

The Need for the Cultivation of Observation and Reflection in connection with Sanitary Work, by J. PATTEN BARBER, M.Inst. C.E., Borough Engineer and Surveyor, Islington (FELLOW).

Being an Abstract of the Address to the Annual Meeting of Associates.

OF the powers that are ours by nature, sight and thought are, perhaps, more generally and constantly used than any of the others and more under control, so that they can be directed, and fixed upon, or moved from, any object at will. It might be supposed that by constant use these powers would be found invariably strong, acute, and accurate in operation. But it is not by *much* work that a function is developed, it is rather by properly regulated exercise that it becomes more perfect in its working; not by the amount, but by the quality and organising of the activity that its usefulness is increased. Has it not been proved during the last few years, by teachers such as Mr. Eugen Sandow, that the laborious physical exercises with which we were wont to tire and strain the muscles did not produce a properly developed body so effectually as lighter movements accompanied by a concentration of will upon them? The swinging of heavy appliances represented a large amount of work done by muscles and limbs, but the improvement in quality and dexterity was far from being commensurate with the effort. And I think it will be found that, in most cases, the ability to see and to think is not so strong as might be expected from the long time that these powers have been in use. There is, unquestionably, very much looking at things and the fitting of many thoughts through the mind; but with all the looking and mind-activity how little is seen, how few and flimsy the opinions that are formed, and how small the addition to the mental treasury.

I do not suppose that anyone would measure scholarship by the quantity of printed matter that had been gone over by the student. If the time spent in reading and the amount of print that the eyes have looked at be any evidence of learning, the wisest man would be living with us to-day; but, instead of seeking him among those who read with care and thought, the search would have to be made in the crowd of people who rush through books, magazines, and papers with time-killing and thought-stifling effect. The only reading that counts for knowledge is that which is done with thought and care, without regard to the amount read. And probably all experiences agree that the amount of knowledge found by testing those who profess to be great readers, *i.e.*, excursionists through large quantities of printed matter, is disappointingly small, and that much reading does not necessarily impart much learning. But I am not sure that many have discovered from the poorness of the results how weak and imperfect sight and thought have become, despite their much

exercise. I doubt whether many persons could describe with much accuracy or comprehensiveness the objects at which they look with great frequency. Few who try to recall the details of certain things that have been looked at with some interest or curiosity can be altogether satisfied that they have seen as much or as accurately as was possible. And they will, perhaps, be convinced that sight is used by most people in a very limited manner, when they discover how little is known of the things that are before the eyes every day.

The failure to see is not due to defective vision. The eye as an optical instrument gives a true image of every object. The not seeing is the fault of the receiver, who will not take possession of the picture that the eye gives him. There are so many objects to attract notice that the attention is tempted to wander quickly from one to another, and the mind does not fix the look upon any of them with the intentness necessary to give a clear and definite impression. Indistinctness, incompleteness, and inaccuracy must follow from such careless looking, and the constant practice of this mode of viewing things accounts for the multitude who do not see.

As there is looking which does not result in seeing, there is thinking which is without beneficial effect. It may consist in dull languorous mooning or in flitting fancies, light and trifling as bubbles blown in the air; but it no more resembles true thinking than the lazy sauntering of the loafer or the mincing steps of the dandy are like exercise. There is the wandering thought as well as the roving eye, and both are as unprofitable as they are purposeless. Brain-movements like these, when they result in any expression at all, discover themselves by the vacuity of the look or the inane of the speech which they direct.

It may be that there are departments of work in which neither accuracy of observation nor of thought or deduction are of great importance; but the responsibilities of those who are engaged in sanitary work are too great, and the consequences of error in either observation or judgment too serious for these operations to be negligently or ignorantly performed. Rather may it be said that they are of such transcendent import that the power of exercising them must be sedulously cultivated and brought into the most perfect and active condition that is possible.

In this work the ordinary mode of viewing and thinking is worse than useless, it is dangerous; for the investigations that have to be made are often intricate and prolonged, the facts not easily ascertained, and the results arrived at only by patient plodding, searching, and reasoning. For the purpose of tracing and ultimately running down causes of evil effects on health and life, the partial truth on which the easy going observer may stumble, and from which conclusions are arrived at more by fancy than careful reasoning, will prove more useless than the failure to

find anything. Loss of time in stopping mischief, and needless expense in remedial works, are some of the least serious consequences of following a false trail started upon through the blundering brought about by improperly used sight and thought, or by their almost non-use.

