861—80,000 would not be a large proportion now, if that census may be depended upon. Of these one-third ought to be of the earlier age—18. This would give us about 27,000 youths entering on their military duties each year, and serving for about 12 months out of the 36. If we make so large an allowance as one-third of these youths for those to be exempted—we should still have 18,000 per annum, or 54,900 for the period of three years, or (say, making allowance for losses meantime,) 50,000 men properly belonging to this division of our military force. This would be 1 in 50 of the whole population.

Let us keep these men in the second division from 21 to 30, liable during the time to similar duties as are now done by our volunteers—i. e., periodical musters and inspections, with a certain number, say 25 to 30 days of drill or musketry instruction in each year—a portion of this duty being of course done in camp. There will be the same liability to be called out for active service also at anytime, as is now the case with volunteers. Between these ages there seem to have been, according to the last census, about 190,000 men in Canada. These proportions look large—so large as to

make us doubt the accuracy of the census, for they would give of males between the ages of 18 and 30, 270,000, or about 1 in 9 of the population. But we are forced to take the figures as we find them.

And dealing with this last number as the former, and taking off between a third and a half—say 80,000 to cover errors—we should then have 100,000 left, or of the two classes, an army of 150,000 men for Canada alone. The 4,000,000 should give in like proportion 240,000. Behind this would stand a second army of Landwehr, composed of men from 30 to 45, numbering, according to the census, over 180,000 more. Take a third again off this and we add another 120,000 to the 150,000 of the other classes—making an effective force altogether of 270,000 men. This latter class would be liable to duty when needed in war. And behind all these there would be a Home Guard or Sedentary Militia of men between 45 and 60, good for garrison duties. Practically, a man's military life would thus be divided into three great portions, i. e., the first of twelve years (18 to 30)—three spent in learning his duty, the other nine in keeping up his knowledge and fighting if need came. The next of fifteen years (30 to 45), in which he should be liable to no duty in time of peace, but would be held in reserve, bound to do duty like the others in case of war. A third of fifteen years (45 to 60) is passed in a sort of veteran ease, only disturbed even in case of war by garrison duty, unless his martial ardour induces him to volunteer for the front. We would thus have also the three classes of the active, the reserve, and the sedentary militia. The ages and limits of service are in a great measure those with which the people of Canada are already familiarised both by custom and law. The one great reform absolutely needed is the compulsory militia education of all for the three last years of their nonage. The remainder of the scheme would require very slight alteration in our present law regulating the service and sedentary militia.—*Montreal Gazette*.

## III. Papers on Education in Canada.

### 1. NEW UNIVERSITIES IN UPPER CANADA.

The Rev. Doctor Snodgrass, Principal of Queen's College, Kingston, at the recent opening of the faculty of arts and inauguration of the Royal College of Physicians and Surgeons, thus alluded to the University question:

"The last session of the Legislature, remarkable for some peculiar measures, distinguished itself by the extraordinary addition it made to the number of Universities established in Upper Canada. The number of institutions having power to confer degrees has been increased by three, so that now there are no fewer than seven. This state of things may be accepted as a legitimate consequence of the recognition of the claims of denominationalism to be regarded as a controlling power in the erection of Universities, a principle which, when once a government proceeds to act upon it, can have no check, until the number of denominations be represented, except the demand, which it is to be hoped our government will do its utmost to enforce, that those institutions upon which University powers are conferred shall be both willing and able to assume their proper responsibility and take their proper parts in the higher education of the country. Of course we have no right to complain if the principles upon which we ourselves exist be fairly applied in calling other bodies into existence; but in a matter of such vital moment as the conferring of University honors, it need not surprise us if it do appear, by the application of the principle which at present governs the granting of University powers, that we easily reach an extreme from which it is most desirable to recede. Without entering upon any of those arguments which might prove that an extreme has been actually reached, the number and proximity of our Upper Canada Universities are of themselves sufficient grounds on which to express the hope that those who are capable of taking a leading part in the matter and of carrying it to a successful issue, will speedily combine to secure the establishment of one University Board or Council charged with the duty of fixing a common compulsory standard of qualification for the reception of degrees, and of framing suitable regulations for the awarding of them."—*The Canada Christian Advocate*. (See, also, p. 160.)

### 2. NORMAL SCHOOL FOR UPPER CANADA.

In consequence of the lamented illness and death of Mr. Robertson, the following appointments have recently been made by the Council of Public Instruction, in the Normal School for Upper Canada, viz: to be Head Master, John Herbert Sangster, Esq., M.A., M.D.; to be Assistant Master in the Normal School, (or acting Second Master) the Rev. Henry W. Davies, B.D., late Head Master of the Cornwall Grammar School. The following additional appointments were also made, viz: to be Lecturer in the Normal School on the School Law of Upper Canada, J. George

Hodgins, M.A., LL.B.; to be Recording Clerk to the Council, Alexander Marling, LL.B.

### 3. REV. DR. BANGS AS A SCHOOL TEACHER IN CANADA.

"Not finding employment as a surveyor," (he writes, in his *Life and Times* by Dr. Stevens), I took a school, in a Dutch neighborhood, about ten miles from Newark, Niagara, at the head of Lake Ontario, six miles from Niagara Falls. The mournful thoughts which passed through my mind while wandering alone in the forests of this strange country, I cannot express."

He discovers among the settlers, a family which has a small library. Milton's Poems, Bunyan's Progress, Hervey's Meditations, entertain and relieve his melancholy leisure. He is successful as a teacher, commands much respect from the people, accumulates some funds, and is in danger of relapsing into his former moral indifference, but the slightest occurrences recall the subjects of his serious reflections.

The true light was approaching, however, and the morning was at hand. A day or two later, after dismissing his school, he again walked and meditated in the forest, pondering over the truths he had heard in the Methodist itinerant. He knelt in prayer, and then continued his walk, still looking heavenward for light and comfort. "Suddenly," he says, "I felt my burden removed. Filled with gratitude for God's long forbearance, I stood and silently adored."

