Could a globe in the Universe actually be a hole? And even a passage to another dimension? Are there multidimensional life forms?

The following thoughts may appear strange to some readers. It may need a bit of mathematical thin king to understand what I mean. And I don't claim this to be true, but a speculation. But maybe even a bit more than that…

In the two-dimensional world

Let us begin with a two-dimensional world, as an example the screen surface you are now looking at. This text about *Flatland* may help to visualize what this is about: http://www.ibiblio.org/eldritch/eaa/FL.HTM. It is from a book that was published more than 100 years ago (see reference at the end).

What is a *hole* IN Flatland? It can be represented as follows:

It may be limited or also unlimited, ranging all over the surface of what we here call Flatland (that is how it is called in the book). If it is limited, it appears to the inhabitants in Flatland as a kind of a tunnel. They can enter at the one end and leave at the other. It is a tunnel to them. If it is infinitely long, they perceive it only as an insurmountable wall and they will never know what is on the other side.

This hole is completely IN the two-dimensional world and doesn't appear as a hole when regarded from the tree-dimensional world. Seen from there, it instead appears as two lines, which in the simplest case are straight and parallel. An inhabitant of the three-dimensional world could enter this two-dimensional tunnel from the side, since he through the third dimension can go over or below one of the lines, and he can also go to the other side of the tunnel.

So what is then a *hole* THROUGH Flatland? If it is to go through it, it must pierce through Flatland, so that someone in the three-dimensional world can go THROUGH Flatland and be on its other side. It can be represented like this:

For the inhabitants of Flatland, this would appear as an insurmountable wall that looks the same from all sides, a *two-dimensional globe*. They could walk around it, but never inside, since this would require a detour through the three-dimensional world. But they don't know anything about the three-dimensional world and even don't believe in it.

An inhabitant in the three-dimensional world could through the third dimension enter this globe from all sides, over or under the circular line, which it appears to be to him. If he could take a two-dimensional shape, he could enter the hole, pass over or under it, and like out of nowhere surprisingly appear to the inhabitants of the two-dimensional world.

If there is light in the three-dimensional world, it could go through the sides of the hole so that it appears to be shining, to them like a kind of a sun.

In the three-dimensional world.

What, then is a *hole* IN the three-dimensional world? It can be represented like this:

In its simplest shape it is a cylindrical tunnel (through some kind of a three-dimensional structure). If it is limited, one can enter at the one end and leave it at the other. Seen from the side, it is not necessarily an insurmountable barrier for an inhabitant of the three-dimensional world, since he can move in the third dimension (which the inhabitant in Flatland cannot). Thus he can go *over* (or *under*) the hole tunnel and arrive at its other side (and over or under the structure that has that tunnel). If the tunnel is infinite, he can only go over or under it, but not inside.

This hole is entirely IN the three-dimensional world and would, seen from the four-dimensional world, to an inhabitant there appear as some mind of a structure in the three-dimensional world, of which he at the same time can see its inside and its outside. An inhabitant in the four-dimensional world could enter the tunnel also from the side, "through" its wall (actually through a detour in the fourth dimension) – as it would seem to an inhabitant in the three-dimensional world that is inside the tunnel. If the four-dimensional one could also take on a three-dimensional shape, he would appear to the two-dimensional one in the tunnel like out of nowhere.

So what, then, is a *hole* THROUGH the three-dimensional world? In analogy to the above, its inside would be accessible only from the fourth dimension and someone in that dimension could go through it to the other side of the three-dimensional world. If he could also take on a three-dimensional shape, he could go "through" the wall and like out of nowhere appear in the three-dimensional world.

In analogy to the *hole* THROUGH Flatland, that in there appears as a two-dimensional globe. Its simplest shape would be a *three-dimensional globe*. The inhabitants in the three-dimensional world would perceive it as a sphere and would see only that, and they would not perceive it as a hole.

Could some celestial "bodies" in reality be such holes?

What would gravitation then be? We know that masses attract each other and call this gravitation. Could it also (and not only that!) be that *dimensions attract each other*? In that case, one would notice a corresponding kind of gravitation at such a globe. (Or maybe masses in a certain way are also holes that are filled and not empty, so that it in the three-dimensional world appears that masses attract each other, at least in part…).

And if there is light in higher dimensions (including infrared that we perceive as heat), such a globe would appear to the inhabitants in the three-dimensional world as shining and warming, like a sun. This would, of course, not mean that all suns (stars) are such holes, but maybe some of them are?

Passages between dimensions?

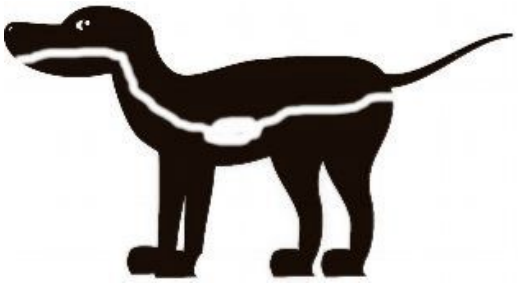
If there are such globes that in reality are *holes* THROUGH the three-dimensional world, they could also be passages to other dimensions. Others could be like tunnels – not IN, but – THROUGH the three-dimensional world. Could these be the "worm-holes" in science-fiction stories that some modern physicists actually regard as possibly existing?

