

Steven R. Van Hook, PhD

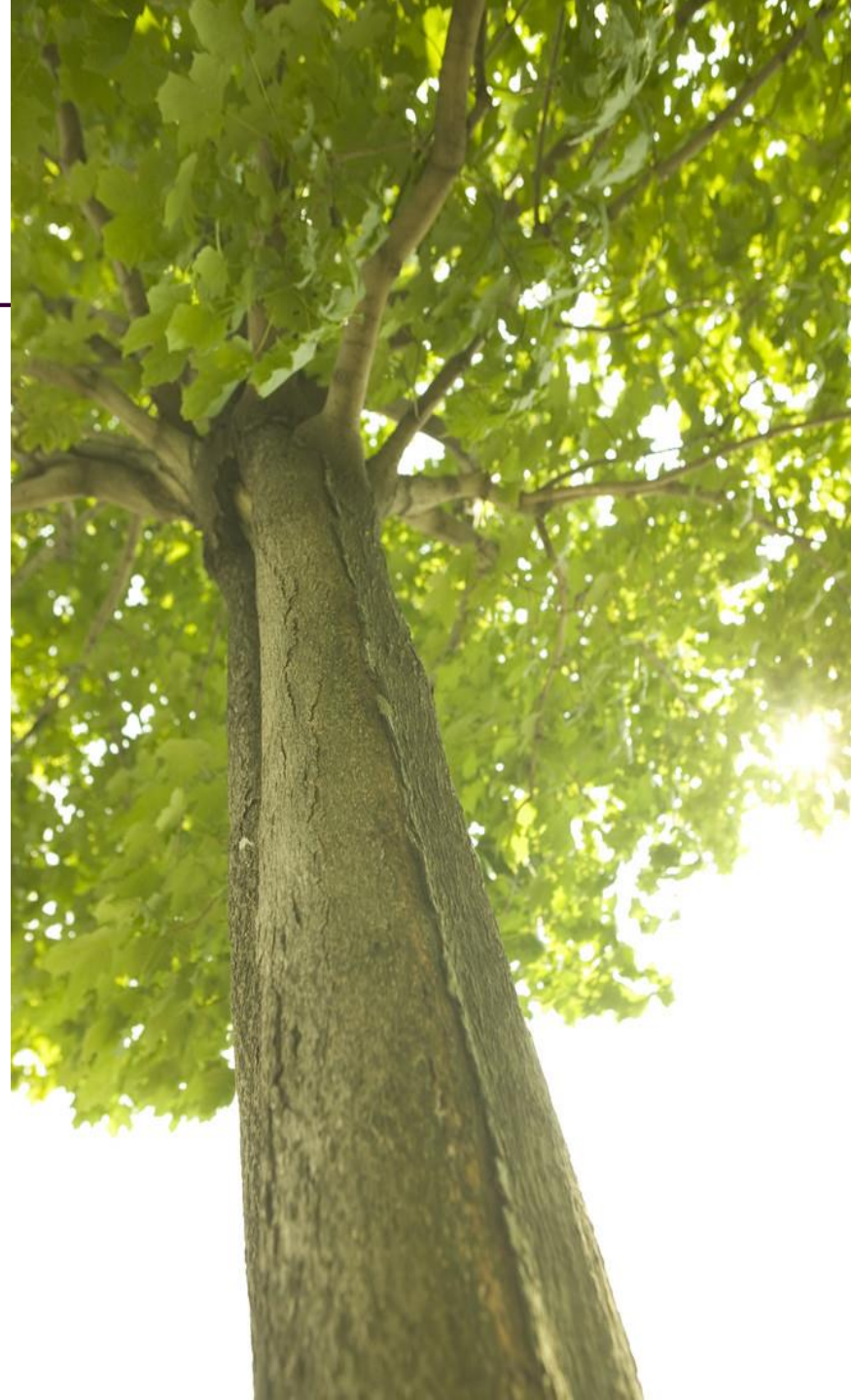
Science Circle Seminar

**Alien Exosociology:
Our Transgalactic
Commonalities**

01/09/2016

Doctoral Research

- Sociocultural Systems
- Socioeconomic Systems
- Transcendent Commonalities





War of the Worlds

“In my heart, I don't believe that ...”
(aliens will be sinister) – Steven Spielberg



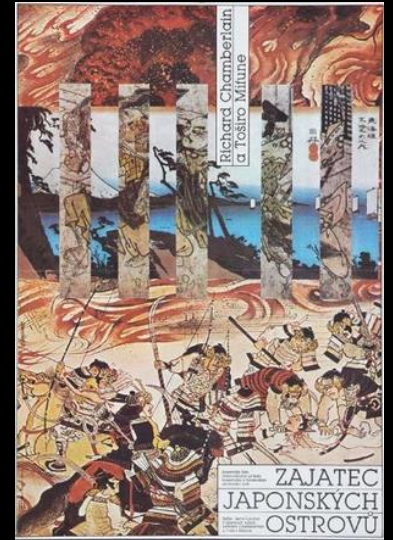
- Interstellar (2011)
- Cowboys and Aliens (2011)
- When Worlds Collide (2010)
- Transformers (2007)
- War of the Worlds (2005)
- Men in Black (2000)
- Brief History of Time (1991)
- ET (1982)
- Close Encounters of the Third Kind (1977)