He now daily opened his school with prayer, but the innovation raised a storm of opposition. He had been very highly appreciated by the families of his pupils; they now railed against him in the streets.

"A robust Dutchman" so far violated the hospitality of his own house, as to rush upon him, when he entered its door, with clenched and uplifted fist, exclaiming, "Did you ever see a man mad? if not, look at me?" Others also threatened him with personal violence, and the whole settlement was thrown into agitation. They accused the Methodists of deluding and infatuating him. He remained calm, but resolute.

They at last threatened to expel him from the neighborhood, and transport him across the river into the United States. Finding "he says," I could have no peace among them, I called a 'School meeting,' they voted that I might continue the school, but should not pray in it. I finally told them that, as they owed me three months' wages, I would give them three days in which to pay me, and meanwhile teach the school, but continue the prayers. I went around to their houses, collected my bills, heard many regrets, one family blaming another for the trouble, but I quietly left them.

He obtained another school, in a Methodist neighborhood, where he found congenial society and providential aids in his new life.

## IV. Progress of Education in England.

### 1. REPORT OF THE ENGLISH COMMITTEE OF COUNCIL ON EDUCATION.

The "Minutes of Council," 1865-6, have just been published, and in an improved form. In the Appendix III. the amount of the annual grant and of the average number of scholars in 1865 under the name of each aided school is given. As the annual grant is conditional upon the number and attainments of the scholars, upon the sufficiency of the teachers, &c., a calculation of the rate of grant per scholar in different schools, if made from this Appendix by any one conversant with the schools of a particular neighbourhood, will suggest useful comparison and enquiry.

*Statistics.*—"During the year (ending 31st August) 1865, as compared with 1864, the number of schools, or of departments of schools under separate teachers, which were actually inspected, was increased by 1,132, and the number of children by 112,764. The number of certificated teachers was increased by 1,073. The number of new school-houses built was 65, comprising (besides class-rooms) 106 principal schoolrooms and 46 dwellings for teachers; 46 other schools were enlarged, improved, or furnished afresh; accommodation was created for 15,302 children, exclusive of the schools improved or newly furnished, but not enlarged. "The inspectors visited 12,950 schools, or departments of such schools under separate teachers. They found present in them 1,246,054 children, 11,266 certificated teachers, 933 assistant teachers, and 11,383 apprentices. Of the schools or departments, 2,282 were for boys only; 1,888 for girls only; in 5,858, boys and girls were instructed together; 1,707 were confined to infants (children under seven years of age); and 1,215 to night scholars. Of the children, 598,221 were males, and 547,834 were females. "The inspectors also visited 38 separate training colleges, occupied by 2,482 students in preparation for the office

of schoolmaster or schoolmistress. In December last these students, and 1,873 other candidates, were simultaneously examined for the end of the first or second year of their training, or for admission, or for certificates as acting teachers. The number of inspectors' assistants 14.

*Revised Code* "The past year may be regarded almost as the first which has been wholly subject to the influence of the Revised Code. That Code was not put into general operation before the latter part of 1863, and the first examinations held under it were nearly all we had to report on in 1864. The year 1865 compares not unfavourably with the two immediately preceding it.

Year ending 31st August.	NUMBER OF CHILDREN.		NUMBER OF CERTIFICATED TEACHERS.	
	Present at Inspection.	Increase on preceding Year.	Present at Inspection	Increase on preceding Year.
1863	1,092,741	35,315	9,481	582
1864	1,133,291	40,550	10,193	712
1865	1,246,055	112,764	11,266	1,073

"In this table every additional certificated teacher, except a few who are acting as second or third teachers in very large schools, represents a school brought, not only into receipt of annual grants towards its maintenance, but under the influence of annual inspection, and under those other conditions of efficiency on which an annual grant, or the amount of it, depends. The average number of scholars attending throughout the year is not more than two-thirds of the number which the schools, if all of them were quite full, might hold; but this average number falls, of course, considerably below the present number at particular times. In schools receiving annual grants, the average number of day scholars to each certificated teacher is 89.3, and of night scholars 3.1.

*School Examination* "A discreditable practice, of which Mr. Watkins complains, and of which instances have occurred in other districts, may thus, at least in some degree, be checked:—I have frequently observed with regret, in local newspapers, after the inspection of a school, flaming paragraphs about its results, that the inspector expressed himself highly pleased; that 'the examination was most satisfactory to the managers; that 'the attainments of the children were far above average; that 'all the questions were answered with rapidity and precision,' &c., when the inspector has never expressed an opinion on the subject, when the managers were not even present at the examination, and when the state of the school would be expressed by the word 'moderate,' a word well known and often used in such circumstances by the inspectors. I have sometimes thought that it would be right to notice such statements and show their untruth, but have concluded hitherto that it would be wiser to treat them as below notice, and as of no use towards the object for which they are framed. They can proceed only from one source, and certainly are not evidence of an improved standard of education in telling the simple truth. It would be well if some public and authoritative notice could be circulated every year of the state of schools under inspection, both as an encouragement to the good and a warning to bad schools. Local newspapers would for the most part, gladly publish such notice, and thus be the means of conveying very useful information to their readers.—*Eng. Educational Record.*

### 2. UNIVERSITY EXAMINATIONS FOR GIRLS.—LADIES' MEETING IN LEEDS.

The improvement of middle-class education has for some time occupied a large share of public attention. The great efforts made by our educational societies, assisted in many cases by State aid, to promote education among the manual labour class, have resulted in the production of schools in which the education given contrasts most favourably with that imparted in schools of far higher pretensions, and attended by scholars moving in a totally different social position. It cannot now be said that education is beyond the reach of the poor, but it is a just ground of complaint, that their children are receiving, as a class, an education superior to the children of their employers. So general has this complaint become, that a Royal Commission is occupied in making inquiry into the condition of middle-class schools, while teachers themselves are actively engaged in endeavouring to obtain a Registration Act, to protect themselves from the intrusion of charlatans. The Universities of Cambridge and Oxford are rendering great assistance to the movement, and by their scheme of annual local examinations, offer to teachers and parents a standard by which school-work may be impartially tested.

