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Goethe Hawthorne Smith Kafka
Cotton Dostoyevsky Dostoyevsky Smith Willis
Baum Henry Kipling Doyle Henry Willis
Leslie Dumas Flaubert Nietzsche Nietzsche
Stockton Turgenev Balzac Vatsyayana Crane
Burroughs Verne Verne
Curtis Tocqueville Gogol Gogol Busch
Homer Tolstoy Tolstoy Gogol Busch
Darwin Thoreau Thoreau Twain Plato Scott
Potter Zola Lawrence Lawrence Lawrence Harte
Kant Jowett Stevenson Dickens Plato Harte
Andersen Andersen Andersen Harte
London Descartes Cervantes Burton Hesse
Poe Aristotle Wells Wells Wells
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A Practical Enquiry into the Philosophy of Education

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A
PRACTICAL ENQUIRY
INTO
THE PHILOSOPHY
OF
EDUCATION.

BY JAMES GALL,

INVENTOR OF THE TRIANGULAR ALPHABET FOR THE
BLIND; AND
AUTHOR OF THE "END AND ESSENCE OF SABBATH
SCHOOL TEACHING," &c.

*"The Works of the Lord are great, sought out of all them that have
pleasure therein." — Psal. cxi. 2.*

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PREFACE.

The Author of the following pages is a plain man, who has endeavoured to write a plain book, for the purpose of being popularly useful. The philosophical form which his enquiries have assumed, is the result rather of accidental circumstances than of free choice. The strong desire which he felt in his earlier years to benefit the Young, induced him to push forward in the paths which appeared to him most likely to lead to his object; and it was not till he had advanced far into the fields of philosophy, that he first began dimly to perceive the importance of the ground which he had unwittingly occupied. The truth is, that he had laboured many years in the Sabbath Schools with which he had connected himself, before he was aware that, in his combat with ignorance, he was wielding weapons that were comparatively new; and it was still longer, before he very clearly understood the principles of those Exercises which he found so successful. One investigation led to another; light shone out as he proceeded; and he now submits, with full [Pg vi] confidence in the truth of his general principles and deductions, the results of more than thirty years' experience and reflection in the great cause of Education.

He has only further to observe, that the term "Nature," which occurs so frequently, has been adopted as a convenient and popular mode of expression. None of his readers needs to be informed, that this is but another manner of designating "The God of Nature," whose laws, as established in the young mind, he has been endeavouring humbly, and perseveringly to imitate.

*Myrtle Bank, Trinity, Edinburgh,
8th May, 1840.*

PRACTICAL ENQUIRY, &c. [Pg 13]

PART I.

ON THE PRELIMINARY OBJECTS NECESSARY FOR THE ESTABLISHMENT AND IMPROVEMENT OF EDUCATION.

CHAP. I.

On the Importance of establishing the Science of Education on a solid Foundation.

Education is at present obviously in a transition state. The public mind has of late become alive to the importance of the subject; and all persons are beginning to feel awake to the truth, that something is yet wanting to insure efficiency and permanence to the labours of the teacher. The public will not be satisfied till some decided change has taken place; and many are endeavouring to grope their way to something better. It is with an earnest desire to help forward this great movement, that the writer of the following pages has been induced to publish the result of much study, and upwards of thirty years' experience, in the hope that it may afford at least some assistance in directing the enquiries of those who are prosecuting the same object.

On entering upon this investigation, it will be of use to keep in mind, that all the sciences have, at particular periods of their history, been in the same uncertain and unsettled position, as that which Education at present occupies; and that each of them has in its turn, had to pass through an ordeal, similar to that which education is about to undergo. They [Pg 14] have triumphantly succeeded; and their subsequent rapid advancement is the best proof that they are now placed on a solid and permanent foundation. It is of importance, therefore, in attempting to forward the science of education, that we should profit by the experience of those who have gone before us. They succeeded by a strict observation of facts, and a stern rejection of every species of mere supposition and opinion;—by an uncompromising hostility to prejudice and selfishness, and a fearless admission of truth wherever it was discovered. Such must be the conduct of the Educationist, if he expects to succeed in an equal degree. The history of astronomy as taught by astrologers, and of chemistry in the hands of the alchymist, should teach both the lovers and the fearers of change an important lesson. These pretended sciences being mere conjectures, were of use to nobody; and yet the boldness with which they were promulgated, and the confidence with which they were received, had the effect of suppressing enquiry, and shutting out the truth for several generations. Similar may be the effects of errors in education, and similar the danger of too easily admitting them. The adoption of plausible theories, or of erroneous principles, must lead into innumerable difficulties; and should they be hastily patronized, and authoritatively

promulgated, the improvement of this first and most important of the sciences may be retarded for a century to come.

