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Dear Josh:

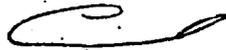
Thanks for your recent note. Yes, I think I remember reasonably clearly how we met. I had moved to Madison, Wisconsin because I couldn't bear Williams Bay, Wisconsin, the site of Yerkes Observatory, which was where graduate students in astronomy at Chicago were supposed to do their classes and research. At Madison I knew some people in the biology department because I had been earlier a student of H. J. Muller; in addition, Lynn was a graduate student there in cytology. Through one of those routes I met Jim Crow, and it is through him that we met. I can remember giving a colloquium on the origin of life or perhaps the surface of Mars at Jim's behest in the biology department (I don't think it was in the genetics department) at a time before you and I met. I am sure of the timing because I had been told that you were ferocious and ate graduate students for breakfast; and I was apprehensive that I would be eaten publicly in the question period after the talk. But you were out of town, I think, and did not attend. At any rate, our first meeting was arranged by Jim, and as I recall, it was in the afternoon and you and Esther came over for a talk. You were anxious to learn about planetary atmospheres and surfaces and questions of planetary cosmogony. I remember you mentioned the analogy between an interstellar dust grain and a bacterium and that you described the contents of your paper with Dean Cowie, which had not yet been published in Science. I think that dates our meeting in 1958 -- perhaps spring, but I may be mistaken. Among other recollections of that period: I lent you a number of references including my copy of the second edition of Gerard Kuiper's Atmospheres of the Earth and Planets, the cover of which was coming off. You returned it with a repaired cover which I thought was extremely considerate. I remember being impressed that you had been calculating Hohmann transfer trajectories for interplanetary flight. We went so far as to write up the draft of a proposal on possible alternative genetic systems, alternative to the nucleic acids, on other planets. It was never submitted and probably wisely so. I think it was then and probably still is premature. But I wish I could find it in my files. I would love

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to re-read it. Also, you took me by to talk with Verner Suomi, and I can remember discussing with him possible instrumentation for automated lunar landings. Neither Verne nor I were involved with spacecraft missions at that time; however, right now we find ourselves co-investigators on the imaging experiment of Mariner Jupiter/Saturn. My chief recollection of our conversations was the delight I took in then, what an effective learning experience they were for me, and how well we communicated: there were many times when we were able to say only a few words for the full idea to be communicated. In thinking back on those days, I feel that if not for the encouragement by H. J. Muller and yourself, I might not have had the courage to seriously pursue what later has come to be called exobiology.

With all good wishes,

Cordially,



Carl Sagan

CS/csk