

Occam's Razor versus Kasper's Razor:

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Occam's Razor is a philosophy that the simplest model of a set of competing models should be considered the best. Of course, the word "simple" is propaganda in that it has no definition by which to assert one model is simpler than the other, and it doesn't help approach the goal of solving the problem. So I would propose Kasper's Razor. Kasper's Razor says that the most robust model is the best. A robust model is one that can explain when something does occur, when it does not, and what the boundaries are. It enables us to make predictions from the model when things will and will not occur and with equal accuracy. The most interesting impact of this is the impact on the so-called "negative conjecture," namely you "cannot prove a negative." This is untrue for a model meeting Kasper's Razor since we know the boundary limits of the model and by its nature it can then tell us why under some circumstances the model cannot be applied. This means we have a complete model view of the world under study where we can explain what does and does not apply, and therefore can answer in the negative, in the affirmative, and in the neutral (the boundary between the two). Not only does Kasper's Razor tell us where our model operates, but it allows us to identify when other model systems touch upon the boundary of our model, and hence, allows us to discover yet other models that are thus far unidentified.

In the application of Kasper's Razor, I have used it to define a specific set of geochemical conditions that agates under study are found in, namely, they occur as silica gel systems. I then proposed that all known behaviors of silica gels (and especially bentonite gels) must match to the agate structures I see. Also, the gel theory must predict an exact set of geologic systems where agates are not found in that the gels cannot occur in those conditions and therefore the agates must not be found there. The successful application of that model allowed me to find out two things. First, I found 52 model systems of agate genesis that all touch upon the basic set of gel system principles. This destroyed the one model fits all dogma for agates. This is the view that all agates form in lava voids idea that comes from early European literature. In actuality, any subordinated geologic system that meets the basic set of fundamental gel system conditions will make an agate system. The second impact is that it gives me the ability to prove negative conjectures, that is, the model has successfully shown that any proposed system that does not meet this model cannot make an agate.

This means overall that it took both a methodical and regimented philosophy leading to a scientific approach as well as the scientific data itself that led to my conclusions of agate genesis. It was only possible based on one of my first conjectures: No inclusion forms in the agates by accident, and none form later. They are cogenetic, and as such the study of agate inclusions tells us how the agates formed. My views are different than the European literature due to their failure to understand that agates are rocks of mixed composition and as such the study of agate inclusions are critical to understanding agate genesis. This means that agate genesis cannot be solved without studying inclusions and that any model of genesis must meet Kasper's Razor for agates--any genesis model must be totally compatible with the known geological conditions of inclusion formation. It is this fundamental lack of understanding that has failed to produce any work resolving agate genesis before me, and why current agate texts are not scientific works that resolve the problems of agate genesis.

Why is Occam's razor such a flop for the geologic sciences? The key lay in the fact that none of the systems being studied are simple. They are very complex because they are open systems where interactions can occur on a millimeter scale. Even though agates occur and structures are built on a small scale, we see with our eyes an integrated, aggregate structure, and therefore Occam's razor fails to reconcile the fact that the level of resolution of the system under study affects the theories proposed.