



THE
ELEMENTARY EDUCATION
QUESTION

AND

THE HALF-TIME SYSTEM.

BY

EDWIN CHADWICK, C.B.,
LATE COMMISSIONER OF ENQUIRY ON THE EMPLOYMENT
OF YOUNG PERSONS IN FACTORIES, &c.

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THE ELEMENTARY EDUCATION QUESTION.

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I REGRET that the weather and the state of my health prevented my attendance to take part in the discussion on the paper of Mr. Henry H. Cunynghame, read at the Society of Arts, "On the Uses, Objects, and Methods of Education in Elementary Schools," which stated the increasing needs of manual instruction, and described the tools requisite for applying it. Had I been present I would have recalled attention to the recent wide practical extensions, on the Continent as well as at home, of the principle of the half-time system of education, which the late Sir Henry Cole and the members of the Council joined with me in contending for its general application in England. I would now submit to attention a statement which I have made of the principle, as one of the alternative special remedies for altering the future condition and character of the population of Ireland.

On the failure of only long school time teaching and on the need of manual training on the principle of the half-time district schools.

The public educational functions, instead of being set aside as a detail of no material account and being relegated by party politicians to inferior hands, ought to be pressed for consideration as of the highest importance in its bearing on the early future of the people and of the realm. The result of the elementary education, such as it is now applied, yet gives three and four times more of illiterates on the electoral lists of large districts in Ireland than in England. In the United States the illiterates are found to be elements of local disorder and political corruption, so that in those States the chief special agitation is directed to their disfranchisement. The conclusion there is that sound education is requisite for the safe exercise of the local

and general franchise. The common teaching service for Ireland is weaker than in Scotland or than in England by upwards of one-third as to salaries, with inferior residences commonly in bad sanitary conditions, which lead the best trained teachers to leave that service for the better pay of commercial service. An Imperial policy would apply instead of the least the greatest power of teaching and training to the worst educated and the most depressed districts. The power of physical training, of exercises developing the mental qualities implied in the term discipline, patience, self-restraint, restraint of passionate impulse, and prompt obedience to command and order will be found displayed in the outcome by Irish children in the Royal Military Asylum at Dublin. I have not the last return, but I give the following, a former return of the outcome of the School at Dublin, which continues, I believe, to yield much the same results of physical and mental training on the half-time principle upon the former waifs and strays, as vagrants and mendicants in the streets:—

Examples of the powers of half-time teaching in Ireland.

RANK OBTAINED.

Commissioned Officers	...	...	...	6
Staff Sergeants	...	...	...	2
Colour Sergeants	...	...	...	5
Band Masters	...	...	...	2
Sergeants	...	...	...	35
Drum and Trumpet Majors	...	...	...	10
Corporals and Bombardiers	...	...	...	42
Drummers	...	...	...	164
Privates	...	...	...	255
Total	...	...	...	521

CHARACTER.

Exemplary	...	...	...	28
Very good	...	...	...	149
Good	...	...	...	304
Indifferent	...	...	...	31
Bad	...	...	...	12
Very bad	...	...	...	0
				524

Under the old parochial administration, only a small percentage of the children of any age got into the most inferior service. It appears from the report of the late Commission of Inquiry on the working of the Industrial and Reformatory Institutions, all of which are on the half-time principle, that of the children who are taken in at advanced and hardened periods of life, on an average 80

per cent. are "got to the good," and that more would be got to the good if they were not taken away by vicious parents, who continue them in their old courses.

Similar outcomes are displayed in the district pauper half-time schools, and in district schools in England and in Wales, imparting to two the efficiency and value of three in aptitude for civil occupations of the former waifs and strays, hereditary mendicants, and delinquents; and thus is produced a large proportion of foremen and mechanics with aptitudes for the increasing demands of service in conducting and supervising machinery.

Such are the results produced by physical and industrial training on the half school time principle on children who are subjected to it, at late and hardened periods of infant life, as eight or ten years or more!

Sir Philip Magnus, in an article on manual training in school education in the *Contemporary Review* for October, quotes Mr. Swire Smith, a member of the late Commission on Technical Instruction, who states "that the half-time children of the town of Keighley, numbering from 1,500 to 2,000, although they receive less than fourteen hours of instruction per week, and are required to attend the factory for twenty-eight hours in addition; yet obtain at the examinations a higher per-centage of passes than the average of children throughout the whole country receiving double the amount of schooling." Similar experiences may be cited from Ireland. In the district schools, where they receive orphans who have been trained in the Board schools, they always find their mental training below that of the half-time children. Sir Philip presents the experience as new—as it doubtless is to him—but he might have found that the like experiences had been developed at the Central District School of the City of London itself a quarter of a century ago, and was displayed in evidence before the Commission of Elementary Education in 1861, and in repeated demonstrations that the long-time teaching is in violation of the laws of physiology, and also of the laws of psychology. Such recently awakened attention to the subject may, however, be welcomed.*

Equal literary attainments of half-time teaching.

Condemnation of the long-time system of the code by school teachers

*Complaints are made, by head teachers of the half-time schools, that the subject of physical and industrial training and the interests of the poor in it have been excluded from the recently-appointed Commission of Inquiry into elementary teaching, and that this has been done apparently in the interests of the Educa-

Origin of half school time system.