New Worlds Discovered



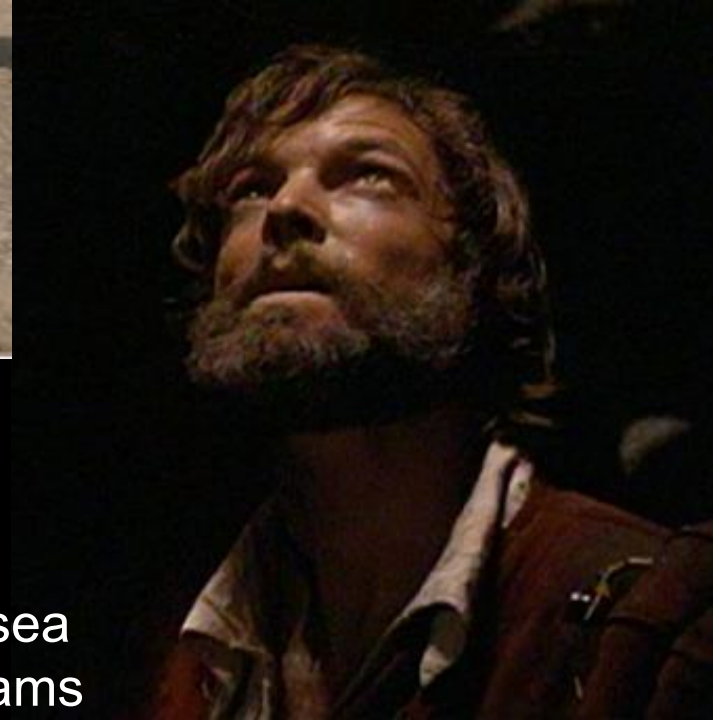
Shogun

*By James
Clavell*



16th Century meet of
Europe & Japan

Based on English sea
captain Will Adams



World Headlines



- Astronomers Predict Contact within 25 Years (Reuters)
- Scientists Reach Out to Distant Worlds (New York Times)
- Could Space Signal be Alien Contact? (Reuters)
- 166 'Promising' Alien Signals (National Geographic)
- Allen Telescope Increases Scan by Factor of 100 (SETI)
- Galaxy Holds Dozens of Other Earths (Agence France-Presse)
- Alien Planets Show Themselves (New York Times)
- NASA Forms Astrobiology Institute (New York Times)
- Maybe We Are Alone After All (New York Times)
- Astronomers Find Cradle of Alien Life (Agence France-Presse)

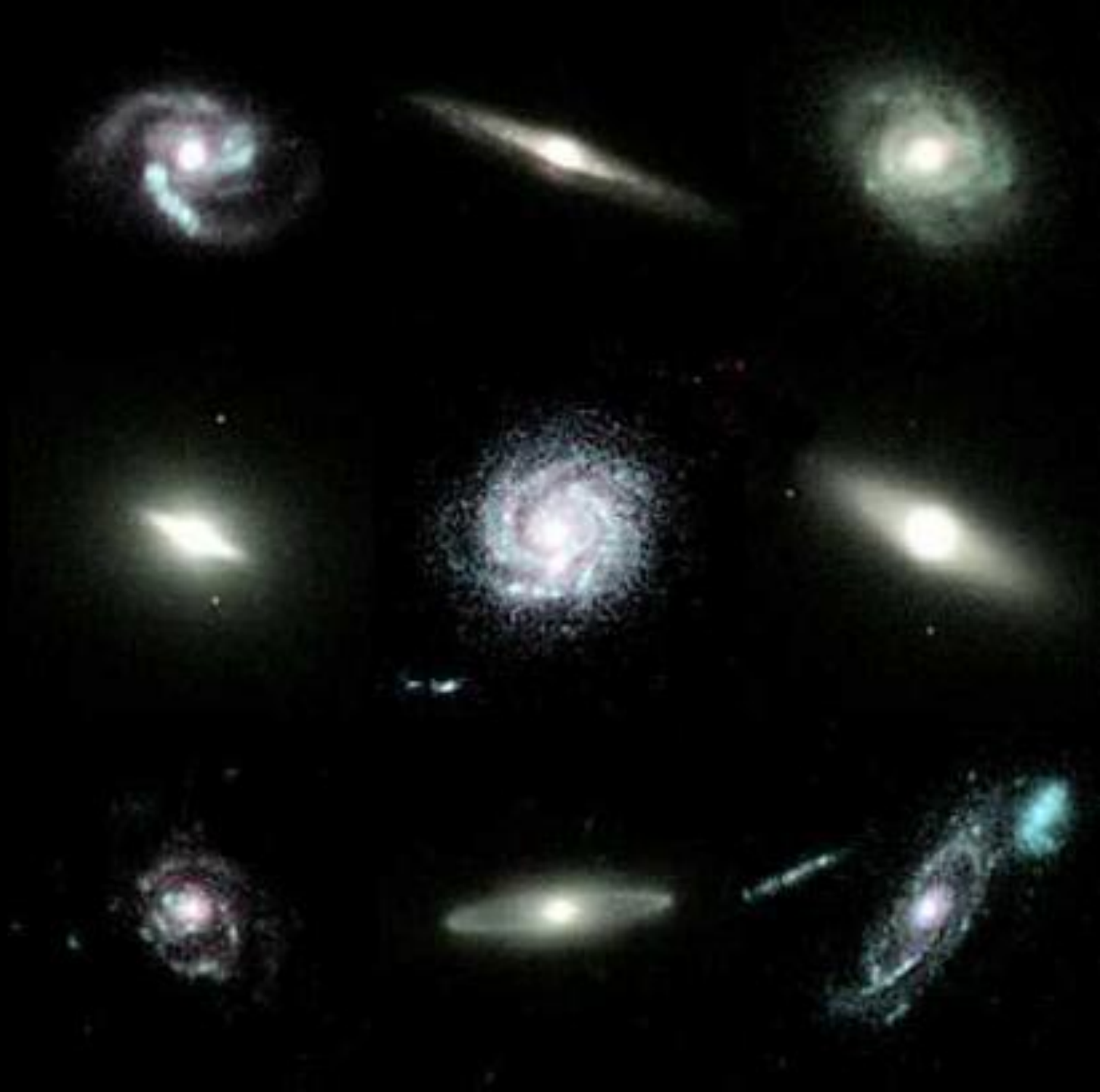
[Articles & Resources](#)