No reliance can be placed on the work done by those who have not so trained mind and eye that they will work in harmony and strength, whether such work consist in designing, constructing, investigating, or advising. This relationship does not come automatically, especially after the youthful period has passed. All the senses then appear to have a tendency to get out of control and to seek gratification in the way that is easiest and pleasantest, by cajoling the will to shirk the labour and vigilance necessary to restrain them. The will having loosened its hold, the senses proceed along the easy path, which is always downward when they are uncontrolled. And when there is not the right relationship between mind and eye it is because they have got out of control, and have been seeking the pleasant paths in which they find delight without effort. It will be seen, therefore, that in order to have these powers strong, and working together correctly, the will must always control them. Whatever work they be set to do the will must be the master to keep them diligently applied to it, and to direct them along definite lines, so that there may be no wandering or deviation into error or incompleteness. For in a prolonged investigation in which, after much labour, the end seems scarcely nearer than at the commencement of the task, there is a tendency to weariness and despondency, and under these influences the undertaking may be abandoned or, in desperation, a conclusion of some kind may be set down which does not represent work carried on and thought out to completion.

Such a result is a defeat, an enforced surrender of the will to difficulty, and the sting and the shame of it are not its only punishment, for they are followed by a weakening of the will which makes it less capable of mastering succeeding difficulties. To the capitulation to laborious and complicated duties may be attributed mistakes in design, failures to foresee essential arrangements and precautions, and much bad workmanship; for these indicate insufficiency of thought and insight, and they show that the undertaking has not been thought out from beginning to end as it should have been, and would have been if the power of sustained thinking had not been weakened so that it could not carry the process of thinking beyond a point at which a will strengthened by repeated conquests of difficulties was required to continue it.

Most of those present are engaged in the examination and inspection of various works which have a close relation to health and disease, to life and death. It would not be exaggeration to describe your duties as matters of life and death, and I believe that you so regard them. Your

experience has, no doubt, caused you to question whether the majority of those who carry out the works to which I have referred have an equally serious view of their responsibility. You will have noticed that reflection is exceedingly infrequent, and that even in connection with matters in which it is of most momentous importance its absence is often astonishingly apparent. The amazing carelessness and clumsiness of the criminal who has neglected some obvious precaution to cover his crime or to destroy his tracks is so well known that it is surprising there should be repetitions of examples of this lack of care and thought. But it is no less surprising that, notwithstanding the knowledge that everyone has of the deadly mischief wrought by improper work, there should be so much work carried out or suggested which indicates an astounding neglect of observation and consideration by those who would be directly responsible for the fatalities that it would cause if undetected.

Work is not infrequently met with which is wrong, and which has not been discovered to be so by designer, constructor or supervisor. It is not without much difficulty that those who are responsible for such work can be convinced of its defects. If the work should be contrary to the requirement of by-law or regulation the case would not be difficult, but many of the cases are not of that character and they have to be dealt with according to the judgment of the person on duty. To know the right thing to do, and to prescribe a more correct mode of doing the work, are easier than justifying them by argument; but all three will be done with greater ease and effect if there has been a clear and comprehensive seeing of every fact and circumstance connected with the matter and if these have been thoroughly thought out, and the principles affecting the work completely and intelligently mastered and applied to the task of putting it right. In such cases none but the observant and the thoughtful could act, for the superficially-minded would lack ability and the courage which comes of the knowledge that is power.

In order to see that a thing is wrong it is necessary to have a standard of what is right with which to compare it, and that standard must be clearly defined in the mind. The former class are equipped with such a standard, which they have made strong and permanent by steady contemplation, and which is always at call when needed and is an unvarying test with which to try all things. They can detect at once the character of whatever has to be judged by its agreement with, or its defect from, the standard they possess, and they can give an opinion which will endure analysis and controversy without destruction. The latter class, having no strength in observing or thinking, can reach no firm conclusion, but are dependent upon stronger minds which may influence them in a right or wrong direction according as their nature is one or the other. They will see, or fancy they see, whatever the stronger party or the greater number

see, but are unable to make discoveries of their own in difficult cases; and they may be said to be affected by the blindness of fear for they have not acquired independence of vision or of thought. This condition is one from which escape is not easy, but the falling into it will be avoided more readily if we recognise as we ought the need for independence and courage in order not to acquiesce in what others say they have perceived, unless we have a clear perception of our own to warrant our agreeing with them.

It is necessary to beware of the prejudice in favour of our own views, which may so influence us in our investigation and thinking that we shall enter upon undertakings with a desire to discover only that which is in accord with those views. For it has been rightly said that the mind sees just what it brings to its work the capacity for seeing. Unless, therefore, we are careful to clear away settled opinions and theories before commencing an inquiry, the results of our labour may be as inaccurate as the description of coloured objects by those who examine them through coloured glasses. This openness of mind is best maintained by those who diligently and patiently view whatever the eyes are directed to, and quietly set themselves to think with care and honesty on every fact and question that comes before them. By such just procedure the mind is trained to approach inquiry with candour, to gather true information from every source, and to give every point due consideration. The opinions formed under this discipline are not likely to be influenced by self-interest, passion, or pressure.