The other sciences, during the last half century, have advanced with amazing rapidity. This has been the result of a strict adherence to well established facts, and their legitimate inferences.—A docile subjection of the mind to the results of experiment, and a candid confession and abandonment of fallacies, have characterized every benefactor of the sciences;—and the science of education must be advanced by an adherence to the same principles. The Educationist must be willing to abandon error, as well as to receive [Pg 15] truth; and must resolutely shake off all conjecture and opinions not founded on fair and appropriate experiment. This course may appear tedious;—but it is the shortest and the best. By this mode of induction, all the facts which he is able to glean will assuredly be found to harmonize with nature, with reason, and with Scripture; and with these for his supporters, the Reformer in education has nothing to fear. His progress may be slow, but it will be sure; for every principle which he thus discovers, will enable him, not only to outrun his neighbours, but to confer a permanent and valuable boon upon posterity.

That any rational and accountable being should ever have been found to oppose the progress of truth, is truly humiliating; yet every page of history, which records the developement of new principles, exhibits also the outbreakings of prejudice and selfishness. The deductions of Galileo, of Newton, of Harvey, and innumerable others, have been opposed and denounced, each in its turn; while their promoters have been vilified as empyrics or innovators. Nor has this been done by those only whose self love or worldly interests prompted them to exclude the truth, but by good and honourable men, whose prejudices were strong, and whose zeal was not guided by discretion. Such persons have frequently been found to shut their eyes against the plainest truths, to wrestle with their own convictions, and positively refuse even to listen to evidence. The same thing may happen with regard to education;—and this is no pleasing prospect to the lover of peace, who sets himself forward as a reformer in this noble work.—Change is inevitable. Teaching is an art; and it must, like all the other arts, depend for its improvement upon the investigations of science. Now, every one knows, that

although the cultivation of chemistry, and other branches of natural science, has, of late years, given an extraordinary stimulus to the arts, yet the science of education, from which the art of teaching can alone [Pg 16] derive its power, is one, beyond the threshold of which modern philosophy has scarcely entered. Changes, therefore, both in the theory and practice of teaching, may be anticipated;— and that these changes will be inconvenient and annoying to many, there can be no doubt. That individuals, in these circumstances, should be inclined to deprecate and oppose these innovations and improvements, is nothing more than might be expected; but that the improvements themselves should on that account be either postponed or abandoned, would be highly injurious. An enlightened system of education is peculiarly the property of the public, on which both personal, family, and national happiness in a great measure depends. These interests therefore must not be sacrificed to the wishes or the convenience of private individuals. The prosperity and happiness of mankind are at stake; and the welfare of succeeding generations will, in no small degree, be influenced by the establishment of sound principles in education at the present time. Nothing, therefore, should be allowed to mystify or cripple that science, upon which the spread and the permanence of all useful knowledge mainly rest.

CHAP. II.

On the Cultivation of Education as a Science.

From numerous considerations, it must be evident, that education claims the first rank among the sciences; and, in that case, the art of Teaching ought to take precedence among the arts;—not perhaps in respect of its difficulties, but most certainly in respect of its importance.

The success of the teacher in his labours, will depend almost entirely on the extent and the accuracy of the investigations of the philosopher. The science must guide the art. Experience shews, that where an [Pg 17] artist in ordinary life is not directed by science,—by acknowledged principles,—he can never make any steady improvement. In like manner, when the principles of education are unknown, no advancement in the art can be expected from the teacher. Every attempt at change in such circumstances must be unsatisfactory; and even when improvements are by chance accomplished, they are but partial, and must be stationary. —When, on the contrary, the teacher is directed by ascertained principles, he never can deviate far from the path of success; and even if he should, he has the means in his own power of ascertaining the cause of his failure, and of retracing his steps. He can, therefore, at his pleasure, add to or abridge, vary or transpose his exercises with his pupils, provided only that the great principles of the science be kept steadily in view, and be neither outraged, nor greatly infringed. No teacher, therefore, should profess the art, without making himself familiar with the philosophical principles upon which it is founded. In the mechanical arts, this practice is now generally followed, and with the happiest effects. The men of the present generation have profited by the painful experience of thousands in former times; who, trusting to mere conjectures, tried, failed, and ruined themselves. The mechanics of our day, instead of indulging in blind theories of their own, and hazarding their money and their time upon

speculation and chance, are willing to borrow light for their guidance from those who have provided it. They slowly, but surely, follow in the path opened up to them by the discoveries of science, — and they are never disappointed.