This half-time system was introduced by myself and my colleagues under our Commission of 1833 on the Employment of Young Persons in Factories. It was devised chiefly for the protection of children against over bodily work, and also to serve for protection against over, as well as under, mental work, in which it has been, when properly administered, eminently successful, as well as in

tional Department, in the maintenance of its Code, and of its long-time system. The question of the extension of physical and industrial training upon the half-time system will, however, require very distinct examination and treatment, especially in its economical aspect. As to the long-time system under the Code, the great body of the school teachers are very unanimous in its condemnation. Mr. W. J. Pope, President of the Metropolitan Board Teachers' Association, at a crowded meeting of that body held the other day, said:—"I contend that not one-half the real educational work is being done that might be done. I contend that, as one of your former presidents said, we ought not to be engaged for 75 per cent. of our time in urging on, worrying, and overpressing 10 per cent. of our scholars. I contend that teachers are not happy in their work, and I make bold to say that the British taxpayer does not get full value, nor anything like it, for his money. . . . Summing up against our present system, I charge against the Education Code that it cramps—in fact, prevents—education. I charge against it that it is responsible for the fact that only 4 per cent. of those who leave our schools continue their education in night schools. I charge against it that in crushing out the individuality of the teacher it is responsible for one-half the truancy which goes on. I charge against it that owing to it one-half of the education vote is practically wasted; and, far above all, I charge against it that it tempts the teacher to do wrong. To some of us it is known that, under its percentage and reporting influence, many of our weaker brethren often fall. The Code makes it to their advantage to refuse admission to the backward, to work out those who become backward, and to do a hundred and one other things which the uninitiated know not of. The Code, in fact, is a temptation to do evil, and through it the honest teacher is placed at a great disadvantage." Turning to the subject of discipline, Mr. Pope remarked, "To such a pass was juvenile rowdyism then come—four years ago—that, as your President, I felt compelled to say that the time was fast coming when the discipline of schools would concern other than teachers. . . . Since then, the London rough has had his amusement with the West-end shops and clubs, and the 'Board Teacher' has shown that the majority of the rowdies had been brought up under the sentimental influence of the Code and School Boards. Obedience to the law," continued Mr. Pope, "lies at the foundation of all good character and all true prosperity, and if it be not required in the schoolroom we cannot expect our children to become good citizens. I am of opinion that the majority of our scholars may be guided by love and reason." This address was received by the meeting with loud acclamations of approval.

maintaining juvenile earnings. It is now made the basis of the education in the Army and Navy schools, and in district poor-law schools, and industrial and reformatory schools, comprising upwards of fifty thousand schools in which there is physical training. It is in the course of extension in Germany and in France. In his recent report on the elementary education on the Continent Mr. Matthew Arnold states that "there are now 2,989 half-day schools in Prussia in which all the children have but half a day's schooling." "It is found that the rural population greatly preferred the half-day school, as it is called, for all the children, because they had thus the elder children at their disposal for half the day," *i.e.*, for remunerative employments. But Mr. Arnold appears not to have been informed that, notwithstanding the excellence of the long time elementary teaching there, it fails to reduce the amount of crime, which is much greater in Germany and Berlin, and in France than in this country, and that the same long time as it fails also here;—but that the physical and industrial training here, which augments the capability of the immediate earning of good wages, reduces crime everywhere effectively, and it is the only system of elementary training of which I have heard that does so. An arrangement may be made for that method of teaching for the Roman Catholic children of Ireland as they have in England. The results obtained in the reformatory and industrial schools in Ireland, as reported by the late Sir John Lentaigne, are in satisfactory analogy with those obtained in some institutions in England. The educational change required may be desired solely on the grounds of the economy of the service. In the organisation of schools on a large scale there is a gain of educational power from better classification for some simultaneous class teaching, with a better paid and more highly qualified staff, and more speedy results at a lower cost. In the average small school of 100, with a master and mistress at £100 per annum, the instruction can only be given at an annual cost of £1 10s. per head, or at a total cost for six years of £9 per head; whilst in the larger school of 700, with a staff of teachers and a female teacher at £240, the cost of the teaching power is reduced to £1 per head, and the work is accomplished in from three to four years at a total cost of £4 per head. In the large half-time schools the same buildings, with the same staff, may be made to accommodate double sets of half-timers on the same day.

Failures of long time dogmatic teaching to reduce crime.

Superior economy of teaching power on the half time system.

In the larger district schools the cost of the physical and industrial training, as well as the mental training power, is from £1 5s. to £1 10s. per head of the pupils as against £2 5s. per head of the common long-time Board Schools.

This would make a saving of a million and a quarter of the school rates, a very material economy to the ratepayer, but the largest economy to the wage classes will be in the augmentation of the earning power and value of their children by improved physical and industrial training, and by the earliest release from school for the application of that earning power for self-support.

Testimony to the change of the character of a nation that may be effected by it.

Sir John Lentaigne, in his report for 1882, declares that the statistics for those of Ireland "show how completely the character of a nation can be changed by judicious legislation applied to the proper training and treatment of the young." This independent opinion is in accordance with my conclusions enunciated some years ago from the independent experience of England of the power of mixed physical and mental training for early changing the character of a nation.

The last report of the Children's Aid Society of New York, which feeds and educates upwards of eleven thousand children, the waifs and strays of that city (where they have been obliged to adopt the half-time system), shows that children are sent to their schools who could not bear the long-time schools, and that the reductions of crime by the physical and industrial training are as great there as they are here. The system, it is submitted, may be recommended for application to the Colonies.

I will here, however, submit more fully the evidence on the social effects obtainable by training on principle. School teachers of the widest experience in the training in order and discipline on this special half time system declare, that of "pure orphans," of Irish parents whom they have had to train from the earliest infancy on the half-time principle, that it goes far to remove racial differences, and that when they get "pure orphans," that is infants taken immediately from the mother's breast, they do not observe any difference between their outcome and that of other orphan children in their institutions. It is greatly to be regretted that the late Premier and members of Parliament generally should be unaware, as they appear to be, of the vast importance, sanitary and mental, as well as economical, of this factor of physical training; and of the

Experiences of English teachers as to the changes effected by it.

possibility of making by its vigorous and general application a large and beneficent alteration in the conditions of society within early experience—that they should be unaware that by it the parent belonging to the wage classes would have conferred upon him a greater boon by the increased value of his children in the labour market than by any of the political privileges with which it is proposed to endow his generally poor, blind, ignorant and credulity. We have found it rare to get any of such legislators to go and see and understand the processes by which the results specified are obtained, together with the almost entire banishment of "children's diseases."