Universal Cosmography



- 50-billion visible galaxies in the universe (Milky Way is one); conservative estimate of 100 billion visible and not.
- Conservative estimate of 100 billion stars per galaxy.
(~200 billion in Milky Way)
- $100 \text{ billion} \times 100 \text{ billion} = 10 \text{ sextillion stars in universe}$
(10-thousand billion billion)
(International Astronomical Union estimates 70 sextillion stars)
- Conservative estimate of 1-in-a-million stars with orbiting planets; 1 planet per star system = 10-million billion planets.
- Conservative estimate of 1-in-a-million planets support life = 10 billion life populated planets in the universe.

**The newest
camera on
the Hubble
Space
Telescope
has
created an
image of a
huge hunk
of the sky,
including
at least
10,000
galaxies.**



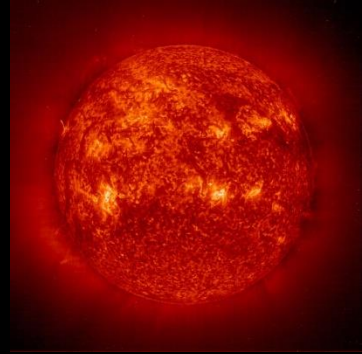
The Sombrero Galaxy



Eye of God Galaxy

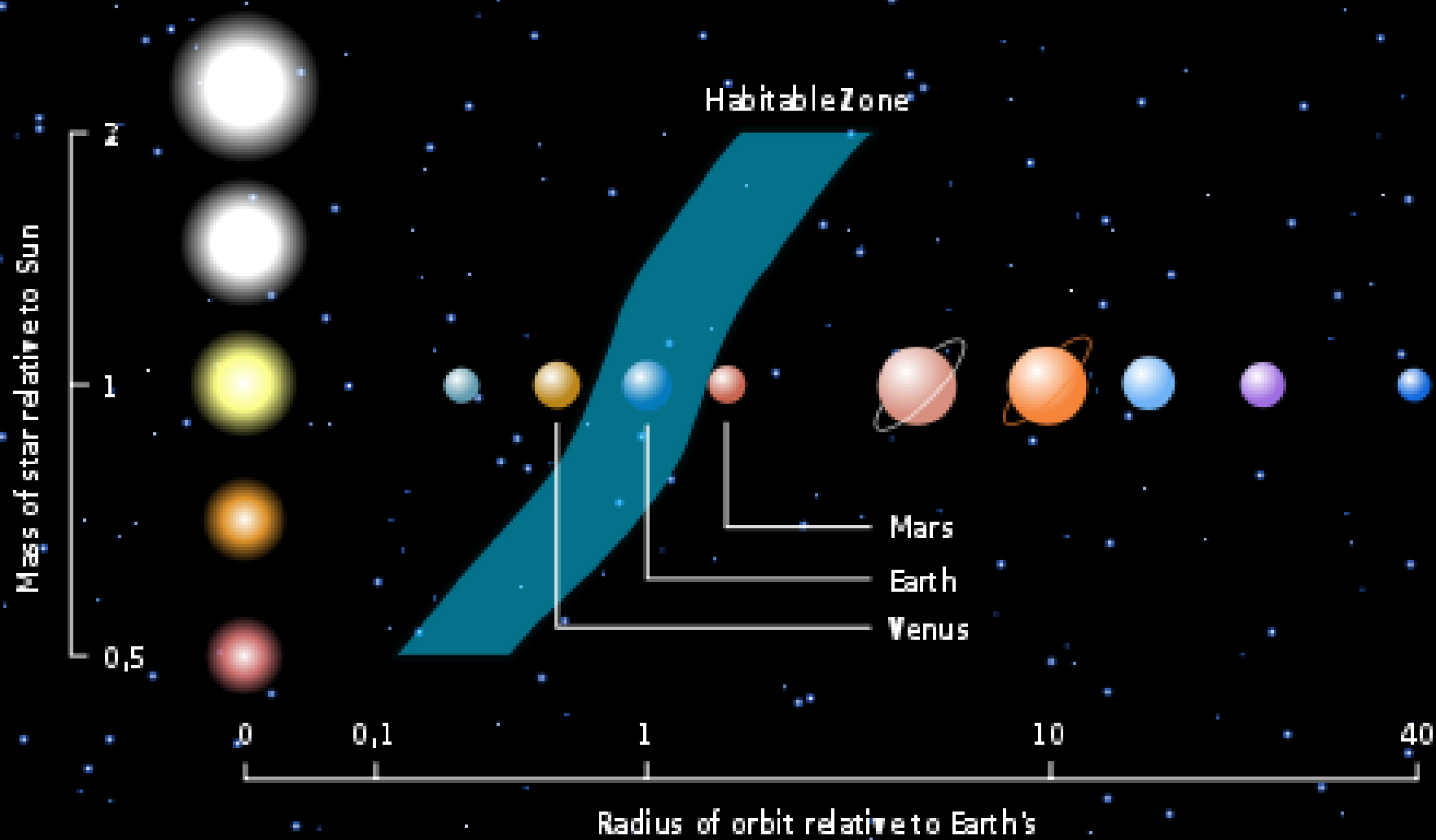


Our Solar System



- A NASA montage of planetary images taken by spacecraft. Included are, from top to bottom: Mercury, Venus, Earth and its moon, Mars, Jupiter, Saturn, Uranus and Neptune. (AFP/NASA)
- 8 Minutes for Sun's rays to reach Earth





