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THE ETHER CONCEPT IN MODERN PHYSICS¹

By Professor L. B. SPINNEY

IOWA STATE COLLEGE

I HAVE felt it would be safe to assume that the ether concept is a subject of interest to the workers in all scientific fields. As a matter of fact, it must be a matter of concern to all thinking people, since it has to do with some of the greatest of those forces of nature upon which depend the comfort, the happiness and, indeed, the very existence of the human race.

It is not here implied that a knowledge of this or, for that matter, of any physical theory is essential to man's existence; but it will be conceded, I think, that knowledge of this sort may contribute greatly to his comfort and happiness.

To have one's interest in this question aroused it would perhaps be sufficient to be reminded that the ether theory attempts among other things to explain the machinery by means of which heat and light are transmitted through regions devoid of ordinary matter

¹ Address of the president, forty-fourth annual meeting of the Iowa Academy of Science, Ames, Iowa, May 2, 1930.

—the radiant energy, for example, which comes to us from the sun across more than ninety millions of miles of empty space. It is, of course, this unbroken stream of energy which pouring upon the surface of the earth makes possible here all the varied forms of life, and the study of life, together with its conditions and environments, is directly or indirectly the ultimate objective of all branches of physical and biological science.

The first use of the ether concept is shrouded in the haze of the fragmentary records of antiquity. In more recent times, for which the records are more complete, it has had a strange and checkered history and for centuries in scientific discussions it has been a subject of bitter controversy.

The theory that space is filled by an all-pervading medium having properties unlike those of ordinary matter was for a time quite generally accepted. Later on, it was rejected and all but forgotten. It was afterwards revived and strengthened and brought



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