



NIAC's Philosophy

Dr. Robert Cassanova
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2011 Fellows Orientation Meeting

ANSER - November 15-17, 2011

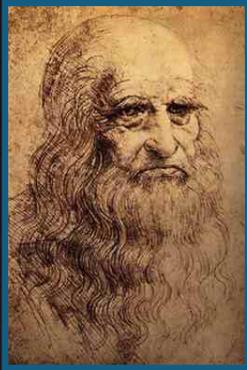
Stretch your imagination...
Change the possible!

Jay Falker



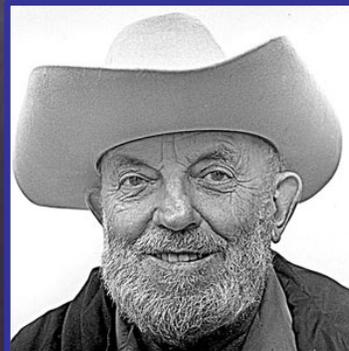
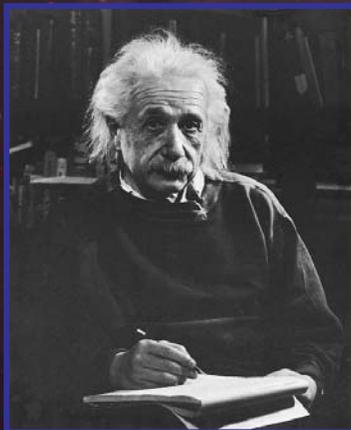
www.nasa.gov/oct

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The true visionary delights in an unfettered, creative imagination, exploring the possibilities of understanding the mysterious.

**Genius is the ability to transcend experience
And
“The Rules”.**



Holding onto fundamentalist beliefs in art, science, religion and politics, stifles the intellectual pursuit of knowledge and expression.

Don't let "rules" become millstones that lock your research, science and art into fundamentalist cages.

"Rules" may be over-extended suggestions.

Changes in both art and science, however, have the same root –

- *the realization that things are not as we are accustomed to viewing them,*
- *that there is more to them than what our standard representations can portray.*

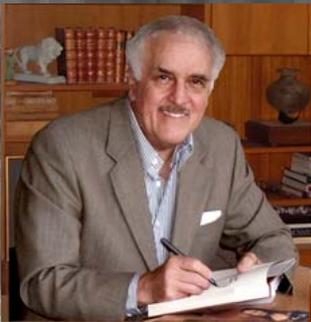
----Bulent Atalay

“....art is the pursuit of questions. Art is wonder. Art is inquiry. Art is a peek into the mysterious. At its best, art is, like life, asking the right questions and the right questions are so often more important than the answers we find.”

---Brooks Jensen,
Editor, LensWork

A Few Scientists/Artists

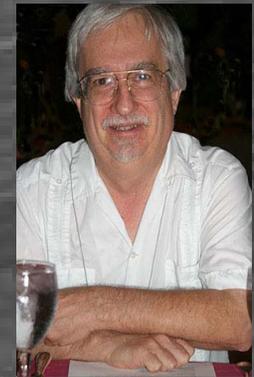
Our scientific, psychological and artistic tendencies
are predisposed towards
symmetry, order, patterns, elegance, beauty and harmony.



Bulent Atalay,
physicist, artist
and author



Leonardo
da Vinci



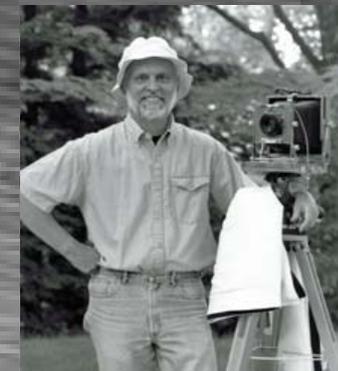
Steve Strom,
astronomer and
photographer



Eliot Porter,
MD and photographer

**Visionaries often have a passion for
science and art.**

Visionary science is art.



Paul Wainwright,
physicist and
photographer

Visionaries and geniuses share a common trait:

The ability to transcend life's experiences and leap vast intellectual distances to set a new course for others to follow.

Imagination and visualization are, generally, the first step in learning, or creating, something radically new.