The unexampled success of the mechanical arts, would, upon the above principles, naturally lead us to conclude, that the sciences, from which they have derived all that they possess, must have been cultivated with corresponding energy. And such is the fact. Since the adoption of the inductive method of [Pg 18] philosophizing, nearly all the sciences have been advancing rapidly and steadily; and the cause of this is to be found in adhering to the rules of induction. No science has been allowed to rest its claims upon mere theory, or authority of any kind, but upon evidence derived from facts. Mere opinions and suppositions have been rigidly excluded; and that alone which was acquired by accurate investigation, has been acknowledged in science as having the stamp of truth. The inductive philosophy takes nothing for granted. Every conclusion must be legitimately drawn from ascertained facts, or from principles established by experiment; and the consequence has been, not only that what has been attained is permanent, and will benefit all future generations, but the amount of that attainment, in the short time that has already elapsed, is actually greater than all that had been previously gained during centuries. In this general improvement, however, the science of Education has till lately formed an exception. The principles of true philosophy do not appear to have been brought to bear upon it, as they have upon the other sciences; and the consequences of this neglect have been lamentable. In every branch of natural philosophy, there are great leading principles already established. But where were there any such principles established by the philosopher for the guidance of the teacher? By what, except their own experience, and conjectures, were teachers directed in the training of the young? — Thirty or forty years ago, what was called "education" in our ordinary week-day schools, was little more than a mechanical round of barren exercises. The excitement of religious persecution, which had been the means of disciplining the intellectual and moral powers of Scotsmen for several previous generations, had by that time gradually subsided, and had left education to do its own work, by the use of its own resources.

But these were perfectly inadequate to the task. The exercises almost universally [Pg 19] employed in the education of the young, had neither been derived from science, nor from experience of their own inherent power; and they would, from the beginning, have been found perfectly inefficient, had they not been aided, as before noticed, by the stimulant of religious persecution.—The state of education, at the time we speak of, is still fresh on the memory of living witnesses who were its victims; and some of the absurdities which were then universal, are not even yet altogether extinct.

Soon after the period above stated, an important change began to take place in the art of teaching,—but still unaided and undirected by science. Some of the more thinking and judicious of its professors, roused by the flagrant failures of their own practice, made several noble and exemplary efforts to place it on a better footing. Had these efforts been guided by scientific research, much more good would have been done than has been accomplished, and an immense amount of misdirected labour would have been saved. But although many of the attempts at a change failed, yet some of them succeeded, and have gradually produced ameliorations and improvements in the art of teaching. Still it must be observed, that philosophy has had little or no share in the merit. Her labours in this important field have yet to be begun. Valuable exercises have no doubt been introduced; but the principles upon which the success of these exercises depends, remain in a great measure concealed from the public generally:—And the reason of this is, that the public have been indebted for them to the *art* of the teacher, and not to the *science* of the philosopher.

That this is not the position in which matters of so much public importance should continue, we think no one will deny. Education must be cultivated as a science, before teaching can ever flourish as an art. The philosopher must first ascertain and light up the way, before the teacher can, with security, [Pg 20] walk in it. Experiment must be employed to ascertain facts, investigate causes, and trace these causes to their effects. By fair and legitimate deductions drawn from the facts thus ascertained, he will be enabled to establish certain principles, which, when acted upon by the teacher, will invariably succeed. But without this, the history of all the other arts and sciences teaches us, that success is not to be expected;—for alt-

though chance may sometimes lead the teacher to a happy device, there can be no steady progress. Even those beneficial exercises upon which he may have stumbled, become of little practical value; because, when the principles upon which they are based are unknown, they can neither be followed up with certainty, nor be varied without danger.

There will no doubt be a difficulty in the investigation of a science which is in itself so complicated, and which has hitherto been so little understood; but this is only an additional reason why it should be begun in a proper manner, and pursued with energy. The mode of procedure is the chief object of difficulty; but the experience and success of investigators in the other sciences, will be of great advantage in directing us in this. In the sciences of anatomy and physiology, for example, the investigations of the philosopher are designed to direct the several operations of the physician, the surgeon, and the dentist; in the same way as the investigations of the Educationist are intended to direct the operations of the Teacher. Now the mode of procedure in those sciences for such purposes is well known, and forms an excellent example for us in the present case. The duty of the anatomist, or physiologist, is simply to examine the operations of Nature in the animal economy, and the plans which she adopts for accomplishing her objects during health, and for throwing off impediments during disease. In conducting his investigations, the enquirer begins by taking a general view of the whole subject, and then separating [Pg 21] and defining its leading parts. Pulsation, respiration, digestion, and the various secretions and excretions of the body, are defined, and their general connection with each other correctly ascertained. These form his starting points; and then, taking each in its turn, he sets himself to discover the principles, or laws, which regulate its working in a healthy state;— what it is that promotes the circulation or stagnation of the blood, the bracing or relaxing of the nerves, the several processes in digestion, and the various functions of the skin and viscera. These are all first ascertained by observation and experience, and then, if necessary, established by experiment.

