Finally, my young friend, you will find teaching no flowery path ; but it is one of the paths which, if rightly followed, leads upward. In this humble position, you may be moulding the minds which shall mould the next generation. The responsability is a weighty one, and should not be lightly undertaken. Be patient and gentle, but ever firm ; govern yourself first, and most strictly of all ; seek, not popularity, but the highest good of your pupils ; and, in time, you shall gather sheaves which you will not be ashamed to lay at the Master's feet. If you wish above all for fame, or reward, or even appre ciation, you are in the wrong position ; but if you wish to be useful and helpful to your generation, you can find no better place, and may say, with the poet :

Not myself, but the truth that in life I have spoken,
Not myself, but the seed that in life I have sown,
Shall pass on to ages—all about me forgotten
Save the truth I have spoken, the things I have done.

—*N. E. Journal of Education.*

How shall we teach Science ?

How did we learn what little we know of science ? How came we to have any sciences to teach ? Lord Bacon, to whom Inductive Science owes so much, has somewhere said that scientific knowledge should be insinuated into the minds of learners in the same way or order that it at first became known to men. This seems to be sensible. By science in this connection, we do not mean mathematical or metaphysical, but physical science. We mean well-arranged knowledge of material objects. Such knowledge is obtained through the senses. Such knowledge " cometh by observation " of the learner, or through the evidence of the testimony of persons who have observed.

Socrates sought to elicit the latent knowledge of those who did not know, and to make them know, by judicious questioning. Plato relates that he said, concerning a boy whom he was teaching how to make one square twice the size of another square, and with whom he fully succeeded, " I do not tell him *my* opinion, but I get at *his*." The method of Socrates was admirable in teaching Geometry, but it will not do for Chemistry of Natural Philosophy, until the mind of the learner is well supplied with the results of somebody's observation, of which some part must be his own. How long would the Socratic teacher have to question by the " drawing-out process," to enable a boy, who had never seen nor heard of a piece of sugar, to know what change it would undergo in a cup of tea ?

Primarily science means knowledge, and a science is the embodiment or complement of observed phenomena, pertaining to kindred subjects and duly classified, so as to illustrate general principles and truths. The acts of Deity so observed as to give some idea of the thoughts or plan of Deity, is human science.

The very term, teaching science, or as it is more commonly used in England, science-teaching, sufficiently indicates the method which should be pursued by the teacher. That science or knowledge comes to the mind through the senses, that is, through somebody's senses, will hardly be disputed. To *know* is to perceive through the organs of sense. and principally the eye, as is evident from the etymology of the word. In Anglo-Saxon *cunnan*, and in the Old English, German, and Danish, *kennen* is to see or know by sight. As late as in Queen Anne's reign, Addison wrote " We *ken* them from afar." While the writer has no wish to impart the odor of the lamp to this brief article, he can not help calling the attention of his fellow-teachers to the lessons they may learn from the study of the words they use. Why did the discriminating Greeks use the verb *eidó* (Latin *video*) in certain tenses meaning exclusively, *to see*, and in other tenses, meaning exclusively, *to know ?* In the perfect tense the word *oida* instead of meaning *I have seen*, means *I know*. The difference is apparent, rather than real. How often do children say I know it, because I have seen it. So said the Greeks of old in a single word, and that word, though in the perfect, is used as if it were the present. Of the seven hundred times nearly, that the word is used in the Greek New Testament, it is translated *know* about three hundred times.

Teaching is something more than drawing out, or pouring in. It is, in addition to these process, a pointing out or showing. Its equivalent in ancient and modern languages means primarily *showing*. The Anglo-Saxon *tæan*, and such words of the Gothic stock, as *tooghen*, *tigen*, *zeigen*, etc., are allied to the Latin *docere*, and the Greek *deiknumi*, all pointing back to the old Sanscrit root *die*, meaning to show or point out. *Indicare*, *index*, *dexter* (the right hand) *dedzia* (the right hand) *digitus* and *dactulos* (finger) with many similar words, in-*dic*-ate the in-*dic*-ative meaning of their cousin, *teacher*.

If knowledge results from observation, and if teaching implies showing, the inference is plain that the *Object Method* of teaching is the true method. Teach boys, says Ruskin, to *see*, rather than to *say* something. The old theory that vision results from something going from the eye to the object seen, instead of the modern view that it is a sensation caused by motion or vibration coming to the eye, corresponds to the theory of teaching without showing.

Prof. Guyot has well said that the study of every science implies three stages, the *perceptive*, the *analytic*, and the *synthetic*. From necessity the perceptive must be first. A certain amount of knowledge must come to the mind of the learner by his own observation before he can comprehend or receive the results of the observation of others. The unknown must be imparted by comparison with the known.

How can we reason but from what we know ?

The King of Siam distrusted the veracity of the European traveler who told him that in Europe the rivers and lakes were sometimes so solid that an elephant might walk over them. Had his Siamese Majesty ever seen, in boyhood or in manhood, any of the processes of freezing water described in our elementary text-books, and performed by most teachers having an air-pump or cryophorus, he would have known better what to believe. The habit of observation and consequent strengthening of the perceptive faculties can best be acquired in childhood. How early in life do children begin to inquire *how* and *why* kites rise, apples fall, and innumerable other actions occur. But these queries, the beginning of the study of science, must be preceded by the observation of the occurence.

Pharaoh's daughter saw a queer-looking basket in the rushes of the Nile. She investigated the novel appearance and found Moses. Moses saw a bush burning in the wilderness; turning aside to investigate the phenomenon, he found the Great I AM. So

" Could we but open and intend our eye,
We all, like Moses, should espy
In every bush the radiant Deity."

How did the Great Teacher teach his disciples spiritual truths but by comparing them to natural truths, evident from ordinary observation ? " Without a parable spake he not unto them." He compared the unknown with the known. So must we, fellow-teachers, when we teach