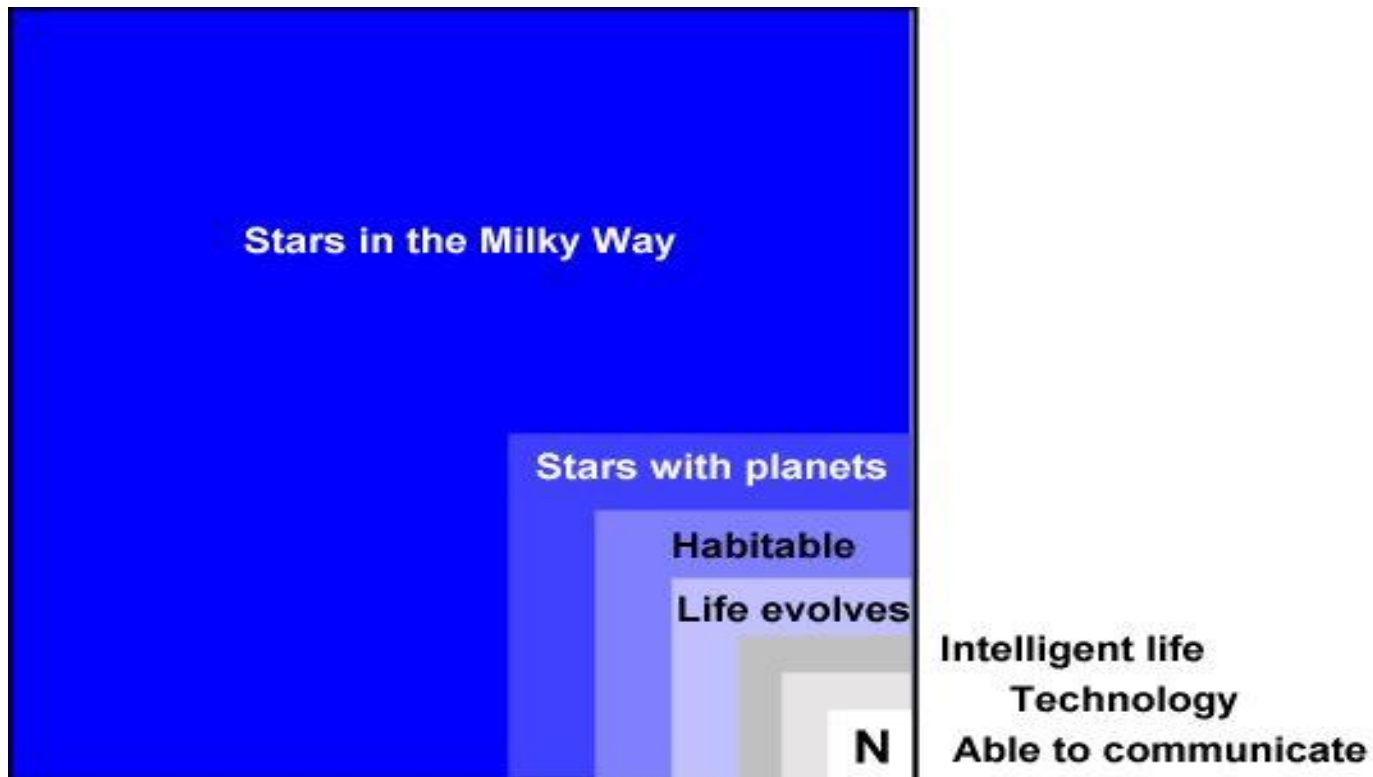
Drake Equation



$$N = R \times f_p \times n_e \times f_l \times f_i \times f_c \times L$$

N = number of Milky Way civilizations able to communicate by radio.

Dr. Frank Drake calculates N at 10,000.



Astronomer Carl Sagan (1934 – 1996)



- **Dr. Sagan** revised the Drake Equation and raised the estimate to a million alien worlds in the Milky Way Galaxy. Since the cosmos holds hundreds of millions of galaxies, by that analysis the total number of alien societies could be astronomical, one estimate putting the number at roughly 10 trillion.

(New York Times)

Rare Earth Hypothesis

- Drs. Peter Ward & Donald Brownlee propose conditions suitable for complex life may be very rare throughout the universe—a reason we haven't had any contact.
- Radiation too intense in galactic centers; requisite metals too rare in galactic outlands; catastrophic extinctions; habitable zones very rare.
- “The greatest danger to our thesis ... (is) our lack of imagination.” (p. 282) Life could be beyond our fathoming.
- If rare earth hypothesis is right, we've only wasted some dreams. If wrong, we've left ourselves unprepared.