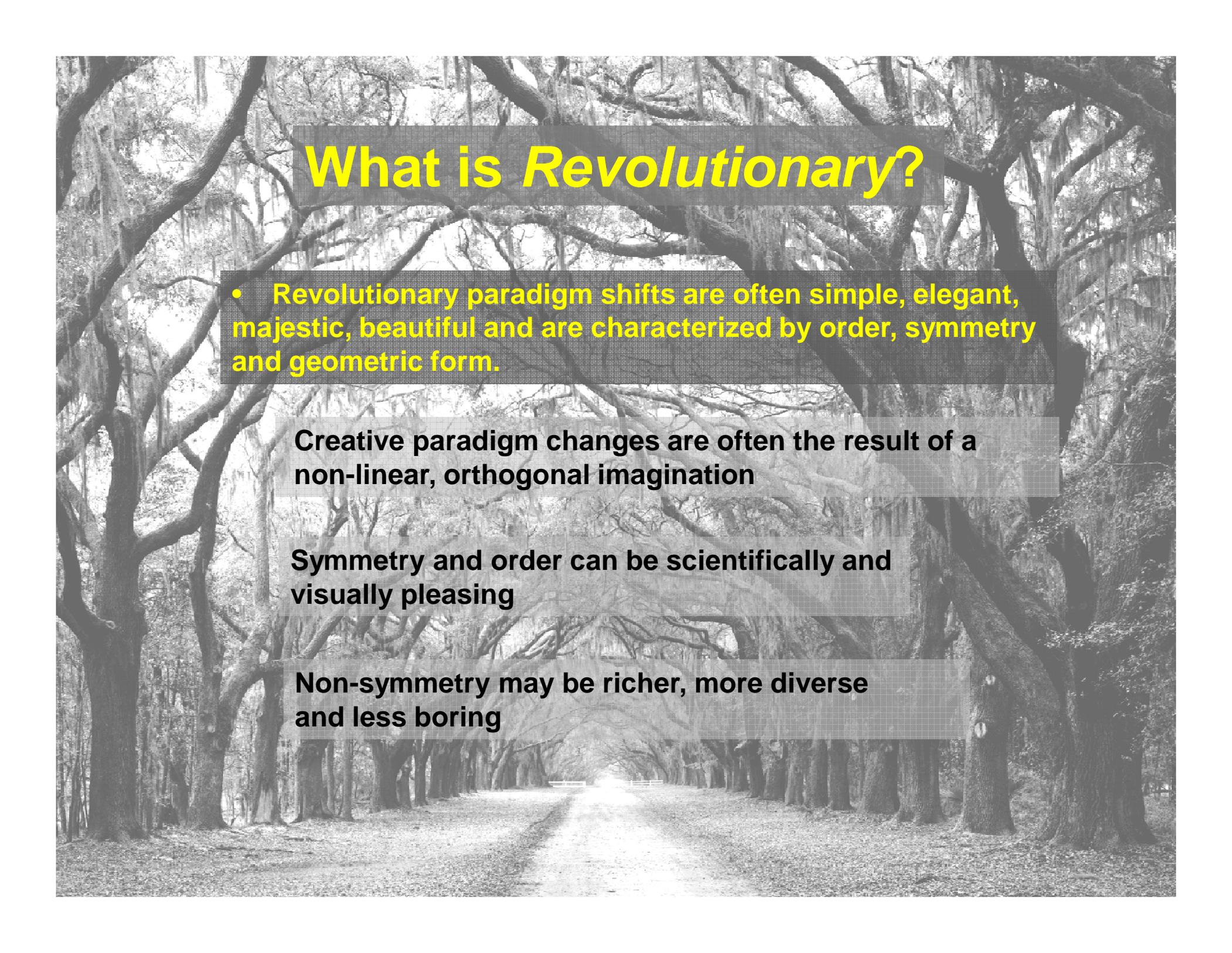
"You cannot depend on your eyes when your imagination is out of focus"

Mark Twain



What is Revolutionary? (inspired by NIAC's definition)

- The genius is in the generalities, and not the details
- The new idea illuminates a pathway towards a significant expansion of knowledge
- It inspires others to produce useful science and further elaboration of the fundamental idea
- It triggers a transformation of intuition
- Revolutionary paradigm shifts are often simple, elegant, majestic, beautiful and are characterized by order, symmetry and geometric form.



What is *Revolutionary*?

- Revolutionary paradigm shifts are often simple, elegant, majestic, beautiful and are characterized by order, symmetry and geometric form.

