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L. AND G. SEELEY, THAMES DITTON, SURREY.

LESSONS ON OBJECTS;

AS GIVEN TO CHILDREN

BETWEEN THE AGES OF SIX AND EIGHT,

IN A PESTALOZZIAN SCHOOL,

At Cheam, Surrey.

Elizabeth Mayo

"We daily call a great many things by their names, without ever inquiring into their nature and properties; so that, in reality, it is only their names, and not the things themselves, with which we are acquainted."

AIKEN.

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PREFACE.

PESTALOZZI was peculiarly solicitous that the *idea* of his method of Education should not be confounded with the *form* it might assume. He felt, and strongly felt, the value, the power, and the truth of that *idea;* and highly as he was disposed to appreciate the labours of his disciples in the practical application of it to the work of education; still he saw that they were at best imperfect, incomplete embodyings of the grand and profound conceptions in which he might be said intellectually "to live and move and have his being." The continual appeal which he made from the imperfections of his practice, to the beauty and truth of his principles, contributed perhaps to attach to himself the character of a benevolent visionary, and to his system, the charge of impracticability. Much had been written, much had been said, yet little seemed to have been done; for even his own school, miserably conducted in many respects, presented but a cloudy and distorted exhibition of his views. Hence the man of lofty mind and feeling heart quitted Yverdon with a sigh of

regret: while the shallow reasoner and self-satisfied *routier* cast a smile of contempt on principles which he could not discover to be true, in the midst of the disorder that impeded and deformed their developement.

Profoundly convinced of the truth of Pestalozzi's views, and warned against his errors by long actual observation of their consequences, the Writer of these prefatory remarks determined to attempt the introduction of his method into England, religiously preserving the *Idea*, but adapting the *Form* to those circumstances in which he might be placed. He considered that the most effectual mode of accomplishing this end was to devote himself to the formation and conduct of a school, in which the arrangement and practical application of those principles might be made. To exhibit the system in operation, to elaborate by means of experiments continually repeated, a course of instruction; and above all, to prepare materials for an appeal to actual results, seemed to him a far more useful and effectual, though less rapid or brilliant process, than that of dragging it before reluctant audiences at public meetings or of advocating its merits in the periodical publications of the day. He was content that it should be buried in oblivion for a while, assured that if it really possessed the life of truth, it would in due time spring up with renovated vigour. That time seems to have arrived. Attention to this subject is

revived. Schools, professing to be conducted on Pestalozzian principles, are increasing in number; and publications issue from the press, which point out, with more or less success, the manner of applying them to different branches of instruction. Under these encouraging circumstances, it is proposed to publish, from time to time, a number of little treatises of a strictly practical nature, embodying in a familiar manner the principles of Pestalozzi. They will be the result of many years' experience—the corrected and recorrected editions of lessons actually given by different individuals. They may want some of that ideal beauty discernible in works produced by an ingenious imagination in the closet, but they will possess, on the other hand, the solid advantage of ascertained practicability and demonstrated usefulness.

It has been thought desirable to commence the series with a course of LESSONS ON OBJECTS. It is a field hitherto little, if at all cultivated. The distinguishing principles of the Pestalozzian system are strikingly exemplified in it. The instruction given in Infants' Schools would be improved by the introduction of a similar plan: and the early education of the nursery receive a new and interesting feature.

This mode of instruction was suggested to the mind of Pestalozzi by the peculiar circumstances in which he was placed at Stantz. The brutalized state into which the poor children confided to

his care had fallen, rendered it absolutely necessary to find some new mode of interesting their minds, and calling out their dormant faculties. Nature was the only book with which they were conversant, and their first lessons were consequently drawn from its pages. Experience and judgment retained what necessity first imposed. The subjects ordinarily presented to the youthful mind appeared too remote from that knowledge which the child acquires without regular instruction, and generally to be taught in too abstract a manner. It was proposed to bring education more into contact with the child's own experience and observation, and to find in *him* the first link in the chain of his instruction. In the execution of this plan a series of engravings was provided, representing those objects which are familiar to children; and the lessons consisted in naming their parts, describing their structure and use. One day, however, the Master having presented to his class the engraving of a ladder, a lively little boy exclaimed, "but there is a real ladder in the court-yard: why not talk about it rather than the picture!" "The engraving is here," said the master, "and it is more convenient to talk about what is before your eyes than to go into the court-yard to talk about the other." The boy's observation, thus eluded, was for that time disregarded. Soon after, the engraving of a window, formed the subject of examination:

