

point to a probabilistic universe, saying that,

"In effect, those particles only make up anything that is that firm simply because there are so many particles there that the chances of their being in the state that they appear to be in are the overweaning chances, and you are not conscious of the remaining ones."

What emerges is a probabilistic universe in which truth--to the extent there is any--is a property not of something objective, but of the mind of man. As Norbert Wiener said, in that elegant and trenchant phrase, a view of the world is emerging ". . . on which Bishop Berkeley might have smiled with pleasure."

This common view as to what is real also underlies the rational tradition. A typical assertion of this view would be: $E=mc^2$ may not be true, but it is truer than any preceding explanation of the same data. This would be a modern statement consistent with this view of the world.

Behind all these shared powers is a system of thinking. And this system of thinking is universal in its application. Here is an example. It is not a proposition, but concerns how the formula $E=mc^2$ was derived. This is a part also of the work done in developing the general theory of relativity. It is a different process of thought from that which went into the special theory.

In it, deriving from work done in relation to the special theory, Einstein had some equivalencies, in which the factor E appeared and the factor mc^2 appeared; and there were a lot of other factors. And he solved these equations for E so that he had an E on one side and the other stuff on the other side of the equal side. And then, thinking about these various factors he said of them--and incidentally, this is one of the rare cases where the man who did it has written a description of it: his own essay called "Relativity; the General and Special Theory," which he wrote in 1919. It is available in paperback. You can buy it in any paperback bookstore. There is a good translation of it.

What he concluded was that certain of these radicals were capable of being zero. Specifically, the velocity would be zero in the case of two bodies that were at rest with respect to each other. All of the radicals in the formula contained a velocity factor except the E on one side of the equal sign and the mc^2 on the other. Therefore, Einstein reasoned, mc^2 must equal the latent energy of an object at rest, and therefore energy and mass must be equivalent in this constant relationship.