Creative paradigm changes are often the result of a non-linear, orthogonal imagination

Symmetry and order can be scientifically and visually pleasing

Non-symmetry may be richer, more diverse and less boring

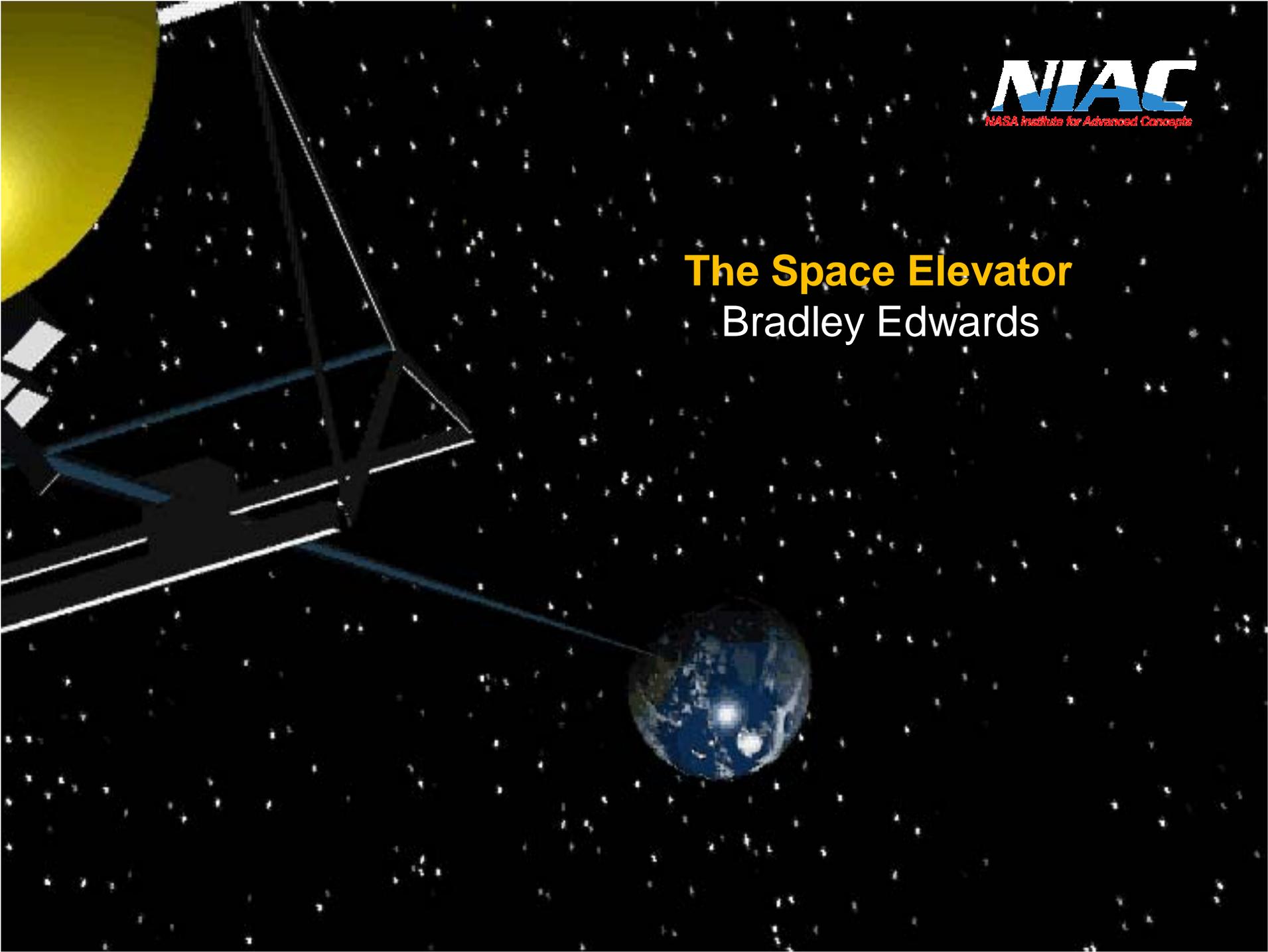
Three Stages of Reaction to Revolutionary Ideas

- 1 – It's completely impossible
- 2 – It's possible, but its not worth doing
- 3 – I said it was a good idea all along

Arthur C. Clarke



*A few examples of
NIAC Landmark Concepts
that inspired credible controversy
and
new directions*