In the "Memoirs" of Lord Shaftesbury, vol. ii. p. 129, it is stated that two days before he left the House of Commons in 1846, he read the remarks of the Committee of Operative Spinners, who had hitherto been extremely opposed to the clause which limited the labour of children to half time, but having made inquiries all over the country, it was found that by the measure which reduced the working time to six hours in the day, with enactments for education, their physical and moral condition had been improved to such an extent "that they do not appear to be the same race of beings." The perception on the part of that class is valuable, but it is common with others that the system does actually effect a social change, and this is only now beginning to be perceived. But it was due to have mentioned, and it probably was mentioned, that the provision was beyond the scope of the movers of the Ten Hours Bill, and was the work of my colleagues of the Factory Commission of Inquiry, together with sanitary provisions and securities for the execution of the law, and for the due protection of the workpeople by skilled agents acting under central direction. This was, indeed, the first new "centralisation for the people," and which was afterwards extended to the mining and other branches of labour.

Error as to the origin of the system.

Declaration of mothers that it made their children as of another race.

The great failure of our national system of instruction requiring the foremost consideration is then the common failure in respect to physical and industrial training.

The public, the members of the Legislature, and the Government, have to be informed of the great extent of the preventive service needed for education, to cultivate the development of that soundness of the body which is necessary for the maintenance of soundness of the mind. On the examination of the School Board children in an urban district by a competent health officer, only a minority

Increasing need of early physical training for the removal of bodily defects.

of the children are found to be passably free from bodily defects.

Lieutenant-Colonel Moody, of the Recruiting Service, states in his last report that 428 out of every thousand of recruits applying for enlistment were rejected on grounds of bodily unfitness for Her Majesty's service. Let the trades unionists consider that this extent of unfitness for military service represents a greater amount of defects amongst children and persons of their own class, that renders them less fit for the endurance of productive labour, and of wages for it in the Civil Service. There are, however, other largely increasing demands for the sanitary service, of prevention in the juvenile stages, which I shall describe hereafter. In the last census for the United Kingdom there is an enumeration of 30,000 blind. By Mr. Brudenell Carter, by Dr. Roth, and other specialists it is held that, by competent attention in the infantile or elementary school stages, a large amount of this suffering—some go so far as to assert two-thirds—may be prevented. By the Census there are in the United Kingdom 112,000 lunatics. Physicians, heads of the lunatic asylums, declare that, as a class, the insane are of very low physique, and that by early physical training a large proportion of this calamity may be averted. From the late Dr. Guy, who was for a long time the Chief Physician of the Prisons Department, I received a letter of reminder that it might not be overlooked that, as a class, the population of the prisons (amounting to 28,000, and 47,000 at large, who chiefly keep up that population) is of low physical and low mental condition; and that a great deal of punishment is, in fact, inflicted, on conditions almost of insanity, which early and good physical training would largely reduce. Instead of sending out children in ordinary life, with only mental training, and therefore with hands and arms only fitted for picking and stealing, they are sent out with arms and hands fitted by physical training, and with practical intelligence for productive industry, and advanced wages. Never hitherto have such successful preventives of criminality been applied, as by those half-time schools; and with hardened subjects from the industrial and reformatory schools, the late able Inspector of Schools, Mr. Carlton Tufnell, said, "Give us the children of hereditary beggars and of hereditary delinquents, and we can confidently undertake by these institutions to do, instead of turning out roughs, as it is proved, and as Mr. Pope complains the Board Schools now do

largely." From some returns which I obtained from the police of the City of London and Liverpool, it appeared that those between thirteen and sixteen, apprehended for larceny, vagrancy, and assaults, had been in schools, the males as long as three years, and the females six years. They must have been pupils of the long-time schools. Captain Rowland Brookes, of the Feltham half-time Industrial Schools, stated that he received children from the long-time schools, who were destitute of manual training, with hands and arms enervated and fitted only for picking and stealing, but by about two years of manual training they had at the late and hardened period imparted to them capacity and aptitude for industrious occupations, and at this stage 85 per cent. were got to the good, chiefly with farmers in Wales. The outcome from effective half-time schools is of a superior class of children. In our regulations of the duties of Officers of Health from our first general Board of Health, we provided for the regular inspection of the children of schools, who in course of time would have the attendance of Sanitary Inspectors, who, under direction, on the detection of the premonitory symptoms of any infectious disease, would take the children home and see to the fitness of the conditions there for the sure prevention of the disease. We also provided for the like sanitary inspection of the people and the places of their work. Under the Factories Commission we contemplated that the inspection which we recommended should be a sanitary inspection by a health officer; but at that time it must be said that only curative service was available, and that qualifications for sanitary service, or preventive service proper had to be created even for superior positions. These several inspectorial services are services for which qualifications are now only provided for by the Sanitary Institute and other voluntary institutions.

But having regard to the increasing evidence of the wide-spread defects amongst the population above enumerated requiring preventive service, an example of a better and closer provision, for it has been started at Sweden which claims attention, which it is now receiving on the Continent, in Germany, in Holland, and in Belgium. At Stockholm every child on its admission to school is diagnosed by a first-class specialist in sanitation, who writes a prescription for the remedy of any special defect he may find as beyond the ordinary preventive exercises. A child, say, is very flat chested, and he prescribes an

Example of a special physical training service.

extra dose of those exercises which open the chest, and he gives the prescription to an appointed specialist, who is charged to see constantly to its due application. This lead of Sweden in this branch of preventive sanitation is now being followed in other States on the Continent and in Belgium, especially at Brussels.

It may be proposed, as a first step, to recommend to the Government for the appointment of a college for the physical training of boys and one for girls, commensurate with the colleges for mental training, but distinct from them, and under the preventive health service. The large economies obtainable from the adoption of the half-time system would amply suffice for the complete general reorganisation of the teaching and training power on that principle.

Saving available of the injurious waste of time in long time schools.

