

consciousness of energy, that man is an utter ignoramus. He lives in a world as foggy and unreal as that of the monks of the middle ages. To sum up this part of our subject, an educated man must not only know books, he must know *things*, and in order to aid in the establishment of a proper balance of culture, I would propose that for people who are going to be scientific there need be no science at school, or at any rate that the systematic study of science could be more safely omitted than any other part of the curriculum, but science should form an important element in the training of clergymen, lawyers, schoolmasters, and generally of all bookish persons.

And now a word or two of advice to you as students of science. In the first place cultivate a spirit of the extreme scepticism. You can scarcely go too far in this direction: let there be a veritable apotheosis of scepticism. Never accept a statement simply because you see it in a book or hear it in a lecture, especially if it taxes your credulity—which should be highly sensitive. Verify for yourselves, so far as this is possible, everything you are asked to learn, and if there is any discrepancy between different text-books do not look in a third or ask your teacher what are the actual facts, but get a test-tube or a scalpel and forceps and look or smell or feel for yourself. You may not be able to solve the difficulty, but at any rate you may be able to discover why there is a difference of opinion, and the attempt to clear up the question will be in itself wholly beneficial. I am in the habit of classifying students as to their behaviour in this respect into four groups. The first, and I fear the commonest group, when they meet with a difficulty, shirk it altogether. The student of the second group will seek advice from his teacher: this implies an attitude of dutifulness mixed with much of innocence. A third type will attempt to ascertain the exact truth by consulting all the books available. The last and best kind of student, I admit a somewhat rare bird, will request a corner of the laboratory and material to look for himself.

This leads us naturally to the subject of original investigation. Every student who takes a degree in science, is, or should be, capable of research. You are aware that in many universities this is indeed a condition of graduation. There is a vast untrodden field in every province of science, and if we cannot all make great discoveries, we can every one of us do something towards correcting and verifying the work of others, extending in some humble way the bounds of knowledge. And here let me urge that the mere attempt to find out