The Space Elevator
Bradley Edwards



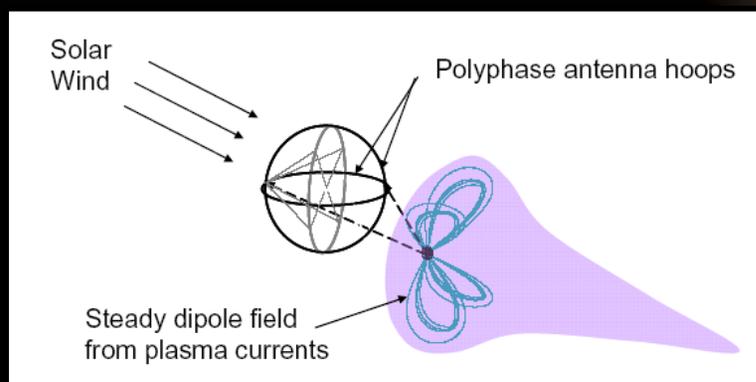
New Worlds Imager

Webster Cash, University of Colorado



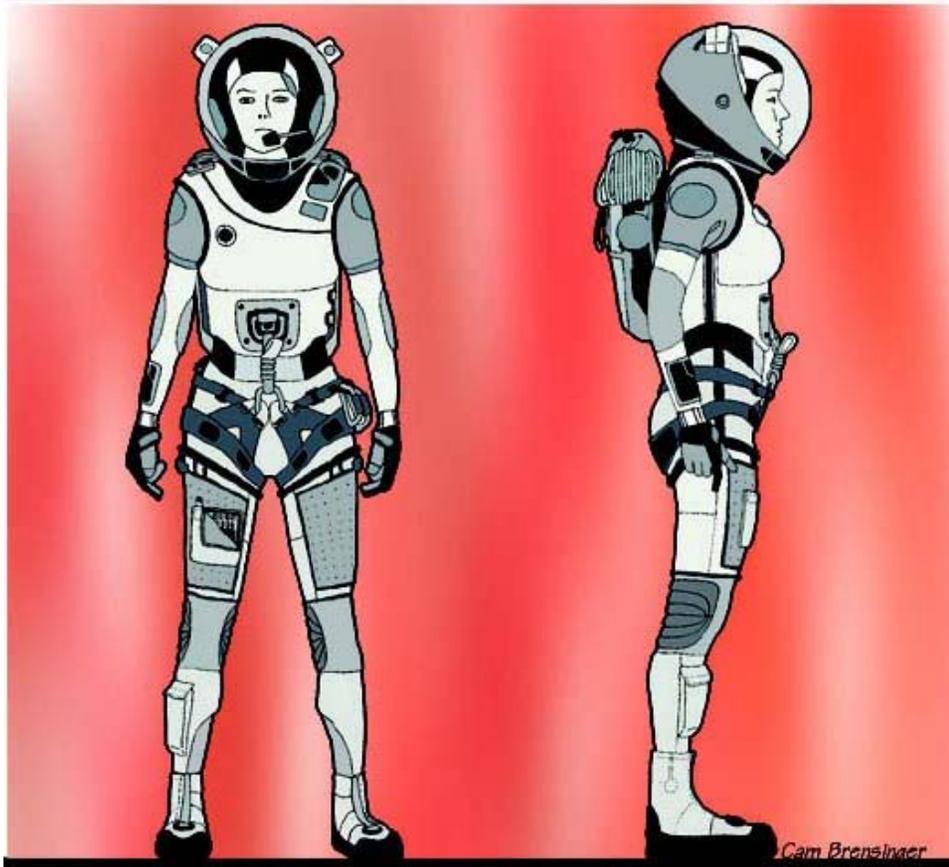
Plasma bubbles for in-space propulsion and radiation protection