But there are large economies and improvements proved to be practicable in the present system of mental training. School teachers have declared that if they were left to their own devices they would save two years of school life to every child; that is to say, that under the present administration of the long-time system upwards of four millions of children brought into the schools are subjected to eight millions of years of worry and of misused time, and the ratepayers two years of wasted rates. Whatsoever these school teachers' devices may be, it is proved that superior and efficient school time does save two years of school time. It is reported that in the United States there is a course of economy in progress, by the correction of the wild waste of time prevalent here, by teaching "something about everything," which is corrected there by teaching "everything about something." By the Gotha method, described by Miss Clough, of teaching reading and writing at the same time, half the time now expended in the acquisition of these accomplishments is saved. School teachers declare that if they were allowed at the commencement to teach arithmetic on the decimal system they would save half the time now consumed in that accomplishment, and would impart a better habit of mind. Strenuous effort is required for the reduction of the evils of the common long-time school teaching, which is proved to be in violation of the principles of psychology and physiology. An important substitution, of the concrete and the entertaining, for the abstract, the difficult, and the repulsive, which men of the cloister persist in injuriously forcing, has been made by Mrs. E. S. Briant, of New York, which

Substitution of the concrete and entertaining for the abstract and repulsive in infant school teaching.

she calls "the Farmgarten," in which the children are taught the operations of agriculture, preparing the soil, putting in the seed, and reaping the fruit, to song, with which the children are highly gratified. A dairy farm may be formed with toy cows, and the operations of interest to song may be formed for the girls. Teaching on the same important principle has been wrought out by Miss Huntington, of New York, under the name of the "Kitchengarten," in which the children lay out and remove toy furniture, and cleanse the rooms with toy brooms, and perform household operations, to song, with which they are greatly delighted. The principle has also been systematised by Miss Haddon, of Bullo, Newton-on-Severn, and is supported by Earl Fortescue, Lady Louisa Egerton, Lady Mount Temple, and a number of other ladies for instruction, as part of the system in the large District and Board schools. Music is generally adopted simply as a means of amusement, for which it has much value, but it requires to be skilfully applied as an important factor in sanitation. The Hon. John Eaton, the able Chief Commissioner of the Education Department of the United States, concludes his review of the practice of music in elementary education in these terms, in which I concur, "that a correct philosophy of music is able to adapt its instructions to the lowest condition of mind, and it illustrates to me, with tremendous force, the point that musical instruction should begin with the youngest and smallest child, and can then begin with eminent success." General instruction should be confined to lessons which sustain attention by their own interest, and for no longer than they do so. Examinations should be made of the outcomes in after life of the systems of school instruction, and should be divested of all that is found to be of no use or benefit.

Much saving of time may be accomplished in the most formative stage of life—the infantile stage—by saving the time of spelling by the adoption of the Gotha method, as expounded by Miss Clough, the head of the Newnham College, Cambridge, and also by weeding out all double-sounding letters, and by postponing the further requisite labour of spelling to a later period of schooling. Queen Elizabeth did not know how to spell, and spelt the word sovereign in eight different ways. The spelling of Frederick the Great was scandalous, and so was that of Marlborough and the First Napoleon, and even Lord Macaulay was an eminently bad speller. Then

Weeding out all double-sounding letters in the infant school stages.

why should little Hodge in early infancy be subjected to the plague of spelling with double-sounding letters which perplex adult foreigners so much, or, indeed, with the plague of learning grammar. Prince Bismarck, who is eminent in putting States together, is reported to be very bad in his grammar and in putting abstractions of speech together. At the Educational Congress a professor from Belgium showed that to put parts of a box together and make them fit was a far better mental exercise than putting scholastic abstractions together and making them fit.

Substitution of a leaving examination as in Germany for repeated useless examinations.

There is great waste of time and of money to the teachers by the annual examinations which govern the whole course of the education perniciously in preparing for them. I have proposed, as a substitute, the system of the leaving examination, as in Germany, of which Mr. Mathew Arnold has reported favourably. It would be the substitution of one examination, a complete examination of the individual pupil, for five. I put it for Mr. Mundella what he would think of a Government department which in ordering cloth required that there should be an official examination of the wool when it was bleached, one when it was spun, one when it was woven, and one when it was dyed, instead of being contented with one examination, a thorough leaving examination on the completion of the commodity?

School teaching to be accommodated and directed to productive industry; not industry to the school

Instead of sacrificing the productive power of children, as men of the cloister would do, by keeping them in school solely at mental work for long hours of the day and for long periods of years beyond their proved mental receptivity, the interests of the school should be "sacrificed" by careful direction and accommodated to the practical industrial needs of the field or the workshop. Enquiries should be made of the workfinders as to the outcome, as to what more of teaching is wanted there, and as to what of that now exacted may be dispensed with as fruitless.

Distinct classes to be provided for primary and secondary training.

On an examination of the outside social economic conditions, two large lines of school service are deducible for primary and for secondary education to be provided for distinctly. It will be found that parents of the wage classes cannot afford to keep the big children beyond ten years and a half without full wages for their self-support. In the district half-time schools they are sent out, by their twelfth or thirteenth year, to places in which they now earn 11s. and 12s. per week. But with children of a better type than the orphan

children of those institutions, and with the primary education of the infant schools, the physical and industrial education required, including the important industrial accomplishments of free-hand drawing, may be completed, for the self-support required by one or two years earlier or by about ten years and a half. But the foreman, the bailiff, or a person of the middle-class condition may afford to keep his child at school two or three years longer, at his own expense, for the acquisition of a secondary education, in which time, besides advanced practical science, may be included the acquisition of two modern languages—the French and the German. The boy of the wage classes, who may need them hereafter, may acquire these accomplishments at night schools or fitting institutions.

