pyramid as we would turn over the triangle.

The question of the fourth dimension as a reality may be considered from two points of view, its conceivability and its possible objective reality. If by conceivability we mean the power of being imaged in the mind it must be admitted that it is absolutely inconceivable. We have no difficulty in forming a visual conception of three lines passing through the same point, each of which is at right angles to the other two. Such is the familiar system of coördinate axes in space. But he who would conceive a fourth dimension must be able to imagine a fourth axis perpendicular to all three of the others. This clearly transcends all possibility even of imagination. The fourth dimension in this sense is certainly inconceivable.

The question of the objective possibility of the fourth dimension is quite a distinct one from that of its conceivability. The latter limitation upon our faculties grows out of the objective fact that we and our ancestors have had no experience of a fourth dimension; that we have always lived in a universe of three dimensions only. But we should not too readily conclude that all being is necessarily confined to these three dimensions. Those who speculate on the possible have taken great pleasure in imagining another universe alongside of our own and yet distinct from it. The mathematician has shown that there is nothing absurd or contradictory in such a supposition. But when we come to the question of physical fact we must admit that there appears to be no evidence of such a universe. If it exists, none of its agencies intrude into our own universe, at least in the opinion of sober thinkers. The intrusion of spirits from without into our world is a favorite idea among primitive men, but tends to die out with enlightenment and civilization. Yet there is nothing self-contradictory or illogical in the supposition. The fish that swims the ocean experiences objects which, to him, seem to come from outside his universe, steamships for example. If our atmosphere had been opaque to the rays of light from the sun, or even if it had been so filled with clouds and vapor that we could never see outside of it, we also should have had a similar experience. But we may be said, in a certain sense, to see through the whole of our conceivable space with the aid of our telescopes, and the general tendency of scientific thought at the present time is toward the conclusion that no natural agency of which we can trace the operation originates outside the space into which our telescopes may penetrate. Our universe forms, so to speak, a closed system. This is true apparently even of agencies so subtle as those which give vibrations to ether. If there is any agency which we could imagine to connect us with an outside sphere it is certainly the luminiferous ether. But should this ether enter into a fourth dimension the intensity of light and radiant heat would diminish as the cube of the distance and not as the square. To speak more accurately, radiance emanating from an incandescent body would be entirely lost—would pass completely out of our universe. The fact that it is not lost, and indeed the general theory of the conservation of energy, shows that there is no interchange of energy between our universe and any possible one lying in another dimension of space.

We may regard the limitations of the dimension of space to three as expressing in a certain way a physical fact. Our conception of space is originally based upon the possibility of motion. The threefold posibility of relative motion can be reduced to a physical fact in this way. Let a point be fixed at one end of a rod, the other end of which is immovably fixed to a wall. The point can then have motion over the surface