plicated, any distribution of potential which satisfies *boundary-conditions* and one or two other essential criteria must be the actual distribution; for it has been rigorously proved that there cannot be two or more distributions which satisfy those conditions, hence if one is arrived at theoretically, or intuitively, or by any means, it must be the correct one; and no further proof is required.

One method of constructing a theory is by the use of analogies and working models: of which it is a commonplace to say that, however good they may be, they must fail in representation at some stage, or else they must be no analogy but the thing itself. This making or imagining of models (not necessarily or usually a material model, but a conceptual model) is a recognised way of arriving at an understanding of recondite and ultra-sensual processes, occurring say in the ether or elsewhere. As an addition to evidence derived from such experiments as have been found possible, and as a supplement to the experience out of which, as out of a nucleus, every conception must grow, the mind is set to design and invent a self-coherent scheme which shall imitate as far as possible the results exhibited by nature. By then using this as a working hypothesis, and pressing it into extremes, it can be gradually amended until it shows no sign of discordance or failure anywhere, and even serves as a guide to new and previously unsuspected phenomena. When that stage is reached it is provisionally accepted and tentatively held as a step in the direction of the truth, though the mind is always kept ready to improve and modify and enlarge it, in accordance with the needs of more thorough investigation and fresh discovery. It was so for instance with Maxwell's electromagnetic theory of light; and there are a multitude of other instances.

In the transcendental or ultra-mundane or super-sensual region there is the further difficulty to be encountered, that we are not acquainted with anything like all the boundary conditions, so to speak; we only know our little bit of the boundary, and we may err egregiously in inferring or attempting to infer the remainder. We may even make a mistake as to the form of the function adapted to the case. Nevertheless, there is no better clue, and the human mind is impelled to do the best it can with the confessedly imperfect data which it finds at its disposal. The result therefore, in this region, is no system of definite and certain truth, as it is in the domain of Physics; but emerges either in suspense of judgment altogether, or else in a tentative scheme or working hypothesis, to be held undogmatically in an attitude of constant receptiveness of further light, and in full readiness for modification and improvement.

OLIVER LODGE.

EXISTENTIAL IMPORT.

May I ask the Boolean logicians who still maintain that their formula ($0A = 0$) is necessarily true, whatever the class A may be, to point out the error (if error they find) in the following reasoning?

According to their symbolic conventions, the statement ($XA = X$) asserts that "Every X is A," whatever X and A may represent. By their conventions also the symbol 0 represents *non-existence*. Let A represent *existent*. It follows that the statement ($0A = 0$) asserts that "Every *non-existence* is *existent*," an assertion which is self-contradictory. Hence, the statement ($0A = 0$) is not always true for all values (i.e., meanings) of A.

Of course, the formula $(0A = 0)$ holds good in mathematics for every number or ratio A ; as, for example, $(0 \times 2 = 0)$. But then, in mathematics, $(0 \times 2 = 0)$ does not assert that "Every 0 is 2".

H. MACCOLL.

MIND ASSOCIATION.

The following have joined the Association since the printing of the last number:—

Calkins (Miss Mary Whiton), Newton, Mass.

Turner (Dr. E. L. D.), Providence, Rhode Island.

Warren (Mrs. Fiske), Oxford.