I have made inquiries myself into the educational outcomes and as to their success or failure. On the occasion of a visit to Rochdale, I was informed of one manufacturer who employed great numbers of persons, who had upon experience come to refuse to employ any but half-timers when he could get them for his service. I went with my friend, Canon Molesworth, to learn more particularly as to the qualities which the manufacturer found from experience for his preference of the half-timers. He said he knew nothing of systems of instruction, but he found from experience that in his manufactory the half-timers had a greater aptitude for learning and for doing whatever they were put to do than he could get elsewhere. "Now," said the manufacturer, "I do not know your sons, but presuming that they are like the sons of gentlemen of your class; if you were each to bring me one and offer to me a premium with him, I would not take him. I prefer taking the half-timers for nothing. I know, from experience, how inapt are the boys of your class to learn—how troublesome they are to teach. You have almost to stand over them to guide their pens." I know from other manufacturers that they do not care to have gentlemen's sons with premiums, as they rarely find them to answer, or to pay for the trouble taken with them.

This is a state of things very little satisfactory to parents who have been paying between one and two hundred pounds a year for the education of their sons. In the interest of the question I have made inquiries, solitarily as far as I know, into the outcome of that superior education which is considered as the source of qualification in the Universities for framing

Failure of first class classical schools for scientific or industrial service.

and directing as Commissioners or Inspectors for the direction of the inferior elementary education. I made inquiries of the manager of one great commercial concern which has an annual "turn-over" of some five and six millions, and which employs some 180 clerks, whether he had any of superior education from the Universities. "Yes," he said, "we have some that have been pressed upon us, but they don't answer for us at all." Why? "Their handwriting is such a scribble-scrabble that it does not suit for our bookkeeping. In the next place, their cyphering is so inferior. They have to relearn it. Then we were told that they had learned French and German, but what it turned out was so indifferent that they could not write the commercial letters in those languages we wanted."

Particulars of their failure.

I was elsewhere informed generally of the outcome in the City, that the evil of patronage appointments of this class that were pressed upon mercantile institutions, that their inaptitude was so great, that to shelter themselves the managers had recourse to the principle of special competitive examination to test the qualifications for first appointments, as is now done with the Military and Civil Service of the country. Mr. Walter Wren, one of the most successful of the preparers for the competitions for the scientific corps, declares that the deficiency of the education given at Eton, Harrow, and Rugby is so great that it puts parents to the expense of a year and a half's preparation, which is mainly in supplying the defaults of the common elementary education which ought to have been imparted at preparatory schools. In examining further, the moral outcome of these schools are tainted to an extent which need not be described. On the examination of the outcome of the long-time elementary schools, they will be found to be fraught with serious defects, which at this time claim serious consideration for the relief of the poor distressed rich. The ranks everywhere greatly prefer, *ceteris paribus*, as capitalists do for moral and social trustworthiness, the leadership of persons of superior social condition to their own.

Moral failures of long-time elementary teaching.

Beyond the range of cases provided for by penal administration, large moral defects are charged as extensively and deplorably prevalent amongst the wage classes, which a good education ought to correct, and which in particular instances it does correct. It was declared of them by the late Mr. John Stuart Mill that the great body of them are "inveterate liars." They are also charged with extensive

untrustworthiness in the performance of implied contracts for service, the observance of which is conducive to their own special interests. Such default is displayed in strikes for the advance of wages, the effect of which is to strip contractors of the profits, which was the motive to make the advances of capital necessary to the payment of wages and the performance of the contract. A recent example—common in this country—is presented in this form in the United States:—"The estimated loss by the railroad strike at the South West Railroad of the United States appears, upon investigation, to be to the strikers 900,000 dollars; to the men who did not strike, but were thrown out of work by it, 500,000 dollars, and the loss to the Missouri and Pacific Railway 2,800,000 dollars. The total ascertainable loss by the strike was 4,200,000 dollars. The loss to the public through the stoppage or derangement of business is not ascertainable, though it is estimated at millions of dollars. It must be remembered, too, that the leader and author of all this mischief, Martin Irons, was, and is now, literally a drunken vagabond" (the *Nation*, March 10, 1887). So frequent is such intellectual and moral default as to make it necessary for the work-finders, the contractors for large works, to insert saving clauses in "time contracts," that they shall not be liable for a breach of contract occasioned by any strike of the workmen. The effect of such defaults is to discourage advances of capital and to obstruct the progress of large works and manufactures, and eventually to reduce the demand for labour and the legitimate advance of wages. Another common defect denoting unintelligence and defect of intellectual and moral education is the untrustworthiness displayed in the extensive habit of scamping work. This has led to a maxim, that if any underground and concealed work is left unsupervised it is sure to be found to have been scamped. This has been displayed to a deplorable extent in sanitary work. Good plans have been provided for house drainage works and town sewerage works, but after their completion fever has broken out, and when an examination is made it appears that the work has been scamped, the joints of the drains badly made, that the site has been supersaturated and excrement-sodden from the escape of that which should have been removed. Whole districts have been kept afflicted by the scamping and bad execution of well-planned works. In one district as much as 60 per cent. of the new houses have been found to be badly drained

from scamped work. To correct such default it is found to be necessary to provide expensive superintendence, never to be absent, to secure work being properly done. All this extensive untrustworthiness denotes unintelligence and a want of perception and of action on the common maxim that "honesty is the best policy," which good education and training should cure, and which does so with some distinct classes. It is due, however, to state that the moral defects are not confined to the wage classes, but are extensively displayed amongst the middle classes by the manufacture and sales of adulterated foods requiring expensive preventive checks, and by the manufacture and distribution of goods of short weight.

OVER-PRESSURE IN SCHOOLS UNDER THE CODE.

I have cited it as an educational principle as old as Quintilian, that "Quidequid recipitur, recipitur ad modum recipientis" (You must know the capacity of the recipient, and obtain the knowledge by testing it practically). But this knowledge is generally neglected, as displayed in the formation of the educational codes. To display the effect in the extent of actual over-pressure I have taken the following examination and the evidence of experienced teachers in one school, and those have been corroborated in the Board schools at Manchester and elsewhere with little variations of the mental capacities of the different classes and conditions of the children taught. It will be found that, with due attention to these conditions, over-pressure may be entirely prevented, the whole quality of the teaching may be greatly improved, the time and expense may be greatly reduced, and the service of the teachers alleviated and their conditions advanced.

Fundamental defects of the long-time system under the code in not providing for different orders of mental receptivity.