Galactic Communication Problems

- **First radio broadcast** of human voice on earth Dec. 24, 1906.
- **SETI** (Search for Extra Terrestrial Intelligence) seeks space radio signals since 1960. (seti.org)
- **Milky Way Galaxy** 100,000 light years wide.
(Light velocity: 300,000 km per second / 9.5 trillion km per year)
- **100,000 years** for message traveling at speed of light to reach us from other side of galaxy.
- **Nearest neighboring galaxy** is Andromeda Spiral, 2-million light years away.



A large, white, A-frame structure, possibly a sculpture or a modern building, stands on a grassy field. The structure is composed of a complex network of white-painted wooden beams. To the right of the structure, a flagpole holds a flag with yellow, black, and white horizontal stripes. The background shows a line of trees under a clear sky.

- [illegible]

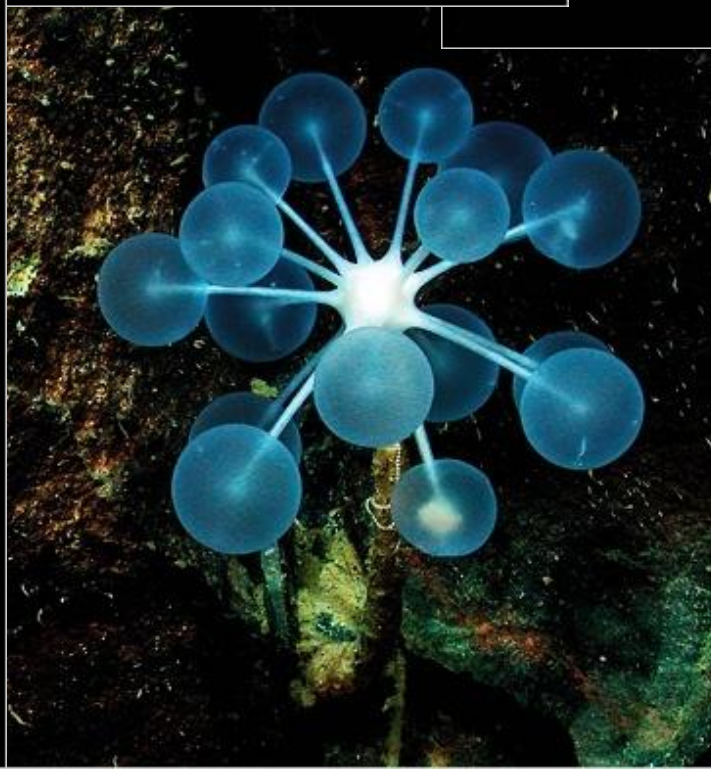
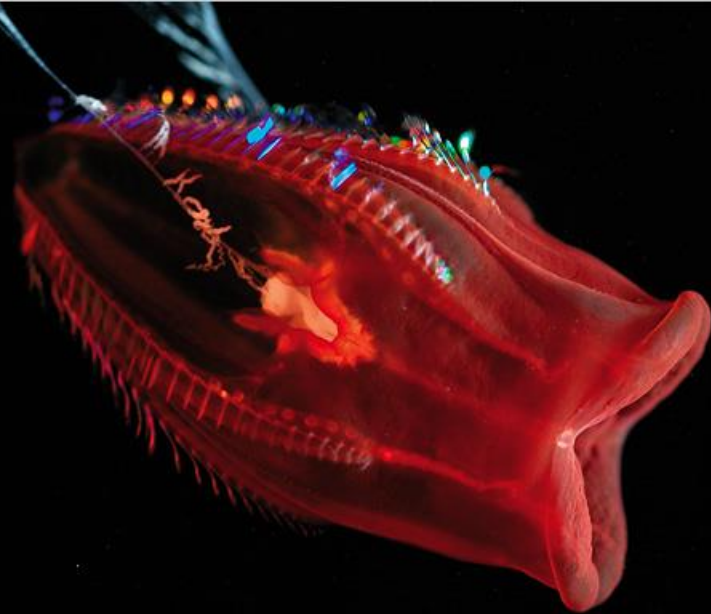
Family Life 1800s



The Tardigrade (Water Bear): Extreme Survivors

- Complex creatures with brain-cluster of neurons.
- About 0.5 mm long full grown
- Live just about everywhere on Earth: tops of mountains to the bottoms of oceans to the polar regions to the hot climates.
- Survive exposure to outer space for 10 days.
- Survive extreme temperatures ... even degree above absolute zero for a few minutes.
- Survive dehydration for 10 years.
- Survive extreme pressures greater than the at the deepest depths of the ocean.
- Survive radiation 1000 times greater than other animals.
- Adults of each species of Tardigrade has the same number of cells.