"but why," exclaimed the same little objector, "why talk of this picture of a window, when there is a real window in the room, and there is no need to go into the court-yard for it?" Again the remark was silenced, but in the evening both circumstances were mentioned to Pestalozzi. "The boy is right," said he, "the reality is better than the counterfeit; put away the engravings, and let the class be instructed by means of real objects." The plan was adopted; but many inconveniences resulted from the arrangement. The subjects which the room itself, the building, the premises presented, were soon exhausted, or thought to be so; the pupils were taken into the fields; the weather was an occasional hindrance, the variety of objects presented out of doors distracted the attention of the pupils, and though much interest was at first excited, still, as there was no sensible progress, no perceivable end, it diminished rather than increased in force. It was thought too, that exercises so miscellaneous in their character, so devoid of systematic arrangement, were essentially defective as means of intellectual developement. Upon these grounds the Miscellaneous Object Lessons were abandoned, and the Master who had conducted the class substituted a course on the parts and functions of the bodily frame. These are contained in the Manual des Mères, a work presenting valuable hints for early education, mixed with much that is insufferably

tedious. At the period when the writer of these observations was in the Institution at Yverdon, instruction on Objects had fallen into disuse; but having heard this history from the individual who had formerly given it, he felt strongly convinced that a mode might be adopted, by which its advantages would be secured, and its contingent inconveniences avoided. Having communicated this impression to his sister, with a general notion of the plan, he has left the execution of the details to her, and the result of her labours is the Exercises, now for the first time presented to the public. The desultory character attaching to them in their original form is corrected, by making a previous selection of subjects, and presenting them in the class-room. As they are intended to be preparatory to instruction in natural history, they gradually assume a more scientific character, and thus a feeling of progress is sustained in the pupil's mind. It has been found, indeed, by long experience, that no lessons produce more continued interest, or more enlarge the minds of children, than those on OBJECTS.

C. MAYO.

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LESSONS ON OBJECTS.

FIRST SERIES.

INTRODUCTORY REMARKS.

To lead children to observe with attention the objects which surround them, and then to describe with accuracy the impressions they convey, appears to be the first step in the business of education.

The ceaseless activity of the perceptive faculties, which characterizes the period of childhood, shews that this is the point at which instruction would most naturally commence. It gives animation to the dull, and precision to the lively; it promotes that clearness of apprehension which is the solid basis of after-attainment,—without which, our judgments are unsound, and our reasonings inconclusive. As the sphere of observation is enlarged, and the pages of history, or the fields of science, are explored, the mind accustomed to accurate in-

vestigation will not rest content with less than satisfactory evidence, either in morals or in science.

The present work consists of five series of lessons, each of which increases in difficulty as the pupil advances. The order observed in them is the result of some experience, and of several trials, which have produced a strong conviction of the importance and value of a methodical arrangement, and of a very gradual progression. It is therefore recommended that no step in the course should be altogether omitted, though the age and talents of the children must regulate the time bestowed on each.

The first series presents a selection of miscellaneous objects, every one possessing some distinguishing quality; yet so arranged as to have an obvious connection with what has preceded. The children should be practised in remarking those qualities observable by the simple operation of the external senses, deferring till a more advanced period, those requiring a higher exercise of mind.

It is very important that in any course of instruction, some definite object should be proposed, and that every step should have a tendency towards the end in view. Thus, in the series under consideration, the developement of the perceptive faculties is aimed at, and each sense is called into action for the attainment of the object.

One lesson is drawn out fully as a specimen of the manner in which the others should be given. It would have extended the volume to an unnecessary length, and filled it with needless repetitions, had each been made out with equal minuteness. Much information might have been thrown into the preliminary set: but as the end proposed was rather to excite the mental powers to activity, than to provide them with knowledge, it has been purposely avoided.