During the first few years these examinations were held, a popular feeling existed that teachers would neglect the greater part of their school in order to prepare clever boys for prizes and certificates. The contrary has been the case. An exceptional success

may attend a teacher who so acts, but continued success cannot be secured by such means.

The effect of the examinations is to introduce throughout schools a graduated programme of work not conceived by individual predilections, but devised by highly qualified members of our chief Universities. The benefit of the examinations is thus extended to those who are not candidates.

In consequence of the great success of the scheme as regards boys' schools, the Universities of Cambridge and Edinburgh have opened their examinations to girls. Last year, local examinations of the pupils of ladies' schools were held at Brighton, Bristol, Cambridge, Manchester, London, and Sheffield, and the testimony of the examiners respecting their value is most satisfactory.

Through the kindness of Dr. Heaton, a meeting of ladies resident in the chief towns of the Riding, and interested in the education of girls, was held at his house, Leeds, for the purpose of discussing the above subject, with Mr. J. G. Fitch, M.A., Assistant-Commissioner of the Schools Inquiry Royal Commission, Mr. Henry H. Sales, Hon. Secretary to the West Riding Educational Board, and Miss E. Davies, the authoress of many works on the social and intellectual advancement of women. After luncheon, the subject for consideration was introduced by Dr. Heaton, who remarked that, as regarded the University examinations of girls, they must all feel that a test of the efficiency of the instruction given in their schools was alike valuable to teachers and parents.

Mr. Fitch, who referred in some detail to the history of the University Local Examinations. They had originated about ten years ago, in a proposal made by the Rev. Dr. Temple, the present Head Master of Rugby, and Mr. T. D. Acland. It had long been felt by these gentlemen that it was in the power of the Universities to confer great advantages on others beside their own students, and to raise the tone of the general middle-class education in the country. The Universities had acquired, by long practice, experience of special value in the art of examining, and this experience it was proposed to make available for testing the work of schools.

After due deliberation, it was determined by Oxford to hold examinations at certain local centres, and on subjects which were generally taught in good schools. The first experiment was made in June, 1858; and by December of the same year the Cambridge Senate had organised a similar scheme of local examination. There was no rivalry between the two great Universities. They simply agreed to divide the work between them, and had ever since co-operated in the most friendly way. One or two slight practical differences, however, existed, and it was worth while to refer to them. Oxford conferred the title of A.A., or Associate in Arts, upon all candidates who successfully passed the Senior Examination; while Cambridge, though having come later into the field, and having thus had time to reconsider that part of the proposal, had determined on awarding no title, but simply on granting certificates to all who had passed. This distinction was, however, unimportant. It was not found, on the one hand, that the title of A.A. was in any danger of being confounded with the older and well-known distinctions of B.A. and M.A., which were of course still reserved for graduates. On the other hand, the Cambridge senior certificate was in no sense inferior in value to that of Oxford, although the latter conferred a title.

A more important distinction between the practice of the two Universities concerned the question of religion. Both Universities, of course, attached importance to this subject. But the Council of Oxford require that every candidate, unless his parents shall request, *conscientiæ causâ*, a special exemption, shall be examined in the Scriptures and in the Church Catechism, and no one is held to have satisfied the examiners unless he shall have passed in both subjects. On the other hand, Cambridge offers, besides the Scriptural examination, an alternative of two departments—the one consisting of the formularies of the Church of England, and the other of *Wheatley's Evidences* or *Paley's Horæ Paulinæ*. It was thus evident that a Nonconformist candidate, whose parents did not desire that he should be instructed in the creeds of the Church of England, was placed at a slight disadvantage at Oxford as compared with Cambridge.

The only other difference in procedure worth referring to was, that the Oxford examination takes place annually in June, and that of Cambridge in December. But in all other respects—in the age of the candidates, in the amount of the fee, in the range of the subjects, and in the general character of the examinations—the two Universities are practically at one.

It would not be necessary for his purpose to give the curriculum of both Universities, but it would suffice briefly to describe that of Cambridge. There were two examinations held simultaneously—the one for junior candidates below the age of sixteen, the other for seniors whose age did not exceed eighteen. Each of these examinations consisted of two parts—a preliminary portion, which included all the necessary or obligatory subjects, and a second part offering

a considerable range of choice to the candidate. Thus, at the junior examination, every candidate is required first, to read aloud, to write a passage from dictation, and to pass a simple elementary examination in English grammar, in arithmetic, in geography, and in history. After this, he is at liberty to select any of the following ten subjects, of which he may not attempt more than six, but he is required to satisfy the examiners in two, at least—religious knowledge, English language, Latin, Greek, French, German, pure mathematics, elementary mechanics, chemistry, zoology, and botany. There is also a further examination for those who choose to present themselves in drawing and music. A similar arrangement, *mutatis mutandis*, prevails at the senior examination. Here there is first, a preliminary or necessary part consisting of reading, English grammar and analysis, simple English composition, arithmetic, geography, and the outlines of English history. There are the nine optional sections, of which each candidate is required to take three, but is not permitted to take more than five. They are, religious knowledge, English history or literature, Latin or Greek, French or German, pure or applied mathematics, chemistry, natural science, drawing, and music. Under each of these heads details were given describing the nature of the examination, and the range and depth of knowledge, which it pre-supposed.

