

Locard's Exchange Principle and Stellar Metamorphosis

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Abstract: The single greatest contribution the theory of detection and criminology was provided by Edmond Locard, as his Exchange Principle. It is the notion that the perpetrator (nature or animal) always leaves some physical evidence at the crime scene, or event, and simultaneously takes some evidence away. This is to show that not all evidence will be immediately available, unless it can be interpreted in a light that makes sense and is congruous to the other facts presented. This is to mean that Nature and/or animal will always leave their signature on the event and are, in turn, contaminated by it. Explanation is provided to tie in the general theory of stellar metamorphosis to Locard's Exchange Principle.

There are no "perfect crimes", only as yet unsolved ones. This means any event that transpires can be reverse engineered and solved, including crimes committed by human beings, or Nature and her various tools which can be extraordinarily deceptive. With a murder case, say, a person is stabbed to death, there will be evidence of specific knife marks on the body. As well, fingerprints on the knife. So given the knife was used in the murder, more likely it will be removed from the scene as well as the body. So some evidence is removed, in this case the knife and the human being that was murdered. Unwittingly though, the evidence that could remain would be tire tracks of the vehicle the murderer used to transport the body, boot imprints in the ground, fibers from the murderer's clothing found where the murder transpired, etc. So what we have here is the fact that evidence can be removed, but the very act of removing the evidence or even taking part in the event, also produces evidence that tells a tale.

So with all events, Locard's Exchange Principle is a potent reminder that every deception leaves something incongruous at the crime scene (or event) and simultaneously takes something away. This gives the detective, analyst or scientist two bites at the proverbial apple. Though, we cannot be too careful. It is mostly well said by Locard himself:

"Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as a silent witness against him. Not only his fingerprints or his footprints, but his hair, the fibers from his clothes, the glass he breaks, the tool mark he leaves, the paint he scratches, the blood or semen he deposits or collects. All of these and more, bear mute witness against him. This is evidence that does not forget. It is not confused by the excitement of the moment. It is not absent because human witnesses are. It is factual evidence. Physical evidence cannot be wrong, it cannot perjure itself, it cannot be wholly absent. **Only human failure to find it, study and understand it, can diminish its value.**"

It is often argued that I cannot present any evidence towards the realization that the Earth is an ancient star, but this is a false argument and based on the failure of human scientists (and internet trolls) to find it, study and understand it, where its value is diminished. The case stands, astronomers were claiming to understand how stars evolved long before they knew about brown dwarfs, which is the stage of evolution where stars begin to cool enough to stop shining brightly. Stellar evolution models were drawn up a full half century before brown dwarfs were discovered. The evidence was totally human failure to find it, study and understand it. On a different note, the evidence for Earth having been much more massive is apparent as Nature simultaneously left evidence of her actions, while removing some other evidence. That is the curious case of hydrogen, and presents the paradox of how it got to combine with rocks, minerals and even oxygen to form vast oceans to begin with.

The velocity of hydrogen gas at temperatures above 120 Kelvin is high enough to escape Earth's gravitational pull. Yet, hydrogen exists in large quantities on the Earth combined with other elements taking the form of molecules such as water, various rocks and minerals, composing plant and animal life and even buried deep in the interior of the Earth combined with carbon in the form of oil and natural gas. This being said, if the Earth was hot when it was forming, around the same heat as liquid rocks or about ~1,000 Kelvin, then the hydrogen would have escaped Earth's gravitational pull very easily and never combined into molecules in any large amount. Hydrogen is very light and has a high velocity at even low temperatures so it would have never been pulled in by Earth's tiny gravity. The oceans would have evaporated as well as water vapor at ~1,000 Kelvin would have had enough velocity to escape Earth's pull. Oceans would not have formed if the Earth was its current, as is, mass when it was forming from rocks clumping together, as accepted by the dogma. So it is a paradox. How did light elements in huge quantities form molecules on the Earth during its formation if they would have easily escaped the lava world? The paradox is easy to solve. Earth was easily a gas giant well in its past, which explains the prevention of atmosphere loss. All the molecules formed on Earth were formed when Earth was vastly larger. A larger gravitational field would prevent the hydrogen from escaping. Instead, it would be compressed and form molecules in chemical reactions, the same chemicals we find in rocks, minerals, life and found buried deep in the interior of the Earth. All smaller rocky bodies in space that contain hydrogen were individual stars, or remains of collisions between evolving stars. There is no other way to trap the hydrogen during formation unless the gravitational field is big enough to allow for molecular synthesis of the hydrogen into heavier molecules.

So the missing evidence (the evidence removed by the process of stellar evolution) is the fact that Earth has very little hydrogen as opposed to heavier material, but that is the path that stars take. They lose their hydrogen if it does not combine with other elements on large scales. Yet, the trace amounts, the evidence of Earth having been vastly more massive than its current size is the fact that the hydrogen is here, and is combined with oxygen and rocks/minerals and life on the Earth. So the scientific detective can have two bites of the proverbial apple. As well as there are technological advancements in astronomical imaging and processing, stars that no longer shine should be found. They should be observed to be losing large amounts of hydrogen gas, and the researchers have found them. They are called Hot Jupiters.

The reason for writing this paper is to show that people who tell me, "where is the evidence", is a half-baked question, used to troll and does not possess counter-deception attributes. You also have to look where the evidence is missing, misplaced or removed, giving

the appearance that it does not exist, which in itself is evidence. In Barton Whaley's view, the detective has what's called the analyst's advantage,

"Whoever creates a deception simultaneously creates all the clues needed for its solution. Moreover, every deception necessarily generates a minimum of two clues, at least one about the real thing being hidden and at least one other about the false thing being shown." -BW, 2005

Sure, Earth is not as massive as the Sun, and contains far less hydrogen, but the evidence in the rocks and life itself which possess hydrogen. The hydrogen itself could not have coalesced in any nebula other than one with a gravitational field much stronger than Earth currently possesses. This means Earth was vastly more massive, we are witnessing what the Sun will be, as well the intermediate stages between Earth and the Sun are apparent now in the term "exoplanet", which is a relatively new term, to us, but have been there before humans were human.