Mysteries in the Dark Down Deep
New York Times

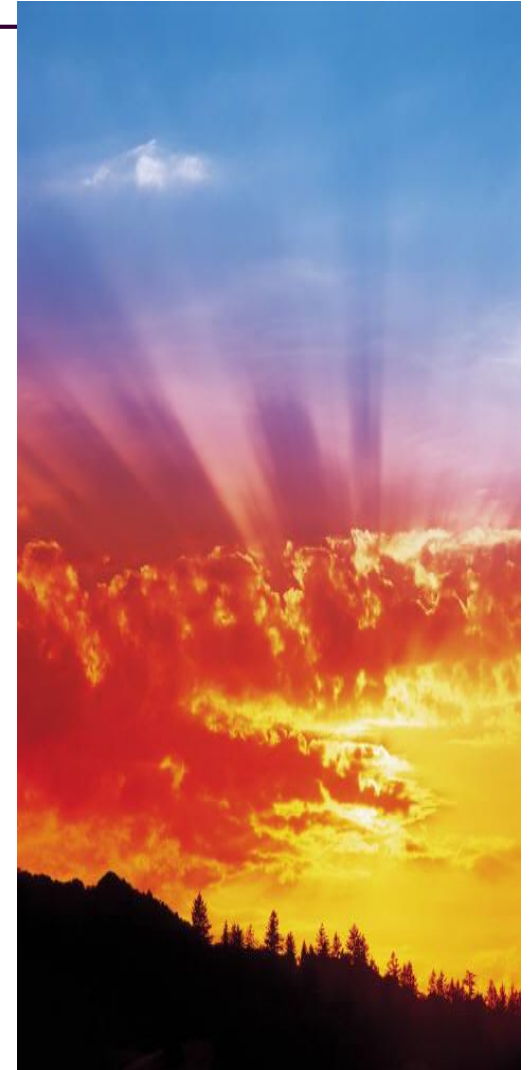
Cradle of Life in the Milky Way



[Article](#)

Exobiological & Exosocial Evolution

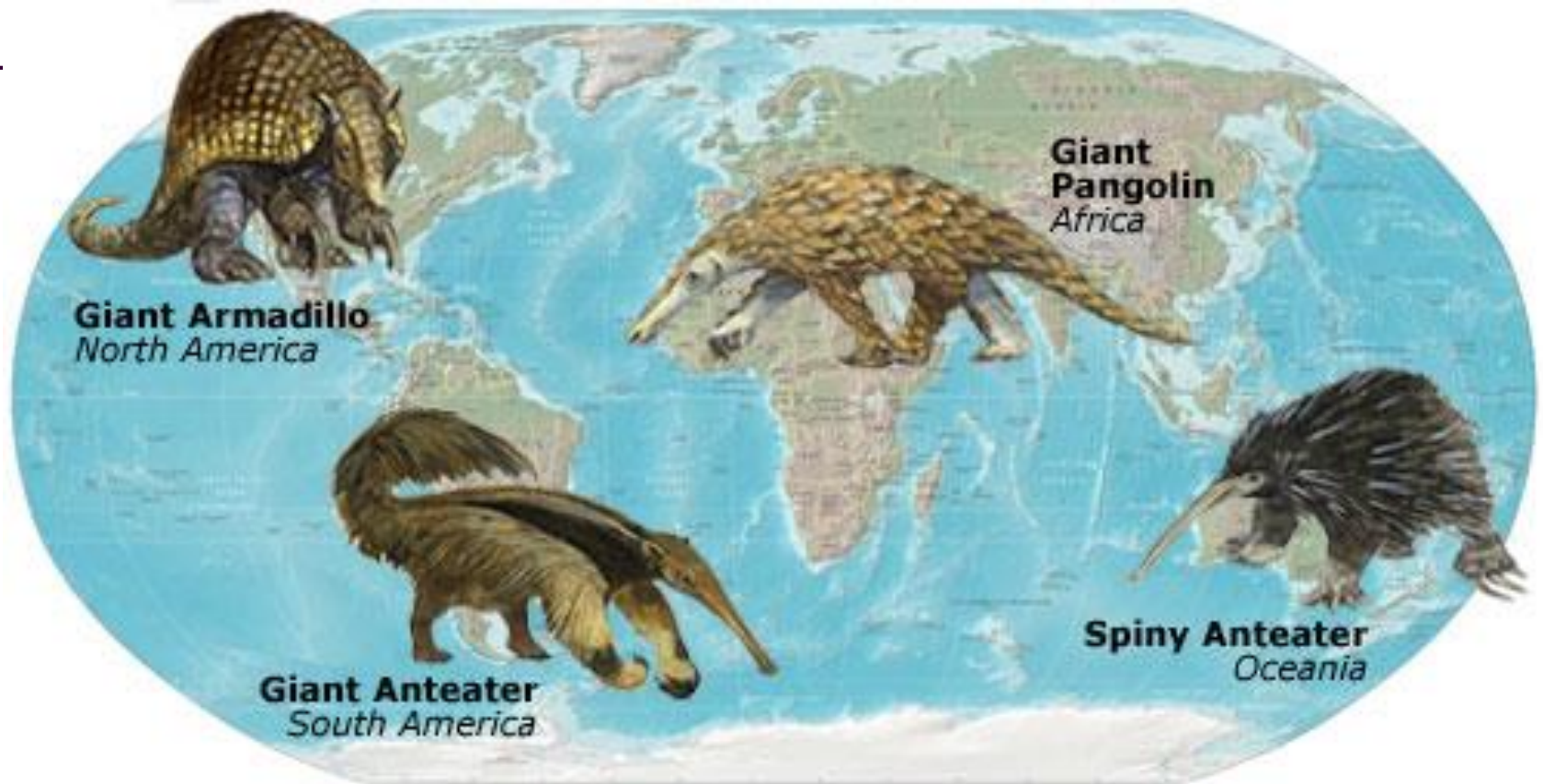
- **Wilson:** Physical and social traits develop according to their survival value.
- **Montagu:** The guiding mechanism of development is one of intelligence, or a matter of brain over biology.
- **Rogers:** Evident in all organic life is the urge to develop, to expand, to mature.
- **Maslow:** We strive for the self-actualized oceanic feeling beyond space and time, that transforms all aspects of life.