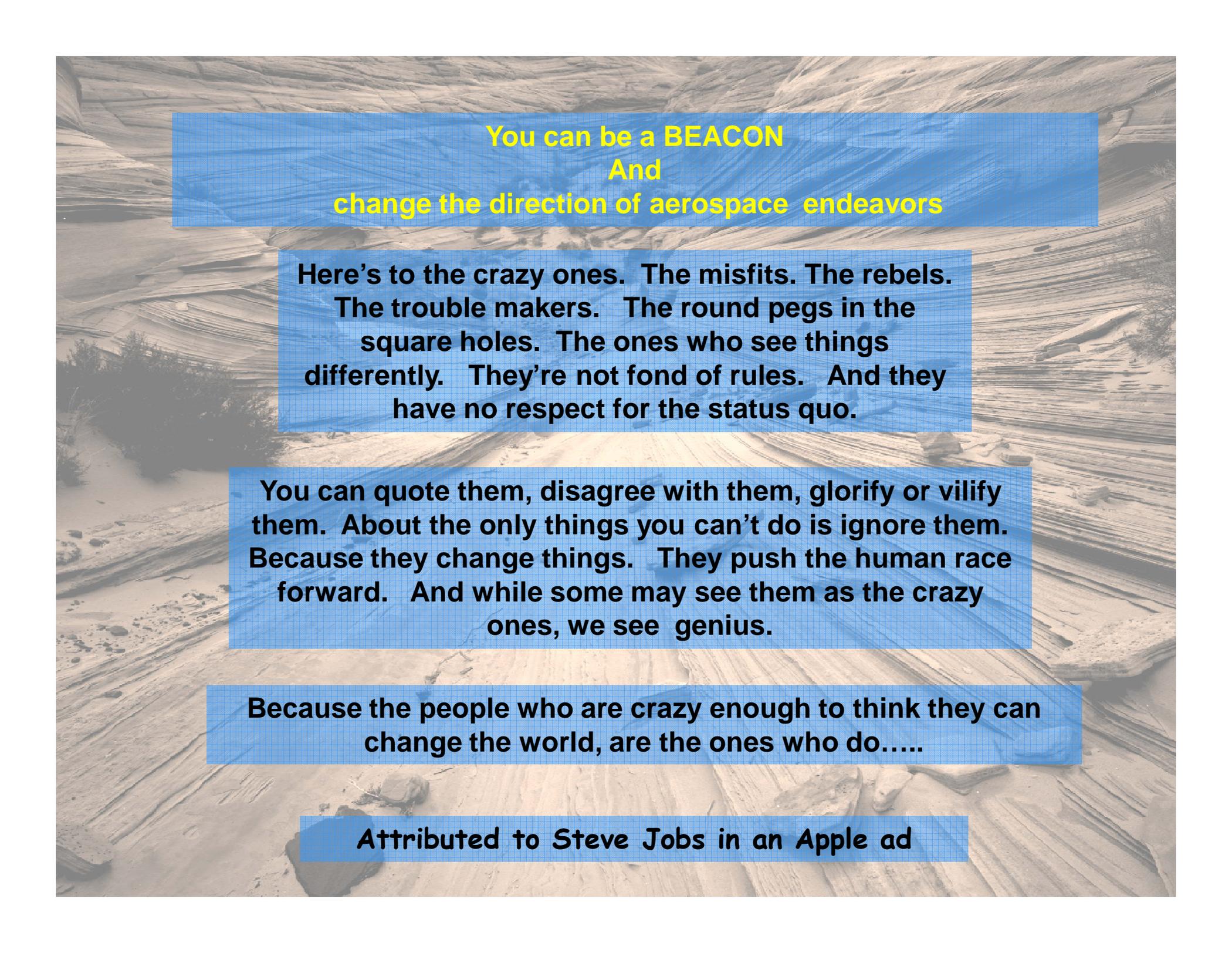
Robert Winglee and John Slough
University of Washington



Biosuit

Dava Newman
Massachusetts Institute of Technology





**You can be a BEACON
And
change the direction of aerospace endeavors**

**Here's to the crazy ones. The misfits. The rebels.
The trouble makers. The round pegs in the
square holes. The ones who see things
differently. They're not fond of rules. And they
have no respect for the status quo.**

**You can quote them, disagree with them, glorify or vilify
them. About the only things you can't do is ignore them.
Because they change things. They push the human race
forward. And while some may see them as the crazy
ones, we see genius.**

**Because the people who are crazy enough to think they can
change the world, are the ones who do.....**

Attributed to Steve Jobs in an Apple ad

FINAL ADVICE

Don't get the DTs (Do This, Do That)

Listen to your divine discontent and Exceed Yourself

Develop a creative vision before mediocrity's embrace.

Don't be just a landmark

Be a Beacon that inspires further elaboration of the concept

Don't let your preoccupation with reality stifle your imagination.

- Robert Cassanova and Sharon Garrison