It may perhaps be necessary to guard against the error of expecting, in a work like the present, anything more than hints as to the mode of arranging and imparting knowledge. The teacher must be previously well-informed, in order to meet the inquiries which the active minds of children continually suggest. Their questions will generally point out the best mode of treating a subject, or of leading them to the discovery of any truth. Precise unvarying rules may be laid down for mechanical operations; but mind alone can act upon mind, and bring it into vigorous exercise: and all instruction must be dry and uninteresting, which has not undergone some modification from the person by whom it is communicated. There are several faults into which teachers are likely to fall; one is that of telling too much to their pupils. They may receive the information with pleasure, and appear to profit by it; but great evil arises from such a mode of instruction: their minds remain almost

passive, and they acquire a habit of receiving impressions from others, at a time when they ought to be gaining mental power by the exertion of their own faculties. Another mistake is that of giving a term, before the pupil has felt his want of it. When the idea of any quality has been formed in his mind, without his being able to express it, the name given under such circumstances fixes it on the memory :—thus, when a child observes that whalebone, after having being bent, returns to its original position, he may be told that this property which he has discovered is called *elastic*.[1]

The following pages were written originally with no view to publication, but merely for the use of the school in which they were given; and the information they contain was drawn from various sources. No memorandum being made at the time, it would now be impossible to assign each passage to its respective author, though it is probable that those acquainted with the popular works on the subjects here treated of, may detect, in some places, almost literal quotations.

[1] The writer desires particularly to enforce this remark, having in one or two instances seen the lessons altogether misused.—Thus the qualities were told, and the explanation of them given, instead of the object being presented to the children, that they might make their own observations upon it, and require from the teacher terms for qualities clearly discerned, though unknown by name.

LESSON I.

GLASS.

GLASS has been selected as the first substance to be presented to the children, because the qualities which characterize it are quite obvious to the senses. The pupils should be arranged before a black board or slate, upon which the result of their observations should be written. The utility of having the lesson presented to the eyes of each child, with the power of thus recalling attention to what has occurred, will very soon be appreciated by the instructor.

The glass should be passed round the party to be examined by each individual.[1]

TEACHER. What is this which I hold in my hand ?

CHILDREN. A piece of glass.

TEACHER. Can you spell the word *glass ?*

(The teacher then writes the word "glass" upon the slate, which is thus presented to the whole class as the subject of the lesson.) You

[1] By this means, each individual in the class is called upon to exercise his own powers on the object presented; the subsequent questions of the teacher tend only to draw out the ideas of the children, and to correct them if wrong.

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The glass should be passed round the party to be examined by each individual.*

TEACHER. What is that which I hold in my hand?

CHILDREN. A piece of glass.

TEACHER. Can you spell the word "glass"? (The teacher then writes the word "glass" upon the slate, which is thus presented to the whole class as the subject of the lesson.) You have all examined this glass; what do you observe? What can you say that it is?†

CHILDREN. It is bright.

* By this means each individual in the class is called upon to exercise his own powers on the object presented; the subsequent questions of the teacher tend only to draw out the ideas of the children, and to correct them if wrong.

† This question is put instead of asking, "What are its qualities?" because the children would not yet, in all probability, understand the meaning of the term, but by its frequent application to the answers to this question, they will shortly become familiarized with it.

TEACHER. (Teacher having written the word "qualities," writes under it—It is bright.) Take it in your hand and *feel** it.

CHILDREN. It is cold. (Written on the board under the former quality.)

TEACHER. Feel it again, and compare it with the piece of sponge that is tied to your slate, and then tell me what you perceive in the glass.†

CHILDREN. It is smooth—it is hard.

TEACHER. Is there any other glass in the room?

CHILDREN. Yes. The windows.

TEACHER. (Closes the shutters) Can you see the garden now?

CHILDREN. No.

TEACHER. Why cannot you?

CHILDREN. We cannot see through the shutters.