These principles, having thus been established by science, are available for direction in the arts. The physician acts under their guidance; and his object is simply to regulate his treatment and

advice in accordance with them. In other words, *he endeavours to imitate Nature*, to remove the obstructions which he finds interfering with her operations, or to lend that aid which a knowledge of these principles points out as necessary. The surgeon and the dentist follow the same course, but more directly. In healing a wound, for example, the surgeon has to ascertain from science how Nature in similar cases proceeds when left to herself; and all his cuttings, and lancings, and dressings, are nothing more than *attempts to imitate her* in her healing operations. So well is this now understood, that every operation which does not at least recognise the principle is denounced—and justly denounced—as quackery; and the reason is, that uniform experience has convinced professional men, that they can only expect success when they follow with docility in the path which Nature has pointed out to them.

Precisely similar should be the plan of operation pursued by the Educationist. He should, in the first place, take a comprehensive view of the whole subject, and endeavour to map out to himself its great [Pg 22] natural divisions;—in other words, he should endeavour to ascertain what are the things which Nature teaches, that he may, by means of this great outline, form a general programme for the direction of the teacher. His next object ought to be, to ascertain the mode, and the means, adopted by Nature in forwarding these several departments of her educational process; the powers of mind engrossed in each; the order in which they are brought into exercise; and the combinations which she employs in perfecting them. In ascertaining these principles which regulate the operations of Nature in her educational processes, the same adherence to the rules prescribed by the inductive philosophy, which has crowned the other sciences with success, must be rigidly observed. There must be the same disregard of mere antiquity; there must be the same scrupulous sifting of evidence, and strict adherence to facts; there must be a discarding of all hypotheses, and a simple dependence upon ascertained truths alone. Adherence to these rules is as necessary in cultivating the science of education, as it has been in the other sciences; and the neglect of any one of them, may introduce an element of error, which may injure the labours of a whole lifetime.

We have some reason to fear, that although all this will be readily admitted in theory, it will be found somewhat difficult to adopt it in

practice. The reason of this will be obvious when we reflect on the deep interest which the best and most philanthropic individuals in society take in this science. The other sciences are in some measure removed from the busy pursuits of life; they are the concern of certain persons, who are allowed to investigate and to experiment, to judge and to decide as they please, without the public in general caring much about the matter.—But education is a science of a different kind. Its value is acknowledged by every one, and its interests are dear to every benevolent heart. The individual who undertakes to examine, and more [Pg 23] especially to promulgate, any new principle upon which education rests, will have a harder task to perform, and a severer battle to fight, than the philosopher who attempts to overturn a false conclusion in chemistry, or an erroneous principle in mechanics. Among the learned community, not more than one in a thousand perhaps is personally interested either in mechanics or in chemistry; and few others will enter the lists to oppose that which appears legitimate and fair. The enemies and opponents of the chemical reformer in that case may be zealous and even fierce; but they are few, and he enjoys the sympathy and the countenance of the great majority of those whose countenance is worthy of his regard. But when we calculate the number of those who take an interest in the subject of education, and those who do not, the above numbers will be reversed. Nine hundred and ninety-nine among the educated public will be found who take a real interest in the progress of education, for one who cares nothing about it.

This is a fearful odds where there is a likelihood of opposition;—and opposition may be expected. For there will be influences in many of the true friends of education, derived from old prejudices within, combined with the pressure of conflicting sentiments in their friends from without, which will render the task of establishing new and sound principles in this first of the sciences an irksome, and even a hazardous employment. Coldness or opposition from those whom we honour and love is always painful; and yet it should be endured, rather than that the best interests both of the present and future generations should be sacrificed. The opinions of all good men deserve consideration;—but when they are merely opinions, and are not founded on reason, they are at best but specious; and when they are opposed to truth, and are contrary to ex-

perience, a zealous adherence to them becomes sinful and dangerous. Such persons ought to commend, rather than blame, the [Pg 24] reformer in education, when he declines to adopt ancient dogmas which he finds to be useless and hurtful: And at all events, if all have agreed to disregard the authority of an Aristotle or a Newton, when opposed to new facts and additional evidence, the Educationist must not allow himself to be driven from the path of fact and experience by either friends or enemies. No authority can make darkness light;—and although he may be opposed for a time, and the public mind may be abused for a moment, it will at last correct itself, and truth will prevail.