Charles Roach, pupil-teacher in the Mortlake school:

Examples of evidence.

How long have you been in school?

Thirteen years.

In more than one school?

In three schools. Four years in a rural school of 130 children in Lincolnshire; six years in a rural school in Wiltshire, close to Marlborough; and three years here at Mortlake, where I have been during that three years a pupil-teacher.

Your school-life and service will have given you a knowledge of the different mental receptivities of different classes of children. What may have been your observations of the differences in that respect of variations of children in the same classes? Of what class of society were they in the three schools?

In Lincolnshire and in Wiltshire they were chiefly agricultural labourers' children. Here, at Mortlake, the majority are of the middle-class children, most of them tradesmen's children.

Between the agricultural labourers' children of Lincolnshire and those of Wiltshire what differences did you observe?

The children of Lincolnshire were much sharper than the children of the Wiltshire labourers.

Examples of racial differences in receptivity.

School teachers serving in Lancashire who have served in schools in the southern counties have stated that they

found the receptivity of the children in Lancashire to be as at about three to two as compared with those of the southern counties. What difference did you observe between the agricultural labourers' children in Wiltshire as compared with those of Lincolnshire?

I should say about the same difference as those of Lancashire, about three to two.

How do you find the children here as to receptivity?

I consider them sharp. The labourers' children here I consider to be nearer to the Lincolnshire children than the Wiltshire children.

Between the labourers' children here and the shopkeepers' children what difference in receptivity do you find?

I should say that the difference between the shopkeepers' children would be about as four to three.

In the labourers' children of about the same ages in your class what differences do you find in receptivity?

Differences of about three to two.

And of the shopkeepers' children? About the same.

You have been asked to state your experiences as to the differences of receptivity of the children in the class of 46 under your charge. Now if those differences of capacity be stated, as of quarts and pints and half-pints, would that serve as a means of a fairly clear distribution?

Yes. To me it does, clearly enough. It does to the head master and also to the head mistress, as a clear method of measurement.

Now in your class, how many quarts have you; how many pints; and how many half-pints of capacity or of receptivity to be instructed under one code?

I can state that I find that there are twenty-four quarts, twelve pints, and ten half-pints.

How as respects the quarts? How many labourers' children would there be? About one-third.

In what time in hours do you find the receptivity of the quarts exhausted?

In the forenoon they keep up very well for the full three hours. In the afternoon for about one hour.

As to the pints, in how long time is their receptivity exhausted?

In about three hours for the whole day. After about three hours they have to be pressed and made to get through their task.

As to the half-pints? They are exhausted in about two hours and a half. After that time they have to be

Quantitative differences in receptivity.

severely pressed. It is almost impossible to make them work with any profit.

Can you state what amount of over-pressure there is in your school from the working of the present code?

In the girls' school the head mistress states that there are out of 270 children about one-sixth of the cases that are of decided over-pressure. In the boys' school I should state that the over-pressure is decidedly greater; it is about one-fifth.

What would the death-rate be of the children in your school? For the three years it would be at the rate of 11 per 1,000.

You may be aware that in the well-organised half-time schools other than the district half-time schools of mixed physical and mental teaching, and with good simultaneous class-teaching, it is declared that the results are as good, if not better, than those of the long-time schools. Now, what is the quality of the receptivity of the quarts in the fourth hour which you say they now reach?

It is not nearly so good as the first three hours.

In your own opinion might it be dispensed with altogether?

Yes, I believe it might.

Of the quarts, what use do they make of what they get from what they have received in school?

That depends upon the place in society, and of what places they get after they leave school. About a third of them, who get into clerkships or trading or mercantile positions, would retain most of what they get in the school, and add to it in practice. But as to the two-thirds of them, they go back entirely. They are tired with what they get in school, and forget it as much as possible. They forget their spelling and grammar, and their arithmetic too.

But if the rule were adopted of limiting the instruction to lessons which sustained voluntary attention, by the interest of the lesson, and solely by that interest, would they forget then?

Certainly not. Some of the matters now taught, in which they take an interest, such as geography, and some of the reading they do remember very well.

Now we know that the receptivity and the capacity enlarges in time. How long do you think it would take to bring the pints up to the quarts?

It would take about eighteen months to bring the pints up to the quarts.

And as to the half-pints? About two years.
 All hastening, then, according to the present code of the secondary or inferior definite receptivities, may be set down as over-pressure, at the expense of the teacher as well as of the child? Yes, certainly.

MORTLAKE PARISH SCHOOLS.
 GIRLS' DEPARTMENT.

Class.	Measured Receptivity.				Headaches.	
	Standard.	No. of quarts.	No. of pints.	No. of ½ pints.		No. in class.	Habitual Headaches.
I.		23	16	19	58	16
II.		21	19	16	56	5
III.		21	13	18	52	5
IV.		8	12	22	42	17
V.		4	12	12	28	} 11
VI.		3	9	7	19	
VII.		4	2	3	9	
Totals...		84	83	97	264	54

BOYS' DEPARTMENT.

Class.	Measured Receptivity.				Headaches.	
	Standard.	No. of quarts.	No. of pints.	No. of ½ pints.		No. in class.	Habitual Headaches.
I.		20	35	25	80	8
II.		30	12	6	48	25
III.		24	12	10	46	11
IV.		16	19	9	44	6
V.		8	7	5	20	} 9
VI.		8	5	5	18	
VII.		2	1	1	4	
Totals...		108	91	61	260	55

PER CENTAGE OF GIRLS.
 Quarts = 31.81
 Pints = 31.04
 ½ Pints = 36.74
 Headaches = 22.27

PER CENTAGE OF BOYS.
 Quarts = 41.53
 Pints = 35.00
 ½ Pints = 23.46
 Headaches = 22.69

INFANTS' DEPARTMENT.

