

Starship Century Symposium Takes Flight

James Benford describes two fascinating days in May when interstellar science touched down at the Arthur C Clarke Center for Human Imagination in San Diego in association with a new book, *Starship Century*.



Getting to the target stars: (L-R) Ian Crawford, Geoff Landis, Bob Zubrin, Paul Davies and Adam Crowl come together for a panel, moderated by the SETI Institute's Jill Tarter (not shown). All images credit: James Benford/Starship Century.

Our principal goal for the book *Starship Century* was to collect the visions of interstellar thinking across the spectrum from physical, biological and other technical areas as well as social, political and humanistic perspectives. That includes essays, science fiction and even some poetry.

Our second objective was to fund interstellar research with the profits from the book. Therefore, for both of those reasons, we wanted to make a book that would be widely read, i.e. to communicate the perspective of 2013 on starships and

and the interplanetary economy essential to build them to, frankly, sell a lot of books so that research can be done to advance the visions.

With the book well defined, we got in touch with the new Arthur C Clarke Center for Human Imagination at the University of California, San Diego, which was looking for a kick-off event that would attract a broad audience. Our book seemed to be an obvious choice. We organised the symposium very much along the lines of the book; the overlap between symposium participants and book participants was very high.

The location was on the beautiful UC San Diego campus in La Jolla where my brother and I entered as physics graduate students 50 years ago. Attendance was quite high; the Clarke Center cut off registration at 338. It was the largest interstellar meeting that will occur this year.

The attendees were quite stellar. Everyone was glad Freeman Dyson was there. Freeman turns 90 this year, is the subject of a very good new biography and many of us wanted to be photographed with him.

On the science policy side we had Freeman Dyson, Paul Davies, Robert Zubrin and Peter Schwartz, the futurist. On the science side, John Cramer on exotic 'warp-drive' propulsion, Adam Crowl on pioneering starship ideas, Geoff Landis on nuclear rockets and Ian Crawford on destinations for starships and myself on beam-driven sails. Jill Tarter moderated a panel shown in the accompanying photo. On the science fiction side there was my brother Greg, Neal Stephenson, Allen Steele, Joe Haldeman, David Brin, Richard Lovett, Larry Niven and Vernor Vinge.

Space Towers and New Space

The first day started with the perspectives of Schwartz, Dyson, Zubrin and Stephenson. Peter Schwartz used his future thinking methods to argue that the several classes of possible fates of mankind mean that, though we may be driven by religion or by great nations or by the funding of trillionaires, starships are almost inevitable.

Neal Stephenson gave his view that civilisation isn't thinking big anymore and showed the work of his team on the possibility of constructing a tower 20 kilometres tall. This represents a big engineering challenge, forces the consideration of new factors such as adding airfoils to towers, would give us a new perspective and could have applications such as launch-to-orbit and a tethering base for a space elevator. His theme was the nonlinear potential of big ideas. For example, the USA built the Panama Canal, which aside from inter-ocean transport also supplies all the electrical power for Panama hydroelectrically.

In the afternoon we had several talks on how to develop the Solar system in the near term as a prelude to launching starships. Of particular interest was Chris



Physicists Freeman Dyson and Geoffrey Landis.



Chris Lewicki of the asteroid-prospecting company Planetary Resources, who gave an overview of the steps towards mining asteroids.

Lewicki of Planetary Resources, who described their ambitious plans and how they intend to make money on space resources. Chris then joined a panel, moderated by Peter Schwartz, made up of Dyson, Stephenson, Steele and Landis discussing the future of what is now called 'New Space'.

Because the book went on sale at the symposium for the first time, that evening and the following evening editors and authors of the book *Starship Century* signed copies. We sold about 200 books in the two days.

The morning of the second day focused on how to actually build starships: early ideas, beam-driven sails, nuclear rockets and exotic propulsion. As the day went on, a sort of harmony developed among the participants. I think it was because they were getting to know each other and could work together to explore ideas. In the afternoon, Paul Davies cautioned about the complexities of interacting biologies: 'Can we Survive Alien Biospheres?' Jill



Jon Lomberg, visionary.