TEACHER. What can you say then of the glass?

CHILDREN. We can see through it.

TEACHER. Can you tell me any word that will express this quality?

CHILDREN. No.

TEACHER. I will tell you then; pay attention, that you may recollect it. It is transparent.‡

* The art of the teacher is to put such questions as may lead successively to the exercise of the different senses.

† The object of the teacher here is to lead the pupil to the observation of the quality *smooth*, and he does so by making him contrast it with the *opposite* quality in another substance; a mode of suggestion, of which frequent use may be made.

‡ The fact of the glass being transparent is so familiar to the children, that they will probably not observe it, till its great use in consequence of that quality brings it forcibly before their minds. They then feel the want of a term to express the idea thus formed, and the teacher gives them the word, as a sign for it, and in order to impress it upon their minds. To ascertain whether they have rightly comprehended

What shall you now understand when I tell you that a substance is transparent?

CHILDREN. That you can see through it.

TEACHER. You are right.* Try and recollect something that is transparent.

CHILDREN. Water.

TEACHER. If I were to let this glass fall, or you were to throw a ball at the window, what would be the consequence?

CHILDREN. The glass would be broken. It is brittle.

TEACHER. Could I in the same manner break the shutter?

CHILDREN. No.

TEACHER. Could I break it if I used great force?

CHILDREN. Yes.

TEACHER. Would you therefore call the wood brittle?

CHILDREN. No.

TEACHER. What substances then do you call brittle?

CHILDREN. Those which are *easily* broken.

These are probably as many qualities as would occur to children at their first attempt, which being arranged on the slate form an exercise in spelling. They should then be effaced, and if the pupils are able to write, they may endeavour to remember the lesson, and put it down on their slates.

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the meaning of the word, they are called upon to give examples of its application.

* It is but too common a practice to call a child good because he gives a right answer, thus confounding intellectual truth and moral virtue.

LESSON II.

INDIAN RUBBER.

This substance has been chosen that the class may observe the qualities *opaque*, *elastic*, *inflammable*. The first would be made clear to them by contrasting the Indian rubber with the glass of the preceding lesson; the second, by stretching it, and allowing it to resume its former shape; the third, by setting it on fire.

Qualities of Indian Rubber.

It is opaque.
elastic.
inflammable.
tough.
smooth.

Uses.—To rub out pencil marks—to form balls and shoes.

LESSON III.

LEATHER.

Ideas to be developed by the examination of this substance—*flexible*, *odorous*, *durable*.

Qualities of Leather.

It is flexible.
odorous.
tough.
smooth.
durable.
opaque.

Uses.—For shoes, gloves, reins, saddles, portmanteaus—for binding books—covering trunks.

LESSON IV.

LOAF SUGAR.

Ideas to be developed by this lesson, *soluble, fusible, sparkling.*

Qualities of Loaf Sugar.

It is soluble, or dissolvable in water.
fusible,* or may be melted by heat.
brittle.
hard.
sweet.
white.
solid.
opaque.

Use.—To sweeten our food.

LESSON V.

A PIECE OF GUM ARABIC.

Ideas to be developed by this lesson, *semi-transparent, adhesive.*

* The difference between fusibility and solubility may be rendered obvious to the children by dissolving one piece of sugar in water and holding another over the candle. If any experiment be necessary to exhibit the quality of an object, the operation should be performed before the children, that they may themselves observe it.

Qualities of Gum Arabic.

It is hard.
bright.
yellow.
semi-transparent.
dissolvable, or soluble in water.
sticky when melted.
solid.

Use.—To unite light thin substances.

LESSON VI.

SPONGE.

Ideas to be developed by this lesson, *porous, absorbent.*

Qualities of Sponge.

It is porous.
absorbent.*
soft.
tough.
opaque.
elastic, or springy.
flexible, or easily bent.
light brown.

Use.—For washing.

* The quality of absorbing will be made obvious to the class, by showing that the sponge sucks up any liquid. It possesses this quality in consequence of its being full of pores. The use to which an object is applied, often leads to the observation of the quality upon which the use is dependent.