THE SCIENTIFIC OUTLOOK

VIEWS OF SIR OLIVER LODGE

CRITICISM BY SIR BERTRAM WINDLE

Last year (writes Sir Bertram Windle, M.D., Sc.D., LL.D., F.R.S., K.S.G., President of University College, Cork, in the *Catholic Times*), I was privileged to criticise what seemed to me to be a somewhat belated and quite unconvincing address, which it was the lot of the visitors to the Dundee meeting of the British Association to hear from the presidential chair. This year, a very different kind of discourse—in part a direct reply to, and refutation of, that of last year—breaks in upon the silence which reigns even in scientific regions during the summer season.

The president for this year may be, and has been, criticised from various angles, but no one has yet ventured to accuse him of dulness in speech or in writing, and his address bristles with good things and tersely expressed phrases. Parts of it are very far over the heads of ordinary readers or hearers, but there remain a number of other portions which contain truths, or, as he himself would put it, approximations to truth, well worthy of consideration, and to some of these at least I propose to devote such brief consideration as may be permitted to me in the limits of these columns.

The Function of Science.

There still lingers in the minds of some an idea far more prevalent in the last quarter of the last century that science holds in her hand the key to all the riddles of life, an idea expressly negatived at all times by real leaders of science, though tacitly or more than tacitly encouraged by its camp-followers. Of course the notion is wholly mistaken. Science deals with facts; facts made sure by observation; facts learnt by careful and repeated experiment. It 'is, undoubtedly, an affair of the intellect, it examines everything in the cold light of reason, and that is its strength.' (*) (p. 3.)

Therefore, science must be wholly ignorant of likes and dislikes. Yet, as I have elsewhere pointed out, a scientific man is still to be found writing that such and such a thing is not as certain 'as we might wish to believe.' To which may be opposed Mr. Bertrand Russell's dictum: 'The kernel of the scientific outlook is the refusal to regard our own desires, tastes, and interests as affording a key to the understanding of the world.'

'Science,' said Mr. Balfour the other day at the National Physical Laboratory, 'depends on measurement, and things not measurable are therefore excluded, or tend to be excluded, from its attention. But life and beauty and happiness are not measurable.' Science, then, does not deal with the sum total of things, but only with a limited number; it has its own area outside of which are whole fields of enquiry with which it has and can have no dealings.

Yet obviously there is a borderland somewhat undefined; a borderland where fact and theory meet and even overlap, and, as in the case of most borderlands, it is here that conflicts between pure scientists, philosophers, and theologians must needs take place.

'To use the acute and familiar expression of Gustav Kirchhoff, it is the object of science to *describe* natural phenomena, not to *explain* them. When we have expressed by an equation

'The Correct Relationship Between Different Natural Phenomena,

we have gone as far as we safely can, and if we go beyond, we are entering on purely speculative ground.' So writes Professor Schuster, and, if science and scientific men were to go no farther than this, it will at once be admitted that it would be difficult to imagine how controversies could arise as to their findings, save such as might originate from doubts as to the actual accuracy of the observations in question, a form of controversy unavoidable, and, indeed, most necessary, if accuracy is to be maintained. But the law is too binding, for if scientific men are never to bring their facts into correlation by weaving them into theories, in other words, by trying to *explain*, it will be admitted that the field of science must be deprived of some of its fairest flowers. I will not labor this point, which I have dealt with at length in my book, *Facts and Theories*, published by the Catholic Truth Society. I will merely call attention to the masterly manner in which Sir Oliver Lodge once more proclaims the true function of science and denounces those who would illegitimately extend its province. For example:—

'I hold that science is incompetent to make comprehensive denials, even about the ether, and that it goes wrong when it makes the attempt. Science should not deal in negations: it is strong in affirmations, but nothing based on abstraction ought to presume to deny outside its own region' (p. 26). And again:—

'Denial is no more infallible than assertion. There are cheap and easy kinds of scepticism, just as there are cheap and easy kinds of dogmatism; in fact, scepticism can become viciously dogmatic, and science has to be much on its guard against personal predilection in the negative as in the positive direction. An attitude of universal denial may be very superficial. 'To doubt everything or to believe everything are two equally convenient solutions; both dispense with the necessity of reflection.'' (p. 27). Finally:—

'Science has no authority in denials. To deny effectively needs much more comprehensive knowledge than to assert. And abstraction is essentially not comprehensive: one cannot have it both ways. Science employs the method of abstraction and thereby makes its discoveries.' (p. 27).

All which, wise and incontrovertible words, may be commended to the attention of those illogicians who would have us believe that because science can teach us a number of quite indisputable facts, and a number of others not validly disputable to-day at any rate, it is, therefore, in a position to lay down the law as to what things do or do not exist in the entire universe known and unknown.

The Problem of the Ether.

Those who are acquainted, even though it may be but superficially, with the field of science will not require to be told that the distinguished man whose address I am at present considering is a first-rate authority on that illusive and most mysterious entity, the ether, that 'portentous entity,' as he himself calls it (p. 25). There must be at least some of the readers of these lines who are familiar with his little book on *The Ether of Space*, and those who are not and who desire to know more of the subject, may be commended to its pages, if they are unfamiliar with them. What is this ether of space?

In the first place, it must be admitted that no one has seen it, nor has any man at any time directly appreciated it by any of his sense, even when supplemented by the various remarkable aids which scientific instruments to-day afford to them. Even by experiment its existence is barely, if at all, detectable.

'The ether . . . does not appeal to sense. and we know no means of getting hold of it. The one thing we know metrical about it is the velocity with which it can transmit transverse waves. That is clear and definite, and thereby, to my judgment, it proves itself a physical agent; not, indeed, tangible or sensible, but yet concretely real' (p. 18).

Further, it is a thing of incredibly opposed characteristics, an anomaly hardly to be understood, with some difficulty even to be credited with existence. Mathematicians talk to us about a possible Fourth Dimension, and amaze us by explaining what curious happenings might be associated with such if it existed. They are no whit more remarkable than those which we are called upon to believe in connection with the ether. For example:—It is far denser in consistence than any other kind of matter, 'millions of times denser than lead or platinum' (p. 13). Yet on the other hand, ordinary matter moves *through* it, not

(*) Quotations without other reference are from the official print of the presidential address by Sir Oliver Lodge.