

THE FOURTH DIMENSION.

BY PAUL ROBERTS SHIPMAN.

IN the New York *Sun's* weekly column of "Questions and Answers," widely recognized as a center of curious or forgotten lore and certainly supplied by one having not only a well-trained intellect but that flavor of culture which consists in knowing where to look for what one seeks to find, I note the following question and answer.

"Kindly inform me what the fourth dimension really is. MARY C. QUINN.

"It is a property of space quite beyond the sense perception of men, an abstraction derived from the results obtained by well comprehended processes in the higher mathematics. Certain things happen in these computations which are in no way susceptible of explanation in a space restricted to the three tea chest dimensions of length, breadth and thickness. From a sufficiently considerable number of such phenomena the theory has been evolved that space has a fourth dimension. In the common progress of mathematical study the need of such transcendental dimension first arises in the specific case of that plane section of the cone designated the hyperbola. At an infinite as well as in all intermediate distances of that curve from the point of origin the line is continuous in a given direction; if now to infinity a single unit be added the curve comes into view in the diametrically opposite direction. In this elementary demonstration the fourth spatial dimension appears to suggest sphericity; but this is only the beginning. It is still under careful examination by mathematicians. Sciologists at one time seized upon the idea in explanation of thought transference, psychic phenomena and the whole hoodoo range in general."

It is perhaps allowable to accept this as the up-to-date answer to the question. It is at any rate safe to say, I think, that no answer

more intelligent or more intelligible is likely to be given by the experts who are said to have the subject under further examination. If so, the true answer would seem to be that the fourth dimension is an absolute fiction. A thing the need of which arises from adding a unit to infinity is by that fact itself impossible, since any addition to infinity presupposes a contradiction, the first of impossibilities. An impossibility no doubt can be assumed to exist and from the assumption necessary inferences be drawn, but each of these will be as impossible as the original. The process is merely a play of reasoning, ending where it begins. The stream can not rise above its source.

A property of space or anything else which is "in no way susceptible of explanation" in three-dimensional space is either an ultimate fact, calling for no explanation and admitting of none, or no fact at all. If the fourth dimension "is still under careful examination by mathematicians," plain people may be pardoned for thinking that it has not yet passed out of the hands of the "sciolists." Many of the foremost thinkers of the world have been of the opinion that in the sphere of contingent matter, comprising admittedly the most important employments of the human mind, mathematicians in general are "sciolists," and visionaries besides. "In the course of my own experience, I have never met with a mere mathematician," says Dugald Stewart, himself in the opening of his career a distinguished professor of mathematics, "who was not credulous to a fault." The question of a fourth dimension, I will venture to add, does not properly belong to mathematics anyway, but to philosophy which alone determines the scope of our faculties and inquires into the origin and nature of things within it.