The worker who is thorough in his labour does not regard the testing of his methods and results with fear, for he is conscious that their rightness will thereby be made apparent. It is then that he expects the diligence and integrity with which his undertakings have been prosecuted to be acknowledged, and it is to him a time of triumph when the work stands forth true and complete, adorned with the grace and dignity with which genuine whole-hearted effort always beautifies its results. But the careless observer and petty thinker is in far worse case. We have many examples of him, but none, perhaps, which gives a truer representation than what he is in the witness box. The uncertain and incoherent testimony given under examination becomes chaotic under cross-examination, and the principal thing proved by it is, that no reliable account of what has been seen can be got by casual observation, because looking with the eyes but not with the mind makes no clear and definite impression of what there was to see.

There is one phase of this subject to which it is necessary to call attention, and it is particularly deserving of notice by students—the danger of the excessive reading of books on sanitary work. These books are not intended to displace, but to assist and suggest observation and thought. In too many instances, however, it seems to be considered that

everything that is to be known about a subject is to be found in the books that have been written upon it. And those who have read much have been surprised and even aggrieved when questions have been set in examinations, which have not been met with in the books that have been studied. The error that is made by these readers is not that they have not read well and attentively, but that they have omitted to lay books aside and ponder over what has been read, until by long and patient contemplation they have absorbed into their understanding the things they have read, and so made them their own that they can use them in solving the problems and doing the work set before them.

It is possible, by too much studying of books, for the mental energy to be so exhausted, or absorbed only in reading, that none remains to be employed in effective practical work; and to spend so much time in the realm of theory and principles as to lose the power of looking at things in any other than a speculative way. This absorption in the theoretical means incapability of making suggestions of a practical nature, and in its effect resembles that of the study of high mathematics which sometimes causes a student to be in difficulties when faced with a simple problem in arithmetic. The study of principles and theory is essential to everyone who desires to be qualified for his work, and abundance of reading is needful for the making of well-informed men; but these must be even more copiously supplemented by observation and thought if they are to be truly valuable. To be able to "speak like a book" is not a desirable qualification in any calling; it is less so in one that deals with constructional work. Acts of Parliament, by-laws, and formulæ may be learned so mechanically as to be repeated from memory, but a plain statement of a requirement, stripped of the phraseology of the statute-book, is better understood and infinitely more effective in every-day work than the glib recital of the law.

Further, the too great consulting of books and the sparing of thought, the looking for everything there instead of making independent search in the realm of constructed work and observations of actual materials and existing conditions, hinder the development of self-reliance. This defers the period when the man should be able to stand alone, conscious that he has the equipment and the skill for doing his work satisfactorily. They render him incapable of making a workable suggestion, compel him to refer many difficulties to a higher authority, and generally make him a feeble influence if they do not bring him to ridicule.

I cannot ask those who are engaged in sanitary work to expect that the time is near when there will be nothing more to engage their thoughts or to invite observation, because I do not believe that the last thing is yet known about its numerous departments and details. Investigation has still a large area for its operations, and the improvements that are still

being made in many branches of work show that there are yet many subjects on which thought can be exercised. There are, besides, our own opinions and knowledge to be reviewed, in order that they may be modified in accordance with whatever new discoveries are made by advancements in sanitary science.

NOTES ON LEGISLATION AND LAW CASES.

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PROVIDED SCHOOL.—*Duty to "Maintain" school—Dangerous condition of premises—Injury to Scholar—Liability of authority to action—Education Act, 1902 (2 Edw. 7, c. 42), s. 7.*

The plaintiff, a girl aged seven, attended a public elementary school provided by the defendants, the local education authority for the district. Being ordered by a teacher to leave the classroom in which she then was, she proceeded to do so, and while she was passing through the door, which was a heavy swing door with a powerful spring, the door shut upon her fingers and she was seriously injured. The door had been erected by the school board to whom the school had belonged previously to the coming into operation of the Education Act, 1902, and from whom the school had been transferred to the defendants under that statute. The door was in the same condition as it was when taken over by the defendants, but owing to its weight and the strength of the spring, it was dangerous and unsuitable for use by young children.

By s. 7 of the above-mentioned Act, "The local education authority shall maintain and keep efficient all public elementary schools within their area."

By schedule 11, par 1, "The . . . liabilities . . . of any school board . . . existing at the appointed day shall be transferred to the council exercising the powers of the school board":—

Held that, as the door was dangerous if used by young children, the defendants, having invited the plaintiff to use it, were liable at common law for the injury that resulted.

Semble, that the word "maintain" in s. 7 refers only to the maintenance of the school as an educational institution, and does not include the physical maintenance of the school buildings, even where the school is a provided school; and consequently the defendants' neglect to render the door safe did not constitute a breach of their statutory duty under that section.

Ching v. Surrey County Council, (1909) 2 K.B. 762, questioned.

Held further by Phillimore, J., that the contingency of the school board's negligence in erecting the dangerous door resulting in an accident was not a "liability" which was transferred to the defendants under Sched. 11, par. 1, upon their taking over the school.

MORRIS v. CARNARVON COUNTY COUNCIL. Div. Ct. (1910) 1 K.B. 159 February, 1910.