Class.	Measured Receptivity.				Headaches.	
	Standard.	No. of ½ Pints.	No. of Gills.	No. of ¼ Gills.		No. in Class.	Habitual Headaches.
I.		22	14	6	42	} 15
II.		12	8	6	26	
III.		35	15	15	65	
IV.		16	12	18	46	
V.		B a b i e s			24	
Totals..		85	49	45	203	

PER CENTAGE OF INFANTS.

½ Pints = 41.87
 Gills = 24.13
 ¼ Gills = 22.11
 Headaches = 7.28

I have heretofore made inquiries as to the experiences of racial differences in mental receptivity of children in France, and have ascertained them to be as wide between the northern and the southern races as in England. The common scholastic error in ignorance of such differences was displayed in the declaration of one Minister of Education in France that, on taking out his watch, he could confidently say that at all the schools of that country the same lessons would be given to all the children at that same moment. He was unaware that that same moment was one of torment to the children in the effort to pour quarts into pints and pints into half-pints. It may be observed that the like differences of capacities are displayed in the competition for superior service for the Army, for the higher posts of the Civil Service, for India as well as for home. These differences may be divided in results into quarts, pints, and half-pints, or, we may say, into gallons, half-gallons, and quarts, an upper third of the gallons, an intermediate third of the half-gallons, and the latter portion of the quarts. By the competitive system the inferior pints are excluded, and the superior capacities gained for the public service. This system has been introduced, and is in progress in the United States with the lower class of public servants.

Differences of receptivity displayed in the competitions for first appointments in the higher branches of the public service.

It is to be observed that such differences as those cited as displayed chiefly by the wage classes, in differences of mental power of receptivity, are displayed also among the

highest classes. Thus, in the competitions for admission to the Royal Engineers, as also for the Indian Civil Service, if the marks be divided into three sets, the upper third, the intermediate third, and the lower third, the average marks of the upper third will be as three, the intermediate third will be as two, whilst the lower third will be as one, and the outsiders who fail will be lower still. Such mental differences prevail in families, one member marked for his acuteness is sent in for the scientific corps, another son is sent in only for the Line, and a third for trade. Hence the fundamental error of the Department of Education is in providing for a perfect uniformity of treatment and result.

Rationale of the increase of wages, for the reduction of the economy of production.

I have stated the results of my own inquiries, and of the examinations of experiences, without any influence of preconceived educational theories, or indeed of any knowledge of them. There is one topic of recent experience, however, which I ought to state, as to the increasing necessity of scientific instruction, and in training in secondary education for its practical application. Under the recent manufacturing pressure (and it may be added of agricultural pressure) it is found requisite to reduce the cost of production by labour-saving machinery. For this purpose it is requisite to put more and more of capital or machinery under single hands. To direct this machinery productively, there must be more and more of interest in the results, and more and more of skill and trustworthiness, and these cannot be obtained anywhere, in the field or in the manufactory, without more and more of wages. The men who worked the cotton machinery some forty years ago, it is declared, could not work the machinery requiring some half the number of better-paid hands who now work the improved machinery. At the beginning of the century it cost a shilling a pound to spin cotton of the lowest order. A pound of the same cotton is now spun at wages two-thirds higher for a halfpenny. In agriculture there has been the like progress. Digging by the spade costs four pounds an acre. By improved machinery, the same work is now done for ten or twelve shillings. At present, and with the partial introduction of machinery and improved processes on the large farms of the north and in Scotland, the produce is about double that of the *petite culture* of the Continent; and the wages yielded are double what they were and higher than anywhere else. Further improvements are needed and pronounced to be practicable to withstand foreign competition, but this can

only be attained by higher skilled labour; which must be supplied by improved secondary education. As it stands at present, in the cotton manufacture and in other branches of labour, the lowest cost of production anywhere is achieved with the fewest hands and the highest wages of labour.

I have recently looked back at what was written on education by perhaps the foremost metaphysician of the last century, Mr. James Mill, in his article in the first edition of the *Encyclopaedia Britannica*, more than sixty years ago, and find that it was much in accordance with the later practical experience since made, which I have recited. He then observed "that it is everywhere among enlightened men a subject of the deepest complaint, that the business of education is ill-performed, and that in this, which might have been supposed the most interesting of all human concerns, the practical proceedings are far from corresponding with the progress of the human mind. It may be remarked that, notwithstanding all that has been written on the subject, even the theory of education has not kept pace with philosophy, and it is unhappily true that the practice remains a prodigious distance behind the theory."

Early complaints of the badness of education.

I apprehend that this, which was written more than sixty years ago, is lamentably true now. Mr. Mill points out that, under a physical head of education, "the mode in which the qualities of the mind are affected by the health, the aliment, and the air, and the labour to which the individual is subject" is to be provided for.

Ignorance of psychology.

But what is to be said of the conditions in the Board schools of the most depressed districts of the Metropolis, denoted by the low death-rates of the wage classes, where filthy-skinned and filthy-clothed children are confined for excessively long hours in ill-ventilated school-rooms, creating centres of children's epidemics and subjecting the teachers themselves to three-fold death-rates; and doing this in the face of experiences by sanitation, as in the district half-time schools, of daily well-washed and well-clothed children, kept together for a time not exceeding their mental receptivity; by which the usual children's diseases have been almost entirely banished, and the death-rates of those who come in without developed disease upon them are reduced to below three in a thousand, or one-third of the common death-rates of children of the same ages; wasting long hours in misdirected mental efforts to impart what is in great part forgotten after

Bad condition of recent long-time schools.

leaving school, and turning out large proportions of moral failures in rougns, and, as shown by the penal returns, considerable continued contributions to the criminal population.

First correct course under Factory Commission.