The advantages of the establishment of this system had been very marked, and its success during eight successive years, had fully realised the most earnest hopes of its promoters. He could testify that the influence of the whole scheme upon the schools which he had visited in Yorkshire and elsewhere had been most beneficial. There were exceptions, of course; but, as a rule, the schools whose names appeared in the class-lists of successful pupils were among the best and most hopeful schools in the district. And this was not to be wondered at, for a well-considered scheme of this kind was of especial value as a means of guidance and help to the teachers. There was no profession whose members were so isolated as that of the schoolmaster. There was none in which earnest men were trying experiments so much in the dark, in ignorance of what was being done by their brethren, and without the advantage of concert or comparison. Many of them went on from year to year, applying their own tests, comparing the work of one class with another, and of one half-year with the next; but, meanwhile, their standard might be unconsciously lowering itself, and their work be very unsatisfactory, because they had no external standard by which to measure its quality. The publication of the Cambridge curriculum showed to teachers what, in the opinion of the most eminent scholars in the country, a good school ought to do for boys of sixteen or eighteen; the publication of the questions and the class-lists served to show how much was actually done by the pupils of the best schools; while the annual report of the examiners, drawing attention to deficiencies, and pointing out how the methods of teaching particular subjects might be improved, were calculated to be especially helpful to all teachers who wished to understand their profession better, and to obtain higher results. And if the examination scheme had been useful to teachers, its influence had been still more potent upon the pupils. It supplied them with a motive for exertion, and with a definite object towards which to study. A further merit in the scheme was the wide range of choice which it left to the discretion of candidates and their teachers.

Nothing could well have been more mischievous than for the Universities to come before the schools of the country with a rigid and authoritative scheme of instruction, to which all were to conform alike. In the present state of our educational knowledge, we are far from being entitled to pronounce with clear decisiveness, what subject should and what should not be included in the mental training of young people; and, at least as a provisional measure, the wisest course seems to be to leave the largest liberty of choice to teachers, and to be ready to recognise intellectual excellence, in whatever form it may be attained. For, after all, it is not so much the thing learned, as the accuracy, thoroughness, and earnestness with which it is learned, on which the success and worthiness of a scheme of Education depend. And the Universities have from the first proceeded on this principle in regard to these local examinations. They prescribe nothing absolutely except those simple elementary matters about which every body is agreed,—the reading, writing, arithmetic, the grammar, geography, and history, which are included in every school, whether for boys or girls. Beyond this, they leave the learner to choose, or his teacher to choose for him, whether he will distinguish himself in literature, in science, in the knowledge of his own language, of the ancient or the modern languages, in drawing or in music.

And as the scheme was thus wise and comprehensive in its conception, it was not less remarkable for the perfect fairness and care with which it had been carried out. There are no bodies in the kingdom which could command the public confidence in the same way as the two great Universities. They had taken up the business of this middle-class examination with zeal, and had placed the



management of it in the hands of the most eminent men they could command. The examination was conducted entirely in writing. The papers were sent up to the University, and were placed in the hands of examiners, who had never seen the candidates, and did not even know their names. Every answer was carefully read, and a numerical estimate of its value was set down by the examiner. The whole of the marks thus obtained were afterwards added up, and the candidate's position in the list depended entirely upon the result of this process. All the precautions which long experience had taught the Universities to adopt in order to detect dishonest artifices, and to make the examination the best test of genuine acquirement were scrupulously carried out in the local examinations. Thus the public, as well as the scholastic profession, had the highest possible guarantee for the trustworthiness of the examinations.

It was not to be wondered at that the system had been received with great favour, and that a steady growth in the number of candidates should have been annually perceptible. In 1858 Cambridge had only 370 candidates, while the average of the first five years gives 715 per annum; but in 1865, there were in all 1,347 candidates for examination at the Cambridge examination in December, and this year no less than 1,224 candidates presented themselves in June to the Oxford examination.

It was not till 1863 that it was proposed to extend the advantages of these examinations to the pupils of girls schools. An influential committee consisting of many ladies and of some men of great political and social eminence, placed itself in communication with the governing bodies of the Universities, and sought to obtain their consent to the admission of girls. At first Cambridge yielded cautiously; and a sort of experimental examination was held in London at Christmas, 1863. 91 girls presented themselves, of whom 57 failed to reach the standard of the examiners. But this result, so far from discouraging the committee, only served to render more evident the need for some such measures of improvement. Further negotiation with the Cambridge syndicate led to more complete arrangements last year; and at six of the local centres, viz., Brighton, Bristol, Cambridge, Manchester, London, and Sheffield, girls were admitted at Christmas, 1865. The total number of female candidates was 130, of whom 76 presented themselves for the senior or higher examination.

Some passages from the report of the syndicate were then read:—"It is particularly satisfactory to remark that arithmetic, which in 1863 was so disastrous, especially to the seniors, of whom more than 90 per cent. were rejected in that subject alone, has this year been very successful. Indeed of the whole number of candidates no more than three failed in it. The total number rejected was 28 seniors and eight juniors." \* \* \* "In English the failures were remarkably few. The examiners all speak well of the work sent up. In dictation half the girls obtained full marks. In the preliminary geography, the examiner speaks well of their performances. In English grammar eleven out of the juniors got more than half-marks; and in English composition eight of the seniors more than three-quarters; fifteen, less than three-quarters and more than two-thirds; seventeen, from one-half to two-thirds of the marks. In English history about 37 per cent. of the girls got half marks or more. One obtained six-sevenths of the maximum number. The examiner thought the style of the girls' replies better than that of the boys. It was more straightforward and to the point, and there were fewer attempts at fine writing." \* \* \* "In political economy, of the seven girls who took it up, none failed; \* \* \* the average of their marks was about five per cent. higher than that of the boys. In Shakspeare the girls were very successful; one obtained the highest marks attained by any candidate in this subject." \* \* \* "One of the examiners in religious knowledge writes:—The answers of the girls were orderly and methodical, and the writing and expression good. The papers of many gave proofs of the care and ability on the part of both teacher and scholar." \* \* \* "Three junior girls attempted Latin. Of these none failed. Of nine seniors two failed. The examiners say that the papers were extremely creditable. They appear to have been struck with the accuracy and good taste of the translations. No girl attempted Greek." \* \* \* "Thirty-five students, of whom none failed; and sixty-five seniors, of whom seven failed, went in for French. Among the seniors the examiners observe little difference between boys and girls.

With regard to the juniors the examiner writes:—In the matter of grammar the girls are better than the boys. The former learn a French grammar, while the latter trust to their knowledge of Latin, which it is almost needless to say is often extremely defective. Five juniors of whom one, and nineteen seniors of whom two failed, tried German. Three juniors and eleven seniors succeeded in attaining marks of distinction. In drawing ten out of twenty four seniors, and four out of six juniors passed; three obtained marks of distinction. The girls have been more carefully selected than the boys. One of them excelled all other candidates in the colour

sketch, which was admirable, as was also her model drawing. Five juniors attempted music, of whom all passed, and twenty seniors of whom twelve passed.