Alien Morphology



Convergent Evolution



They may look similar, but it's not because they're close relatives. Instead, they've evolved similar adaptations because they occupy similar niches -- dining on ants, hunting in the high grass, or swimming in the dark -- although their evolutionary origins are quite different. **(PBS)**

Convergent Evolution:



Dolphins and barracudas look similar in silhouette, even though they evolved from very different forebears. Their adapted hydrodynamic shapes are the result of convergent evolution.

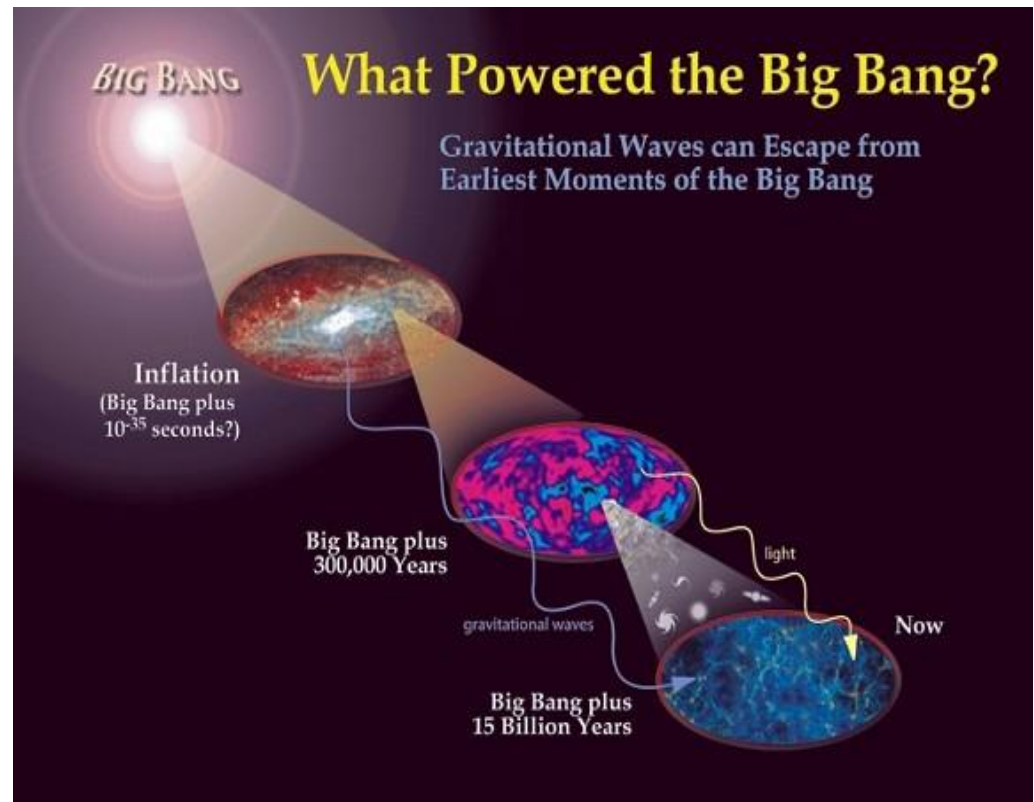
- The frequency with which convergent evolution has occurred on Earth supports the idea that certain basic anatomical structures and physiological mechanisms might be common among life-forms throughout the Universe.
 - *The Encyclopedia of Astrobiology, Astronomy, and Spaceflight*
- It's a bit extreme to maintain that we are the best design ... An extra set of arms might be useful, as would an eye in the back of our heads. A double spine might allow faster and easier walking, and a few extra digits on each hand could make for better piano playing.
 - *Dr. Seth Shostak, Senior Astronomer, SETI Institute*

It All Started with a Big Bang

- **Astrophysics:** The universe sprung in an instant in a massive explosion from a void the size of an atom

- “But what need have you to know this huge variety of forms. Know only that I exist, and that one atom of myself sustains the universe.”

**Krishna,
Bhagavad Gita**



Our Universe Begins ...

- **Genesis:** The world was without form, and the Lord said, “Let there be light.”
- **Baghavat Gita:** The universe is an eternal process alternating between phases of potentiality and expression (‘the day of Brahma’ and ‘the night of Brahma’)
(Bhagavad-Gita, p. 132)
- **Taoism:** Original undifferentiated reality from which the universe evolved (p. 37)



Communication Modes



- **Jung's Archetypes:** Myth of creation, rebirth, heroes in battle, transcendence.
- **Campbell's Themes:** Mystery of death, procuring food, transformation of children, relationship to the group.
- **Loizos:** Static pictures may fail to work transculturally.
- **Vakoch:** Use a vocabulary of gestures and pointing.
- **Deliver a package:** 10^{22} bits of data packed in a 1-kilogram cube of nanotechnology – the entire sum of all written and electronic knowledge on Earth at 100-million times less energy than radio transmission.

