Worm Holes? Higher Dimensions? Portals?

The scientific investigation of the UFO phenomenon for the benefit of humanity is MUFON'S mission statement. In the fifteen years that I have been a member, continual enhancements have been made toward a realization of this goal. We now have improved field investigator training, a new well-structured Case Management System, MUFON University for educational training in all aspects of investigations, and numerous websites to draw upon for locating celestial objects, satellites, aircraft, and accessing weather information to name a few. MUFON has certainly made impressive strides toward achieving its central doctrine.

But what about the big picture? Are we using the latest science to understand the nature of the phenomenon we are studying? I hear a respected physicist talk about worm-holes and portals opening in the sky to explain the strange occurrences encountered during investigations at Skinwalker Ranch in Utah. I hear an award-winning journalist and researcher talk about time-travelers from the future to explain the apparent 1980 UFO incident at the Rendlesham Forest Army Base in England. Let us take a brief step back in history to see why these ideas are no longer relevant.

Issacc Newton gave us his three laws of motion and his theory of universal gravitation which held sway for nearly four hundred years until Albert Einstein came up with new ideas to explain a few anomalies that did not fit into the Newtonian framework. His new theory explained the anomalous behavior of the planet Mercury; the invariant speed of light for all observers in constant motion; the relative nature of space, time, and motion; the equivalency of mass and energy; and an explanation of gravity that does not require Newton's mysterious unmitigated forces acting across empty space which Einstein called 'spooky action-at-a-distance.' Gravity, he said, does not *cause* the warping of space/time; it *is* the warping of space/time.

Einstein contributed as well to the new quantum theory, winning the Nobel Prize for the photoelectric effect, which demonstrated that photons are made of quanta—individual packets of energy. But as a physicalist, who believed in an objective universe independent of observation, a philosophical position called local realism, he did not believe that the observer could influence

the outcome of experiments. He said that he liked to believe the moon was there even when he did not look.

Einstein's equations led to proposed black holes, Einstein-Rosen bridges or worm holes, and time-travel. Many ufologists latched on to these ideas to explain visitations from extraterrestrials as well as time-travelers from our future. While the equations of special relativity might in theory allow for time-travel, too many paradoxes arise for such events to occur in practice, such as the notion of a time-traveler coming back and changing some event that would influence a future event. Einstein himself said that an effect can never precede its cause.

The same holds true for Einstein-Rosen bridges or worm holes. The whole idea of these bridges is highly speculative, and no such objects have ever been discovered nor are they likely to, according to most physicists. And recently, theoretical physicists have found that worm holes would be unstable if they existed—good luck traveling through one!

How about anti-gravity propulsion as a possible means for extraterrestrials to travel through interstellar space? This method of propulsion might be practical if you happen to be near a gravitational mass, but what is an anti-gravity vehicle going to "push against" in the vacuum of interstellar space. We sometimes forget that gravity is an extremely weak force, in fact, it is 10 to the 40th power weaker than the electromagnetic force. This can be demonstrated by using a simple refrigerator magnet to pick up a paper clip off the floor. The electromagnetic force of the tiny magnet is stronger than the entire gravitational force of the Earth.

Could extraterrestrials pop into our reality through a portal from a higher dimension? Afterall, string theory predicts that there are 10 dimensions of space and one of time. However, no higher dimensions have ever been detected and string theory has been a disappointment, with few physicists working on it these days. The proposed extra-dimensions are supposed to be very tiny—magnitudes smaller than the atom. At that infinitesimal size, space and time fail to have any meaning. For example, when one attempts to probe very small objects, such as an atom, one needs to use wave-lengths of light smaller than what one is trying to define. As one probes smaller and smaller regions of space, one needs shorter and shorter wave-lengths of light. The problem is that the shorter the wave-length the more energy it carries, and we know from Einstein's equations that more energy means more mass, and mass means gravity. By the time one gets close to 10 to the minus 33 centimeters, the Planck length, the region of space being

probed accumulates so much mass that it collapses that region of space into a black hole. Space, therefore cannot be hiding any extra-dimensions.

So how many dimensions of space are there? eleven, ten, five, three? No, I am proposing that there may be only one or two dimensions of space.

In 1995, while working on the problem of Hawking radiation in black holes Leonard Suskind of Stanford University developed the holographic principle. He understood that a copy of all the information stored inside a black hole can be represented on its event-horizon, the surface boundary of the black hole. This holographic principle holds true for any region of space. The information contained in any volume of empty space is related to its surface, not its volume.

This idea has led some physicists to speculate that we could well be living in a holographic digital universe. Are we a projection of a thin layer of information existing on the twodimensional surface of our universe? Are we living in a computer-like simulation? This idea, once considered to be outlandish, has its roots in both Western Greek philosophy and Eastern Hinduism, and is now being taken seriously by some physicists.

At our MUFON meetings, I often hear members in our group sessions talk about utilizing the newly understood properties of quantum theory, namely nonlocality, to send messages or even dematerialized spaceships faster-than-light across intergalactic space, but it has been known since quantum theory's inception that this is not a possibility for several reasons. First, all information has physical properties whether they are words on paper, petroglyphs on the surface of rocks, the electromagnetic information on a CD, or the up/down spin of an electron. All information is physical and must obey the laws of thermodynamics and relativity; therefore, information cannot be sent faster than the speed of light. Secondly, a quantum measurement always produces a probabilistic result when measured which cannot be anticipated by the sender of the information. This makes sending instantaneous messages untenable. And finally, and most importantly, three researchers, Anton Zeilinger, Alan Aspect, and John Clauser have won the 2022 Nobel Prize in physics for the experiments they conducted with subatomic particles, essentially closing any possible loop-holes in John Stewart Bell's theorem of inequality—demonstrating that subatomic particles do not possess attributes independent of observation.

These experimenters set out to answer two questions: First, is nature nonlocal? In other words, is there some kind of unknown instantaneous communication or 'spooky action-at-a-distance' between correlated particles that are shot off in opposite directions and then measured? And second, "Do these experiments violate local realism. Local realism, as described by Hans Christian von Baeyer in his book *QBism* is the assumption that objects have physical properties that are unaffected by measurement, observation, or even thoughts and opinions.

Surprisingly, these experimenters did not find nature to be nonlocal, but they did find that local realism was violated. Einstein was half-right—no 'spooky action-at-a-distance'—but particles do not possess attributes independent of observation or measurement. The 'objective' reality that we perceive is illusory to a large degree. We live in a participatory universe.

The conclusion is that worm holes, extra dimensions, portals, and faster-than-light travel have no scientific basis, and if we MUFON members are serious about upholding our tradition of the scientific investigation of the UFO phenomenon, we should look to the latest scientific experimental research.