With regard to the general result of the examination and to the interest taken in it by the girls, all the local examiners speak favourably. One writes:—I conducted the girls' examination in London. Everything went on quiet as regularly and quietly as at any examination at which I have ever been present. The girls seemed to take great interest in it, and worked at their papers in a very business-like way, and for the whole time allotted to them. I was quite struck with the easy way in which they bore the stress of the examination, I could not detect any flagging of interest in it, or any ill effect upon them whatever."

These extracts will suffice to show how far the experiment of last year succeeded, and they furnish an indication of the way in which the plan is likely to work, when it comes to be more generally extended to girls' schools. Indeed, there is nothing especially masculine either in the subjects of examination or in the nature of the test applied. There is no reason which justifies the introduction of this system for boys' schools which does not apply, at least with equal force, to those for the other sex. Governesses need quite as much as schoolmasters the help and guidance which are furnished by such a scheme. They are subject even to greater temptations to acquiesce in an inexact and superficial style of learning. For them and for their pupils the need of a thoroughly trustworthy external test of the value of the work they are doing, then, is peculiarly great. In the last years of a boys' school career he has many motives for diligence. He may be destined for the University. He may be entering on some one of the numerous careers in which young people are now confronted with trial examinations. At least he has the business of life before him; and he knows that all his culture and knowledge will come into play, and be roughly tested then. But a girl has, at present, no such motives to animate her to exertion. Society does not encourage her to suppose that school-learning has a very close relation to the life she is about to enter; and it oftens happens that from sixteen to eighteen her interest in learning slackens, and her reading becomes aimless and desultory. It is just at this moment when, if ever, the intellectual character of a girl is being formed for life, that the University examination would come in, as a motive for exertion, and a means of giving definiteness to her aims, and thoroughness to her methods of study. Moreover, there would not be the smallest reason to change the course of instruction already adopted in the best ladies' schools. It was a fortunate circumstance, that although the scheme of examination was determined on some years ago, before the admission of girls was ever contemplated, it is so comprehensive, both at Cambridge and at Oxford, that it includes every branch of instruction to which importance is attached by the most eminent teacher in ladies' colleges and schools. History, English literature, modern languages, drawing and music, and other subjects in which well instructed girls generally excel, receive quite as full and honourable recognition as classics, mathematics, and physical science. Fears had been sometimes expressed lest the adoption of such a system would produce unhealthy nervous excitement, and prove otherwise detrimental to the grace and modesty of the female character. But those fears were, he believed, unfounded. In the course of his inquiries for the Royal Commission, it had been his duty to examine the pupils in many ladies' schools; and he had always found that all nervousness and trepidation soon disappeared, when pupils were presented with questions on subjects which they had properly studied, and in which, by wise teaching, they had been led to feel interested. The imagination of a young girl was always active, and while a proposal of this sort was new and strange, the prospect of an examination was apt to seem formidable. But it was the duty of teachers to consider what would be the effect of such examinations when the novelty and strangeness should have worn off; and when pupils learned to look upon them as a natural and usual incident in their school career. He had no reason to suppose that girls were placed at any greater disadvantage than boys, when their knowledge came to be tested in writing. The University took the most careful precautions to secure the quietness and privacy of the examinations. At every local centre, at which girls were admitted, there was a committee of ladies who gave to the examiner the great advantage of their own help and presence. He knew that there were on the part of teachers many doubts, and not unreasonable misgivings on the whole subject, and it might well be admitted that there were many high qualities, and much of valuable educational influence which could not be tested by any examination, however good. But let them accept the scheme for such services as it was able to render, and not expect too much from it. It would increase the accuracy and the fulness of a learner's knowledge, it would induce more systematic and orderly habits of mind, it would encourage greater exertions, and it would enable teachers to measure better the worth of their own plans. Examinations have been long known to be the most efficient instruments for keeping up the standard of scholar-

ship in colleges and in schools. It was impossible to believe that they could prove less efficient in their application to girls' schools. They do not necessarily encourage cramming. If the student did her work hastily, or prepared herself for examination in an unsound or dishonest way, that was the fault of the teacher. Wise and watchful supervision would easily counteract all the evils incidental to examinations, and it should be the object of every teacher to get from them all the good she could obtain. A great difficulty, no doubt, existed in the general apathy of parents on the subject. Many parents professed to see no use in intellectual culture for their daughters, and only valued education for their sons in so far as it was likely to help them forward in the business of life. But every day this state of things was improving. An increasing number of people were ready to admit that all knowledge which enlarged a learner's capacity, and made him intellectually stronger and richer, was of importance, even though it might be turned to no visible account in the art of getting a living. He knew well that there were many of the teachers present whose schools he had visited, who had formed a very high and noble ideal of what education should be, and who were always striving to animate their pupils with a love of knowledge for its own sake, and with a desire to go beyond the meagre and pretentious rudiments which too often constituted the limits of feminine education. To such teachers the opening of the Cambridge examinations would be a great boon, and to such he very earnestly recommended the consideration of the whole subject.

A long and interesting discussion ensued, and the result of the meeting will be the formation of a committee consisting of influential ladies resident in the West Riding, to superintend the local examination of the University of Cambridge, which will be held in Leeds in December, in connection with the West Riding Educational Board.—*English Papers for the Schoolmaster.*

## V. Papers on Scientific Subjects.

### 1. OCEAN TELEGRAPHY.

The London *Times*, in an article on the Atlantic Cable, says:—The contents of a lady's thimble would hardly be expected to constitute a very powerful instrument.—They would scarcely have been thought capable of one of the most astonishing feats ever performed by science. The chairman, however, of the Atlantic Telegraph Co., tells us that this little instrument has actually achieved such a feat. By way of experiment, the engineer of the company joined the extremities of the two cables which now span the Atlantic, thus forming an immense loop line of 3,700 miles. He then put some acid in a lady's silver thimble, with bits of zinc and copper, and by this simple agency he succeeded in passing signals through the whole length in little more than a second of time.

