phenomena of nature and art; and the same calculus which measures and points out the application of labour, whether by machines or animals, determines the force of vapour, and confines the power of the most explosive agents in the steam-engine, regulates the form and structure best fitted for moving through the waves, developes the strength of the chain for the bridge necessary for passing across the arms of the ocean, fixes the principles of permanent foundations in the most rapid torrents, and, leaving the earth filled with monuments of man's power, ascends to the stars, measures and weighs the sun and planets, and determines the laws of their motions, and brings under its dominion those cometary masses, wanderers in the immensity of space.

That which marks the present age, he observed, even more than the progress of physical science, is the practical application of science to the purposes of daily life, for supplying our ordinary wants, and for ministering to our comforts in the smallest matters. Our streets are lighted, our houses warmed—our clothes are woven—our cushions are made easy; we travel by sea and by land—we make our coffee—we light our candles—we perfume our rooms, by elaborate combinations of mechanical or chemical science. Our knowledge of the animal, vegetable, and mineral world at the same time has been greatly extended, and every year new products are applied to medical and economical uses. The lecturer, on his discussion of education, laid down as a proposition "that the communication of knowledge is not the sole end of education." He remarked that it is not the chief end, and that he held the communication of knowledge to be a secondary object in education. In intellectual education, the first great object is to develop and train the several faculties by exercises adapted to their growing strength; so that they may attain the highest degree of readiness and power, not in one particular branch to the detriment of the rest, but the greatest vigour they are capable of in harmonious co-operation, and thereby form a perfect man—perfect in the healthy and robust constitution of the whole intellectual being. A child or a man may seem to know many things, and yet have no power of the mind but memory, strong and active. He may be dull in comprehension, slow or inactive in perception, have no readiness in combining his knowledge, or in arriving at conclusions from experience, or in proceeding from the particular to the general. He may be without a distinct consciousness of the limits of his own knowledge, or of the strength or weakness of his mental powers. Such is likely to be the result of his intellectual condition if, during what was termed his education, he was made the mere recipient of knowledge poured into him, as into an empty vessel, without having his mind stimulated by his own exertions, and, by training, to a proper comprehension of the subjects before it. On the other hand, a man may possess but a limited knowledge of facts, and yet, by being trained to certain mental habits, be liable to master any ordinary subjects to which he may apply his mind; and if it be of a practical nature, to judge correctly of it, and to act efficiently. It is possible that certain studies may be preferable for the purposes of training, which are of little practical utility in after life; and that the man may have derived lasting advantage from the exercise of learning something, when the source is afterwards forgotten. There is no profession, no station in life in which a desire for intellectual exertion, a habit of attention, a retentive memory, a quick perception, a comprehensive capacity, clearness of ideas, soundness of judgment, a knowledge of the use of knowledge—that habit of mind, in short, which, by reflection and experience, gathers *wisdom*—is not far more valuable than any amount of mere *knowledge.*

"Knowledge and wisdom, far from being one,
Have ofttimes no connection. Knowledge dwells
In heads replete with thoughts of other men—
Wisdom in minds attentive to their own.
Knowledge—a rude unprofitable mass,
The mere material with which Wisdom builds,
Till smoothed and squared and fitted to its place—
Does but encumber whom it seems to enrich.

The question, therefore, to be determined is this—to render mental discipline in physical science effective for the instruction of youth, how shall it be conducted? In answering this question, we must first consider what mental faculties the study of physical science will exercise and develop. Objects and phenomena have to be examined and observed, whereby the bodily senses are exercised; then the cognizance of things with respect to their shape, size, position and colour, and of events, bring the faculties into play. By these means the power of observation may be noticed, and the mind taught to discriminate and compare. Then individual objects, according to their differences, may be divided into a species, and comprehended in genera. The process of classification will thus begin, and the mind become accustomed to intellectual order, and a methodical arrangement of its knoledge. When a considerable number of phenomena have been observed those which are accidental may be distinguished from those which are essential; by which the mind will learn to generalize. The relation between effect and cause will begin to be perceived; the faculty which perceives it, and which instinctively seeks it, will be exercised; and the mind will be gradually trained to recognize the relation where it subsists, and what is perhaps difficult to attain, will abstain from supposing it where it has no existence. In other words, it will learn the process of induction—the only method by which any truth can be discovered which is external to the mind itself, and not an immediate object of the senses.

Thus—while mathematical science is the practical discipline of the pure reason, and literature culivates the imagination an the taste, and also addresses itself to the moral faculties—physical scienc, by its very nature, is fitted to exercise all those faculties which are conversant with the the material world and its phenomena.

Science, the lecturer observed, learnt merely from lectures or from books, was little more than exercise of verbal memory, and was really hurtful to the mind by accustoming it to remain content with vague notions and faint ideas: half a dozen chemical experiments made by a pupil himself, would give him more instruction in chemistry than a hundred experiments witnessed in a room.

In like manner with the study of botany, the student himself should find out the points of resemblance which constitute the generic character, and mark the points of difference which distinguish the species; and not rest satisfied with learning by rote the botanical classification of De Candolle.

In vegetable physiology he must verify microscopic observations, and see with his own eyes the facts upon which the science is founded, and himself go through the processes of induction, by which the functions of the several parts of the plant are ascertained.

After some further physical remarks, Mr. Hazlewood strongly recommended the studying of one branch of science thoroughly, as far as his students' intellectual powers would permit them; the subject itself was of minor importence, and might be left to