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Ladies and Gentlemen,

The fact that Mr. Black uses in his letter a word derived from the word 'science' doesn't mean that his text contains any scientific arguments.

First we have to explain how is the term 'scientific content' defined in LPI. In my opinion the 'scientific content' is not the number of conferences on the 'Giant impact' hypothesis or the number of lectures given, or the sum of money spent on checking the correctness of the hypothesis. 'Scientific content' is the logical coherency of the basic idea of the hypothesis presented.

For the comparison we have the 'scientific content' of two hypotheses:

- the 'Giant impact' hypothesis of Ms. Robin Canup and
- the "Outburst of the Earth's inner core".

## **My comments to the hypothesis proposed by Ms. Robin Canup:**

The first problem of this hypothesis is that the Earth after such collision would rotate much faster than it does now. Other aspect of the 'Giant Impact' hypothesis is the fact that it doesn't explain anything but contrary – it complicates the problem even more.

The question "where did the Moon come from?" is only replaced with the question "where did the Impactor come from?". If the considerations of Ms. Canup concern an object three times of mass of Mars, then it is one third of Earth's mass. So we can no longer talk about an asteroid as she suggests. It is a medium-sized planet. From where would such a planet come to this point of the Solar System and why on such collision course with Earth, which apparently is needed by the hypothesis of Robin Canup.

If it was a planet that was formed in the Solar System then why was it formed on such collision orbit? Why the collision with Earth would have taken place just after formation of this planet? This parts of which it was made should have fallen on Earth and Venus (or Jupiter) before the planet was formed.

If it was an object from the outside of the Solar System then why such similarity in the chemical composition of the Moon and the Earth?

One of the most important arguments against the 'Giant Impact' hypothesis are the today's parameters of the Earth's orbit. Either the eccentricity (0.017) or the angle between orbit's plane round the Sun and the orbits' planes of other planets (max. 3°) don't indicate that such catastrophe took place at all.

We do not find answers to all these questions in Robin Canup's hypothesis.

The unproven catastrophic hypotheses in physics usually mean the capitulation of imagination to the statistics. The best example here is the rotation axis of Uranus (my favorite planet...) and its moon Miranda. The rotation axis of Uranus lies almost in the orbit's plane. Satellites and the rings of Uranus lie in its equator's plane.

If the rotation axis was inclined by some catastrophe after the planet's formation then why did the satellites remain in the equator's plane?

If the catastrophe took place before Uranus' formation then what kind of catastrophe it was?

The 'Giant Impact' with a cloud of gas?

If Miranda was shattered once by some catastrophe then why this moon's orbit has an eccentricity below 0,01 and lies exactly in the plane of Uranus' equator?

Another question to LPI: why does Mercury have such elliptic orbit?

As you can see Ladies and Gentlemen we still have a lot of work to do.

So let's better not waste the time.

Sincerely

A handwritten signature in black ink, appearing to read 'T. Tumalski'. The signature is stylized with a large initial 'T' and a long, sweeping underline.

Tadeusz Tumalski