

him in the plane, outside his prison. For us, if confined in a room with locked doors and windows, escape would be possible by a four-dimensional motion which would enable us to move away from the room in fourth direction around the walls and back to three-space, but outside the room and with no piercing of walls. To any one watching the performance there would be an instantaneous disappearance and reappearance. The slightest motion into four-fold space means complete disappearance from three-fold space, just as motion from a plane means complete departure from that plane. It has been suggested that collar buttons roll away into the fourth dimension on morning of early classes.

Also, suppose a ring of some flexible material. This could be entered from above, the inside lifted up, pulled over and replaced so that the ring would be inside out. To a plane dweller such a feat is impossible without puncturing the ring. So a hollow rubber ball could be approached from the fourth dimension and the inside wall seized, pulled out, turned over and replaced outside, with the result that the ball has been turned inside out without piercing the wall and with a very little stretching only.

The complete anatomy of a plane dweller would be open to the view of a three dimensional being. So our own interiors would be completely exposed to the view of a four-dimensional being. What a boon to the surgeon! In a very interesting little volume called "Flatland by a Square", by Abbott, a three-dimensional sphere tries to give a poor plane dweller, a square, some ideas of a third dimension. He asks the square to define space, which he does as extension in two directions. These two directions he indicates. The sphere tells of another direction upward. And to see in this direction "upward not northward" the square is told that he would have to have an eye on his side. He says he has one. But the sphere, to make it plainer, says the eye must be on his inside. "An eye in my stomach?" Mr. Square exclaims in horror. But that is it exactly. To see in a fourth dimension you would have to look in a direction which could start from every point in your body, let us say from your stomach, at a place which to a four-dimensional being is a side but to you is an inside. An eye to see in the fourth dimension could not be on the outside of the three-dimensional body.