A few years ago, how incredible such a statement would have sounded! It seems, indeed, that the simplicity of the fact has taken electricians by surprise. When a cable was first laid across the whole breadth of the Atlantic, it was anticipated that an unusually high power would be requisite to drive the current in sufficient force through such a length.

In the first instance, therefore, they used a battery with 50 cells, and afterwards they employed 500 cells. But this extraordinary power only injured the cable, and the company are now working between Valentia and Heart's Content with a battery of only 20 cells. It is, in fact, remarkable how very greatly the success of the present year has dissipated the supposed difficulties of distant or deep sea telegraphy.

### 2. CYCLONES OR CIRCULAR STORMS.

Cyclones are storms and hurricanes that, from their origin till their fury is expended, constantly, as they move forward, keep revolving. They are confined to certain well defined districts, and are met with at almost equally well ascertained periods of the year. Their presence is indicated by certain appearances of the sky, with a peculiar stillness and heat; but most noticeably by a very sudden and great fall of the barometer, and a rapid shifting round of the wind. First, through the condensation of vapours, a dark lofty wall of black dense cloud is seen. This cloud advances towards and closely surrounds the ship, and looks fearfully near, black and terrific. A strong squally wind carries over the vessel portions of this cloud torn and ragged; whilst the mass remains to mark the position of the storm. As the cyclone draws near a vessel, the barometer is remarkably high; but as the first half passes it falls, and rises as the second half goes by. The season of the year in which circular storms are prevalent is, in the North Atlantic, when the sun leaves the tropic of Cancer shortly after the summer solstice till he gets south of the equator, from July to October. In the Indian Ocean they occur at the corresponding period, from December to April.

As well as occurring at precise periods, they are confined to the neighbourhood of the West Indies, Bahamas, Florida, and United States: to the Bay of Bengal, Chinese Sea, and Indian Ocean, but never in the South Atlantic or Pacific Ocean. As they happen at the time of year above indicated, when the contest is raging between the trade winds and monsoons, and when the atmospheric equilibrium has been abnormally unsettled, a very plausible explanation of their origin has been given. At the time of the breaking up of the monsoons (or when the sun returns south) wind is coming, say from the south-west and north-west, they near each other and impinge one upon the other, and at this capricious season are met by a north-east wind, which immediately veers round, creating a revolution, and thereby causing a revolving storm. Taking this as the explanation, we shall see why they revolve from right to left in the northern hemisphere contrary to the hands of a watch. On the south of the equator the currents come from the opposite points, therefore the storm moves round and round, in its progress, from left to right. Knowing that cyclones thus move, mariners can tell how to avoid them. In the northern hemisphere, if the wind comes from the east, the ship is on the northern margin; if from the north, on the western; if from the west, on the southern; if from the south, on the eastern margin. The opposite rule applies to the southern hemisphere. The centre of the storm will, of course, be always at right angles to the wind. If the wind comes from the north the centre lies due east, if from south-east the centre lies south-west, and so on in the northern hemisphere. It is of vast importance to know this, for the central track of the storm is the most dangerous; if it be but known where that lies it will be the easier to scud away from it. The simple rule to avoid the storm track in the northern hemisphere is to keep the *wind* on the *starboard* side of the ship, and you will be sure to be sailing away from the point of greatest danger. In the southern hemisphere, keep the wind on the *port* side of the ship. If we look at the cyclones of the West Indies we shall find they originate in the North Atlantic Ocean, from three to six hundred miles off the coast of British Guiana, then run in a north-western direction across the Carribean Sea, St. Domingo, Jamaica, and Cuba, till they arrive at the latitude of Florida and the mouth of the Mississippi, when they curve round and run north-east along the shores of the United States towards Newfoundland; and having by that time expended their fury, they are lost in the Atlantic to the south and east of Newfoundland. Observe how science has taught man to temper danger; he can make even the hurricane to subserve his purpose, and carry him out of the ruin created by the storm itself. No science, depending upon constant observations, has made such rapid strides as meteorology. It is but still in its infancy; to confirm this we need but allude to the fearful cyclone which has just devastated Calcutta, and done such immense injury to shipping. Men of science are anxiously waiting to know how it is that the storm was so sudden, or, at least, to ascertain if men's eyes were open and proper precaution taken to meet the storm.—*H. E. in Papers for the Schoolmaster.*

### 3. THE RECENT HURRICANE.

If the route of the recent hurricane, or cyclone, which recently devastated the Bahamas, is even roughly traced, a general confirmation of the correctness of Reid's law of storms will readily be apparent. It was first heard of in the Bahamas, and then running north-east swept by Cape Hatteras and the Virginia Peaks, afterwards wheeling north to strike the Gulf shore and Newfoundland. Thence it continued its circling, and after probably, spending its fury in the interior of the northern part of the continent,—the Hudson's Bay was next heard of in the west, where only two or three days ago a strong gale from that direction was reported to be raging with great violence. Its footsteps were very clearly defined. It overturned houses and shipping in the Bahamas; sunk the "Evening Star," the "Daniel Webster," and the "Queen Victoria," and disabled a number of other steamers and ships off the North Carolina coast; did almost equal damage in the Gulf of St. Lawrence,—a French man-of-war, among other vessels, being wrecked off St. Pierre, Miquelon; and, finally, spent its rage on the country in the vicinity of Lake Erie, the waters of the outlet of which (the Niagara river) rose six feet higher than usual during its continuance.—*Montreal Gazette.*

### 4. THE CULLODEN HURRICANE.

This storm, so called from the name of the convoy of a fleet of merchantmen, occurred in March, 1809, off the Cape of Good Hope. A portion of the fleet ran in the hurricane for days; other vessels sailed into the vortex and foundered; some, by lying to, soon got out of its danger; while others, crossing the calm, in the centre of the circle, encountered a double storm blowing in opposite directions; there were other ships, which altogether escaped the storm by cruising beyond the great whirl.