Vehicles close to the Sun?

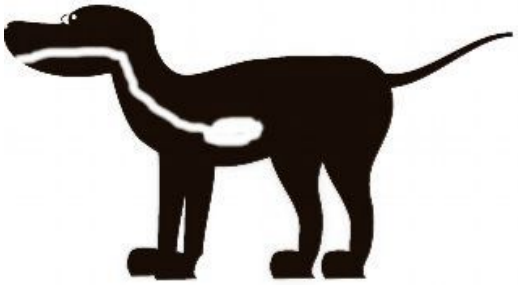
There are videos in the Internet, which allegedly show unclear (unsharp) enormous "UFOS" close to the Sun. Referring to the above, one may ask: are these really a kind of vehicles? Or are they artifacts in the image (or maybe even manipulations of it)? If they are real: how could they be so close to the Sun without being burned and destroyed? Did they, in that case, even come out from the Sun? Do they come from other dimensions in shapes that are only partially three-dimensional and that, in their other dimensions, can support the heat of the Sun without problems, since this is not perceived as heat in these dimensions?

Could there be two-dimensional life forms?

Stephen Hawking has claimed that life in a world with less than three dimensions would not be possible, with the argument that "a two-dimensional dog would fall apart because of its digestion channel." That channel would split the dog in two parts that could not keep together in Flatland. This argument is, of course, invalid, since such a dog would have to excrete the undigested rest of the food the same way it came in… There are mollusk-type life forms in the sea (and maybe also on land) that actually function like that! Therefore, this argument is astonishing…



This dog could not exist in Flatland, because it would fall apart.



This dog could exist in Flatland.

We don't know if there are two-dimensional life forms, but it cannot be excluded.

Could there be multidimensional life?

"Multidimensional" here means: with more than three dimensions. If there are multidimensional worlds, could there be forms of life above "our" three dimensions?

If there are such life forms and they also have three-dimensional parts, we would with our three-dimensional organs of perception only be able to perceive the latter. If they also have "higher-dimensional" parts, we could not perceive them. They would to us be like ghosts – not less physical in their worlds, only imperceivable for us. This possibility cannot be excluded and it could explain many strange and "parapsychological" (as we call them) phenomena… If they could temporarily take a three-dimensional shape, we would see them appear and disappear.

Maybe we are ourselves multidimensional, too? Almost all religions claim that we have a soul that continues to exist after the death of the body, normally imperceivable with our three-dimensional organs of perception. Near-death experiences could be taken as *evidence* for this (not proof). Could then the soul be what we really are, but that we temporarily took a three-dimensional shape that we call body, and are so fixated to that body that we forgot who we really are? Do we after death return to our original multidimensional shape? Do we then discover that we also have other but forgotten perceptional faculties that can also perceive higher dimensions? Could it even be that a few human beings have a limited and vague access to such perceptional faculties of the soul and, therefore, can see and hear what others don't? But we don't want to believe them and regard them as "crazy" – as a few of them may be, but not all (and maybe these are not so few)… like a person born blind doesn't believe in colors and cannot even imagine them…

But why should we then take a three-dimensional shape? Maybe to have three-dimensional experiences… And why that, then? Well, that will be another story that would lead to "new dimensions" of thinking, speculation and logical reasoning…

Multidimensionality and orthogonality

A point has no dimension.
A line has one dimension.
A surface has two that can be described in *x* and *y* coordinates.
The three-dimensional space: *x*, *y* and *z* coordinates.
The four-dimensional space: *x*, *y*, *z* and (let's say) *w* coordinates.

We object: "Impossible"! There can be no *w* axis that is at right angles to the three others. Such a thing can be described mathematically but never visualized. Or are we here at the limit of *our three-dimensional consciousness*? Is it unimaginable only in our *three-dimensional thinking*? For a hypothetical (as an example) five-dimensional entity this would look very differently! It could easily imagine this, and even a (say) *v* axis at right angels to the four others, because it lives in such dimensions! It would find it hard to understand our mental restrictions, but for us it is a koan.

An attempt for a solution of the koan?
Is the concept of a coordinate system in itself a restriction? The dimension of a space is informally defined as the minimum of coordinates required to specify a point in it (http://en.wikipedia.org/wiki/Dimension). It might, however, be that the concept of Cartesian coordinates actually is valid only up to three dimensions and that, from there on, another way of specification is valid, even though we don't know how. The hypothetical five-dimensional entity would know… Our albeit mathematically valid but (for us) unimaginable description in the form of multidimensional coordinate systems are then superseded there.

It may also be that the concept of a "point" is valid only in three dimensions. In higher dimensions the concept would be different and with aspects that we cannot imagine.

Reference

Edwin Abbott Abbott: *Flatland. A Romance of Many Dimensions*, 2nd edition, Seeley & Co., London, 1884.