It is due to state that the measure which my colleagues of the Children's Employment Commission agreed in proposing in 1833 of six hours' labour and three hours of schooling, most fully developed in the District Poor Law schools under central supervision, is now adopted in Germany and France, but without due acknowledgment of its origin, was the first measure founded on experiences that went direct to supply the defect of principle in education pointed out by Mr. James Mill. I followed up this measure by a letter on the physiology of the question to Sir Richard Owen in 1860, and by a paper read at the British Association at Oxford, and afterwards by examinations and papers at the Society of Arts. Nevertheless, here we are at the end of half a century, with extending demonstrations all over the country, and yet with but partial and defective applications of the principle by fitting legislation and administration. It may be presented as an example of the greater progress of the mechanical arts than of legislative and of administrative arts, for during that same time steam power has had its greater development in railroads and steam navigation; in the electric telegraph, together with the telephone, and gas has lighted all our great towns. At last, however, I am happy to state, the great body of the physiologists and sanitarians are in movement on the subject on the Continent, as is shown in an article on over-pressure on mental work, and on the evils of underbodily or exclusive sedentary work, by Mons. Gustave Lagneem, in the last number of the Transactions of the Institute of France, in which he states that a committee of professors of Berlin and Leipsic are making an appeal to all the professors of medicine and sanitation of Germany, of Austria, and of Switzerland (and why not of England and the United States?) for a modification of the scholastic systems of over mental work, which are so injurious to the health and the intelligence of children. The great new Société of France on Hygiene, it is announced, is now moving on the subject. As the present exposition is probably the last effort left to me to write on the subject, I can only express the consolation which the prospect now opened to me affords of the extensive abatement of the miseries of children and the creation of happy and healthful future productive existences for them.

Appeals rising against over-pressure.

I have waited for the production of the very voluminous evidence collected by the commissioners of enquiry on elementary education, and I take the results as given in the *Times* of the 11th of June. It is to be noted that the evidence is largely that of teachers, habituated to the systems of the old long-time schools, who appear to be very little acquainted with the psychology of education or the extent of the receptivity of chief classes of the children to be dealt with, and yet the results are in general accordance with the principles I have enunciated from my own collections of experiences. Thus I have stated the experiences obtained by outside enquiries as to how little the children retain of what they have been taught in school. In the evidence collected by the commissioners Mr. Wild states that "if a child who has passed a high standard presents himself a few months afterwards to an evening school it is generally found that he has forgotten a great deal of what he knew, and if it is any length of time afterwards nearly all." Mr. Baxendale says that he thinks that, after leaving school, children almost entirely lose the effect of their education, and there is other evidence to the like tenor. Now I have submitted it, that enquiries should be carefully made in the workshop and in the home to ascertain how much of the school instruction is retained, and carefully strike out all that is proved to have been wasted, at each age of school life. If this be done it will be found that there will be a larger economy of five millions per annum of the educational rates than may be supposed by the Commissioners. One general fact will be found to be that it befalls boys who have had their education at the long-time Board schools to be taken in as orphans to the district half-time schools, when they are almost invariably found to be below in school attainments of the half-time children there. This fact excites astonishment, and politicians are angry at it, but it excites no enquiry. It will be very generally found that of that which is imparted with labour, or against a natural limit of receptivity, very little is retained, and that a part except that which is adapted to the natural mental receptivity of the children that is permanently retained. It will be found that about three hours' good teaching exhausts the average receptivity of children of the usual school ages in those schools, and about half that time in the infantile stage, and that good teaching means teaching which sustains attention by the interest in the lesson; and that the best teaching is simultaneous class teaching with skill by skilled teachers,

Confirmatory evidence of first conclusion as to waste of long school time.

of which the most economical is on a large scale. I do not perceive in the course of the inquiry any perception of these principles in the present direction of the commissioners' inquiries.

Verification of
complaints as
to over-pres-
sure.

Then, as to the question of over-pressure, the truth is declared by one witness, a Mr. Scotson, who states "that it is utterly impossible to meet the requirements of the code without over-pressure." It appears to be now looming out as a discovery that there are differences in physical conditions which are accompanied by physical conditions to be provided for. It is now being for the first time conceived, and it is now enunciated as a truism "that there are dull children who, without a good deal of urging cannot possibly keep pace with their brighter and more vigorous fellow scholars." The fact is at length becoming apparent that the code may be said to be a quart code, and that a mass of mental injury and waste has been created by attempts to force the quarts into capacities only of pints or half-pints, as described in such experiences as those displayed in the evidence I have cited of the teachers and pupil-teachers. The testimony is strong that the long-time system is demoralising in training the children in fraudulent evasions. As a representative witness of opinions that abound in the evidence, Miss Castle, a teacher, is cited, who affirms "that the present system fails to turn out well-principled and conscientious children; it does not even secure their being intelligent; nor does it instil into them the duty and necessity of being more obedient, honest, clean, and orderly." Mr. Buxton, however, "is sure that we pay very much less for crime than formerly, a result he attributes to the benefits of education. He is largely mistaken in this conclusion, and takes the credit due to the half-time district, industrial and reformatory schools comprising some fifty thousand of children, all trained in the highest manual and mental training who go direct to the home, as great seed plots of juvenile delinquency, which have effected the most extraordinary and satisfactory transformations of any period. It is proved that the larger proportion of the juvenile delinquents apprehended as the roughs have passed through the long-time Board schools. Whether the inquiry may advance to ascertain the economy of time attainable by simultaneous class teaching on a large scale in grades schools; or the reduction of the evil of repeated examinations, and the

Moral failure
of long-time
schools.

superiority of a thorough individual leaving examination, as in some parts of Germany. Whether Mr. Pope and the great body of the teachers will have an opportunity of sustaining their charges against the code; whether the school teachers may be called upon to show the way in which, if left to their own devices, they would save the two years of school life they have declared they could do, I know not. I hope it may be done, but it is not yet apparent that it will be, as it ought to be in justice to the ratepayers, as well as to the parents. I am apprehensive that, as is common with commissions composed of persons imperfectly informed on the subject, that when they conclude the inquiry they will find themselves qualified to begin it, and direct it efficiently. The matter of physical and industrial training has been reserved for distinct inquiry, and it is well that it has been, for, according to the testimony of sanitarians of Europe on the prevention of the evils and wastefulness, from ignorance displayed in psychology, it might now if competently applied do speedily what the mothers of Lancashire declared it did, "make their children as if they were of another race."