4. ABSTRACT OF MONTHLY METEOROLOGICAL RESULTS, compiled from the Returns of the daily observations at seven Stations for August, 1866.

OBSERVERS.—Barrie—Rev. W. F. Checkley, B.A.; Belleville—A. Burdon, Esq.; Hamilton—A. Macaulay, Esq., B.A.; Pembroke—Alfred McClatchie, Esq., B.A.; Peterborough—Ivan O'Beirne, Esq.; Stratford—C. J. Mackreor, Esq., M.A.; Windsor—A. McSween, Esq., M.A.

Table with columns: STATION, North Latitude, West Longitude, Barometer at temperature of 32° Fahrenheit, Monthly Means (7 A.M., 1 P.M., 9 P.M.), Range (Greatest, Monthly), Monthly Means (7 A.M., 1 P.M., 9 P.M.), Daily Range (Greatest, Least, Date), High-Est. (Reading, Date), Lowest (Reading, Date), Warm-Est Day (Date, Mean Temp), Cold-Est Day (Date, Mean Temp), Monthly Means (7 A.M., 1 P.M., 9 P.M.), Tension of Vapour (7 A.M., 1 P.M., 9 P.M., Mean).

α Approximation. \* On Lake Simcoe. † On Lake Ontario. ‡ On Lake Ontario. § On Lake Ontario. ¶ On the Detroit River. \*\* On the Ottawa.

Table with columns: STATION, Humidity of Air (7 A.M., 1 P.M., 9 P.M., Mean), Winds (Surface Current, Number of Observations, Motion of Clouds), Estimated Velocity of Wind, Monthly Means (7 A.M., 1 P.M., 9 P.M., Mean), Amount of Cloudiness, Rain (Duration in hrs, No. Rainy Days, Depth in inches), Auroras (Class I, II, III, IV, Sky unfavorable, Zephyr unfavorable, Zephyr favorable, none seen), When Observed.

Velocity is estimated, 0 denoting calm or light air; 10 denoting very heavy hurricane.

c 10 denotes that the sky is covered with clouds; 0 denotes that the sky is quite clear of clouds.

R E M A R K S.

Observers are particularly requested to watch and report upon the Meteoric Shower on the night of the 13th or 14th November.

Barrie.—On 4th, meteors accompanying aurora. On 6th, lightning, Rain every day except 5th, 6th, 7th, 8th, 10th, 11th, 15th, 16th, 20th, 25th. Barometer very steady. Observation omitted at 9 p.m. on 25th. BELLEVILLE.—On 29th, dense fog in morning, lasting some hours, and clearing off about 8 a.m. Rain on 1st, 3rd, 4th, 6th, 8th, 9th, 12th, 13th, 14th, 18th, 19th, 22nd, 24th, 27th, 30th. HAMILTON.—On 12th, 13th, and morning of 14th, dense fog for about 60 hours; clouds began to break up about noon on 14th. On 13th, sunflowers in bloom. (Gales of wind on 1st, 2nd, 6th, 27th. On 23rd, hail at 6 p.m. for a few minutes. 24th, at 10.30 a.m., hail or very fine snow for a few minutes. 21st, dense fog. Rain on 1st, 2nd, 3rd, 8th, 12th, 13th, 19th, 21st, 23rd, 26th, 30th, 31st. It is feared that maize, potatoes, plums, apples and grapes, will not ripen well. PEMBERG.—On 14th, fog; lightning, thunder and rain. 16th, frost. There was frost two miles from Pembroke on the morning of 16th, 16th, and 17th; that of the 17th injured the crops, and was so severe twenty miles up the Ottawa that a considerable crust was formed on the ground. TWILIGHT: falling stars. 16th, falling stars. 19th, lightning. 20th, ob-

erved that swallows had left the town, but a few were seen about the back lakes on 31st. 21st, very perfect and bright rainbow at 6.30 p.m. double at north end. 22nd, very brilliant rainbow at 6.10 p.m., double from end to end, about 1 1/2 high, and extending from NNE to SE horizon. 23rd, very slight hoar frost, first of season. 26th (Sunday), halo round sun. 28th, lightning at NW horizon at 8.16 p.m. 30th, auroral twilight. 31st, fog in morning; faint auroral twilight about 8 p.m. Rain every day except 5th, 6th, 7th, 10th, 11th, 15th, 16th, 17th, 29th, 31st. SMOG.—Observations at this station not resumed till 14th August. On 17th an aurora of class IV. was seen for a short time. 21st, lightning thunder and rain at 9.30 p.m. 22nd, lightning, thunder and rain. 23rd, aurora, class IV. 24th, cold rain; hail about four miles hence. 25th, frost. 29th, aurora, class IV. Rain on 19th, 21st, 23rd, 24th, 26th, 30th. STRATFORD.—On 3rd, lightning and rain. 12th, thunder and rain. 14th, perfect primary and imperfect secondary rainbow at 7.45 p.m.;

lightning at 8.30 p.m. 16th, hoar frost, first of season. 17th, fog. 19th, thunder and rain; at 5.15 p.m. perfect primary rainbow; at 6 p.m. perfect primary and indistinct secondary rainbow. 20th, at 4.20 p.m., imperfect primary rainbow. Rain every day except 5th, 6th, 7th, 10th, 11th, 15th, 16th, 17th, 25th, 29th, 31st.

WINDSOR.—On 6th, meteor from Z to S; also on 12th. 14th, lightning, thunder and rain. 21st, lightning. Storms of wind on 1st, 14th, 15th, 16th, 20th. Rain on 1st, 3rd, 4th, 8th, 11th, 12th, 13th, 14th, 19th, 20th, 30th. Temperature for the month unusually low; the rains cold and drizzling, and quantity measured small in proportion.