Tarter moderated a terrific panel on 'Getting to the Target Stars' with Ian Crawford, Geoff Landis, Bob Zubrin, Paul Davies and Adam Crowl. Meanwhile, Gregory Benford moderated a panel of science fiction writers: Joe Haldeman, David Brin, Larry Niven, Vernor Vinge and Jon Lomberg.

Jon Lomberg gave the final talk, a real stem-winder that urged us to consider ourselves 'Citizens of the Galaxy' and gave a crowd-pleasing description of his marvelous Galaxy Garden, a model of our galaxy 100 feet across, located on the Big Island of Hawaii (look it over at <http://www.galaxygarden.net>). His talk was interrupted several times by applause.

Toward the Grandest Horizon

There was agreement on the proposition of the symposium that, now that the initial reconnaissance of the Solar System has been conducted (a probe will fly past Pluto two years from now), exploring beyond the Solar System by robotic or crewed starships, beginning with precursor probes, is the next horizon for civilisation.

The symposium ended on a very positive note; several people asked me if we were going to hold another one in future. In fact we're working on having another Starship Century Symposium in London at the British Interplanetary Society with a tentative date of 20 October.

That evening David and Cheryl Brin had a wonderful party for many of the participants at their home. About exploring the stars, David feels that "Few assumptions will hold true out there — even when we find nice, warm, watery worlds with nitrogen–oxygen atmospheres. For one thing, such an atmosphere can only have been produced by life... locally evolved and far fitter for local conditions than our dauntless settlers will be. Either the local biome will be incompatible with ours, in which case there will either be conflict or parallel ecosystems — or else compatibility will mean we can find plenty to eat in the new realm... but then they will be able to prey on us."

For further discussion of this symposium and its aftermath, buzz and blogs about the symposium, and excerpts from the book, see the website <http://www.starshipcentury.com>. The symposium videos of all the talks can be viewed there, too.



The SETI Institute's Jill Tarter



Allen Steele, a science fiction author who featured in a panel, 'The Future of New Space' with Freeman Dyson, Chris Lewicki, Neal Stephenson, Geoff Landis and Peter Schwartz.



Science fiction author Neal Stephenson raised the prospect of a 20-kilometre tall tower as an example of 'big engineering', reminiscent of Jon Lomberg's Earthport painting (see last issue!).

If you want to see an extended version of the thoughts discussed in the symposium, and the science fiction about starship ideas, get and read the book *Starship Century*, available in paperback now and in e-book in August [we'll also feature a review of it in an upcoming issue – Ed]. Between now and then, about two thirds of the purchase price of the book will go directly to fund interstellar research.

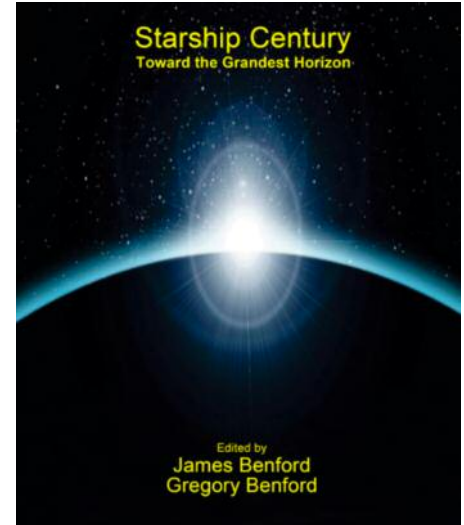
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About the author

James Benford is President of Microwave Sciences in Lafayette, California. His research includes high power microwave systems and nuclear fusion, and in 2000 he led a team that demonstrated the first flight of photon-driven carbon sails using microwave beams.



James Benford



The cover to the *Starship Century* book, featuring such illustrious authors as Stephen Baxter, James and Gregory Benford, David Brin, Freeman Dyson, Stephen Hawking, Paul Davies, Joe Haldeman, Martin Rees and many more! You can order your copy from here <https://www.createspace.com/4240458>, or from regular book shops after its public launch date of 20 August.