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Life from the core

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Life on Earth is the result of the chaotic combination of several independent chemical and physical parameters. One of them is the shield from ionizing radiation exerted by the atmosphere and the Earth's magnetic field. We hypothesise that the first few billion years of the Earth's history, dominated by bacteria, were characterized by stronger ionizing radiation. Bacteria can survive under such conditions better than any other organism. During the Archean and early Proterozoic the shield could have been weaker, allowing the development of only a limited number of species, more resistant to the external radiation. The Cambrian explosion of life could have been enhanced by the gradual growth of the solid inner core, which was not existent possibly before 1 Ga. The cooling of the Earth generated the solidification of the iron alloy in the center of the planet. As an hypothesis, before the crystallization of the core, the turbulence in the liquid core could have resulted in a lower or different magnetic field from the one we know today, being absent the relative rotation between inner and external core.