## VI. Educational Intelligence.

— QUEEN'S UNIVERSITY.—At the Convocation of the University here yesterday, important statements were made in connection with the question of higher education. Principal Snodgrass referred to the legislation of the past session of the Provincial Legislature on this head; Professor Mowat delivered an address on the utility of classical and mathematical knowledge, and of the advantages derived from the pursuit of these studies as part of a liberal education; and Dr. Dickson of the medical faculty, entered at some length into an explanation of what had been done towards the advancement of professional education by the Council of Medical Education and Registration of Upper Canada, of which he is President. The question of medical education has been for some years past a very important topic of discussion both in and out of the medical profession of Great Britain. Lately the efforts of Dr. Parker and others to secure a transcript of the English Medical Act in Canada, having drawn public attention here to the same subject, while in the United States, the leaders of the medical profession, long conscious of the abuses which have sprung up with the multiplication of so called medical colleges in that country, are just now making a fresh effort at reform, and are embarked with the same earnestness that prevails in Great Britain and Canada into a consideration of the methods whereby improvements in professional educational status may be accomplished. This much is mentioned here not by way of adding to what Dr. Dickson stated yesterday, but to show that his remarks as a contribution to the general topic will have not merely a local or provincial concern, but must have a wider interest both in England and the United States. It certainly should concern the medical profession in Upper Canada very much to know that the President of their representative assembly is boldly in favor of a central examining body as a means of securing uniformity of qualification; but this view, we believe, is far in advance of what is agitated or has been accomplished in England, the amended Medical Act only setting up the Council as a registering and supervising body, but not interfering any further with the prescriptive rights of the examining corporations. We have gained the same distance by legislation in Canada; but now it appears the lead has been taken for measures of a nature to gain still more effectually the desired standard of uniformity below which no duly qualified practitioner may be deemed to stand. That this is an important matter for the public we have taken for granted, as it is quite obvious that the public which employs medical men must be interested in everything that can contribute to the strengthening of confidence in medical advisers, whilst the latter must be equally benefited by having the foundations of such confidence strengthened in the public. It is decidedly a public question, this matter of professional education, and we have so chosen to refer to it.—*Kingston Chronicle and News*.

— KNOX'S COLLEGE.—The services in connection with the opening of Knox's College, Toronto, took place in the hall of that institution on Wednesday at noon. There was a large attendance of ministers and adherents of the Canada Presbyterian Church, and conspicuous in the assemblage was a number of ladies, who graced the proceedings with their presence. The proceedings were opened by singing a portion of the 18th Paraphrase and prayer by the moderator of the Synod, Rev. David Inglis, of Hamilton, when the chairman introduced Professor Cavan, who was lately appointed to fill the chair of Exegetics in the College. The attendance at the College this year will be equal to any preceding one; but as the students sent forward by the Montreal board have not arrived, the exact number is not yet ascertained.—*Globe*.

— VICTORIA UNIVERSITY.—We are glad to learn from the Montreal papers that the French Canadian school of Medicine of Montreal has affiliated itself to Victoria University, Cobourg, from which institution its students will hereafter take their degree of M.B. or M.D. Victoria University is steadily growing in influence in spite of the somewhat embarrassing financial difficulties in which it was lately involved.—*Hamilton Spectator*.

## VII. Departmental Notices.

### GRAMMAR SCHOOL REGISTERS.

A new edition of the Grammar School Register is now ready for distribution. Copies of it (and of the Common School Register) will be sent to county clerks on their application—from whom Grammar School Trustees can obtain them.

### SCHOOL REGISTERS SUPPLIED THROUGH LOCAL SUPERINTENDENTS.

School Registers are supplied gratuitously, from the Department, to Common and Separate School Trustees in Cities, Towns, Villages and Townships by the County Clerk—through the local Superintendents. Application should therefore be made direct to the local Superintendents for them, and not to the Department.

### COMMON SCHOOL MANUAL FOR UPPER CANADA.

A copy of the last edition of the Common School Manual for Upper Canada, is supplied gratuitously to all new School Sections in Upper Canada. To other Sections the price is thirty-five (35) cents, inclusive of postage, which is now payable in advance.

All Local Superintendents retiring from office, are required by law to hand over to their successors the copies of the School Manual furnished to them by the Department, and all other official school documents in their possession. Extra copies of the Local Superintendent's Manual can be furnished for fifty (50) cents, including postage.

### PUBLIC LIBRARY BOOKS, MAPS, APPARATUS, AND SCHOOL PRIZE BOOKS.

The Chief Superintendent will add *one hundred per cent*, to any sum or sums, *not less than five dollars*, transmitted to the Department by Municipal and School Corporations, on behalf of Grammar and Common Schools; and forward Public Library Books, Prize Books, Maps, Apparatus, Charts, and Diagrams, to the value of the amount thus augmented, upon receiving a list of the articles required. In all cases it will be necessary for any person acting on behalf of the Municipal or Trustee Corporation, to enclose or present a written authority to do so, verified by the corporate seal of the Corporation. A selection of Maps, Apparatus, Library and Prize Books, &c., to be sent, can always be made by the Department, when so desired.

☞ Catalogues and Forms of Application furnished to School authorities on their application.

\* \* \* If Library and Prize Books be ordered, in addition to Maps and Apparatus, it will be NECESSARY FOR THE TRUSTEES TO SEND NOT LESS THAN *five dollars additional* for each class of books, &c., with the proper forms of application for each class.

☞ The *one hundred per cent*. will not be allowed on any sum less than *five dollars*. Text books cannot be furnished on the terms mentioned above: they must be paid for at the net catalogue prices.

### INDISTINCT POST MARKS.

In the course of the year, a number of letters are received, on which the post marks are very indistinct, or altogether omitted. These marks are often so important, that Postmasters would do well to see that the requirements of the Post-office Department, in relation to stamping the post-mark on letters is carefully attended to.

SHORT ADVERTISEMENTS inserted in the *Journal of Education* for 20 cents per line, which may be remitted in postage stamps or otherwise.

TERMS: For a single copy of the *Journal of Education*, \$1 per annum back vols., neatly stitched, supplied on the same terms. All subscriptions to commence with the January Number, and payment in advance must in all cases accompany the order. Single numbers, 10 cents each.

All communications to be addressed to J. GEORGE HODGINS, LL.B. *Education Office, Toronto*.