But the friends of education ought in no case to put the perseverance of those who labour for its improvement to so severe a trial. They ought in justice, as well as charity, to cultivate a forbearing and a candid spirit; and they will have many opportunities of exercising these virtues during the progress of this science. Education is confessedly but in its infancy; and therefore it must grow much, and change much, before it can arrive at maturity. But if there be an increasing opposition to all advance, and if a stumbling-block be continually thrown in the way of those who labour to perfect it, the labourers may be discouraged, and the work be indefinitely postponed. Let all such then guard against a blind opposition, or an attempt to explain away palpable facts, merely because they lead to principles which are new, or to conclusions which are at variance with their pre-conceived opinions. If they persevere in a blind opposition, they may find at last that they have been resisting truth, and defrauding their neighbour. Truth can never be the enemy of man, although many inadvertently rank themselves among its opponents. The resistance which has invariably been offered to every important discovery hitherto, should be a beacon to warn the inconsiderate and the prejudiced against being over-hasty in rejecting discoveries in education; and the obloquy that now rests on the memory of such persons, should be a warning to [Pg 25] them, not to plant thorns in their own pillows, or now to sow "the wind, lest they at last should reap the whirlwind."

CHAP. III.

On the Improvement of Teaching as an Art.

As Education on account of its importance takes precedence in the sciences, so Teaching should rank first among the arts. The reasons for this arrangement are numerous; but the consideration of two will be sufficient. — The first is, that all the other arts refer chiefly to time, and the conveniences and comforts of this world; while the art of teaching not only includes all these, but involves also many of the interests of man through eternity. — And the second is, that without this art all the other arts would produce scarcely any advantage. Without education of some kind, men are, and must continue to be savages, — it being the only effectual instrument of civilization. It is the chief, if not the only means for improving the condition of the human family, and for restoring man to the dignity of an intelligent and virtuous being.

As "Science" is the investigation and knowledge of principles, so an "art" may be defined as a system of means, in accordance with these principles, for attaining some special end. Teaching is one of the arts; and it depends as entirely for its success upon a right application of the principles of the science of education, as the art of dyeing does upon the principles of chemistry. As an art, therefore, teaching must be subjected to all those laws which regulate the improvement of the other arts, and without which it can never be successfully carried on, far less perfected. These laws are now very generally understood; and we shall briefly advert to a few of them, which are [Pg 26] necessary for our present purpose, and endeavour to point out their relation to the art of teaching.

1. One of the first rules connected with the improvement of the arts is, that the artist have *a specific object in view, for the attainment of which all his successive operations are to be combined.* — The manufacturer has his *cloth* in prospect, before he has even purchased the wool of which it is to be composed; and it is the desire of procuring

cloth of the most suitable quality, and by the easiest means, that compels him to draw liberally and constantly from the facts ascertained, and the principles developed, by the several sciences. From the science of mechanics he derives the various kinds of machinery used in the progressive stages of its production; and from the science of chemistry he obtains the processes of dying, and printing, and dressing. But he never troubles himself about the science of mechanics or of chemistry in the abstract; he thinks only of his cloth, and of these sciences as means to assist him in procuring it. He is careful of his machinery, and is constantly alive to the mode of its working, and is thus prompted to adopt such improvements as observation or experience may suggest; but it is not the machinery of itself that he either cares for, or thinks about. No; it is still the cloth that he keeps in view; and his machinery is esteemed or slighted, adopted or abandoned, exactly in proportion as it forwards his object. The processes necessary in the different departments of his establishment, are complicated and various, and to a stranger they are both curious and instructive; but it is neither the labour nor the variety that he is seeking. His is a very different object; and of this object he never loses sight; for the varied operations of stapling and carding, of spinning and weaving, are nothing more than means which he employs for accomplishing his end. He knows the uses of the whole complicated operations; and he sees at a glance, and can tell in a moment, [Pg 27] how each in its turn contributes to the great object of all,—the production of a good and marketable cloth.

Now this law ought to be applied with the utmost strictness to the art of teaching. For if teaching be really an art,—that is, a successive combination of means,—it should undoubtedly be a combination of means to some specific end. Nothing can be more obvious, than that a man who sits down to work, should know what he intends to do, and how he is to do it. Such a line of conduct should be imperatively demanded of the teacher, both on account of the importance of his work, and of the immense value of the material upon which he is to operate. The end he has in view, whatever that end may be, ought to be correctly defined before he begins; and no exercise should upon any account be prescribed or demanded from his pupils, which does not directly, or indirectly at least, conduce to