Multiversality

Bubbles of
space-time
that may
account for
accelerating
cosmic
inflation

[Space.com Article](#)



‘Pan-Cultural’ Facial Expressions

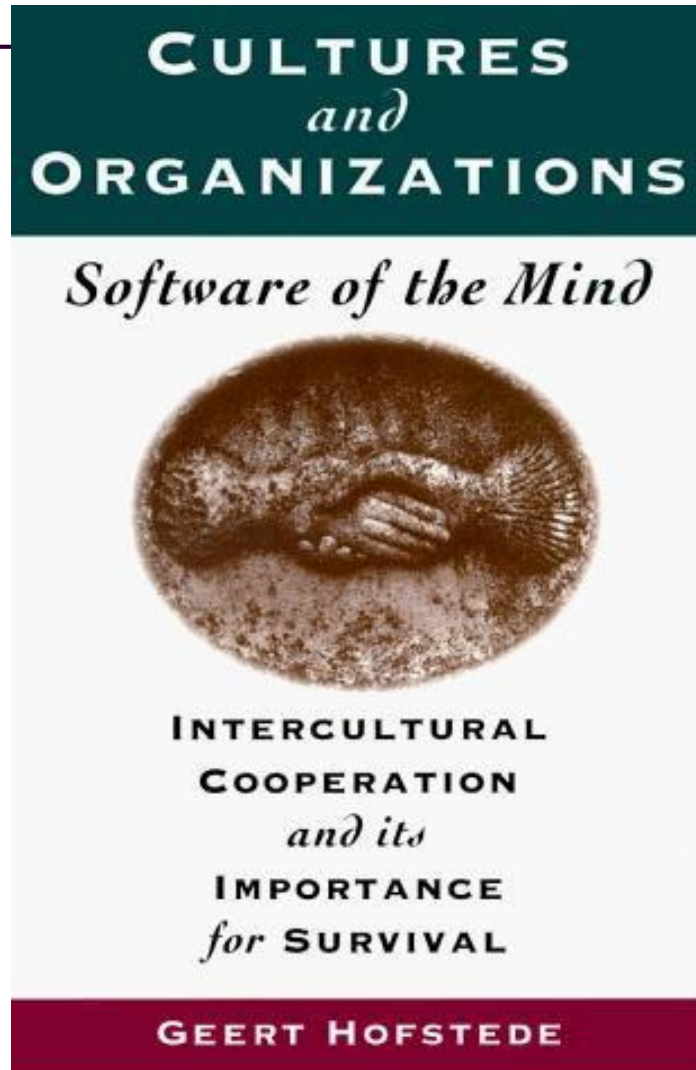


- Joy, Anger, Disgust, Sadness, Fear, Surprise

Ekman et al. (1969)

Watson (2004)

Geert Hofstede's Cultural Dimensions

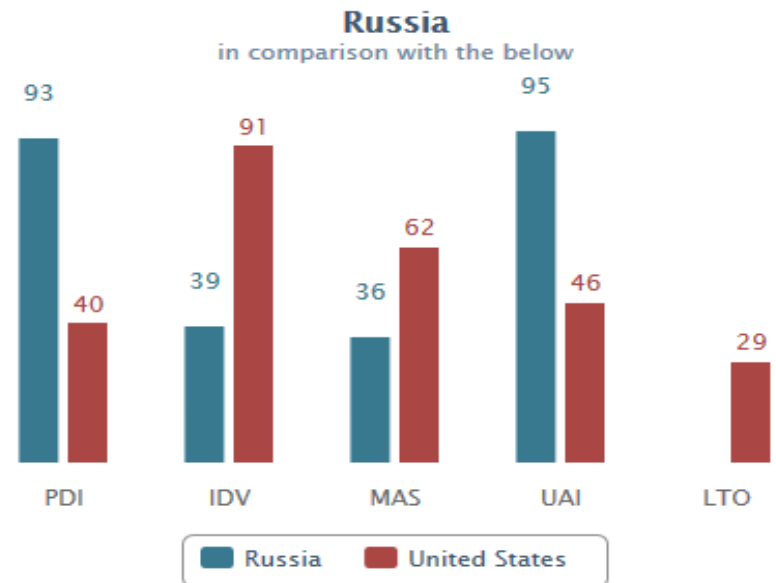


- Power Distance
(Breadth of social distances)
- Individualism
(Individual or collective focus)
- Masculinity
(Aggressive or nurturing)
- Uncertainty Avoidance
(Fear of the unknown)
- Long-Term Orientation
(Short or long-term perspective)
- Other Models: Hall, Trompenaars, etc.

Background in Eastern Europe



Moscow TV Bureau Chief



- Russians and Americans are cultural polar opposites

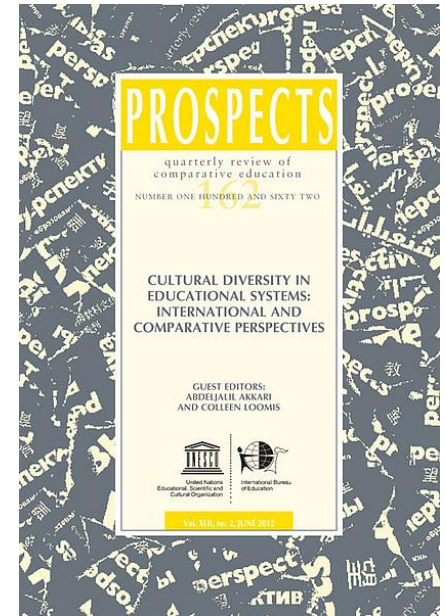
Articles on Transcultural Learning

■ *UNESCO Journal “Prospects”*

Van Hook, S.R. (2012, June).

Hopes and hazards of transculturalism.

[Article](#)



■ *Journal of Research in International Education*

Van Hook, S.R. (2011, April).

Modes and models for transcending cultural differences in international classrooms.

[Article](#)



Study Sample



- Ongoing research from 2000 to current
- 40+ Countries
- 900+ Students

Transculturally Dissonant Messages:

What Doesn't Work Well

- Humor
- Sex
- Religion
- Politics



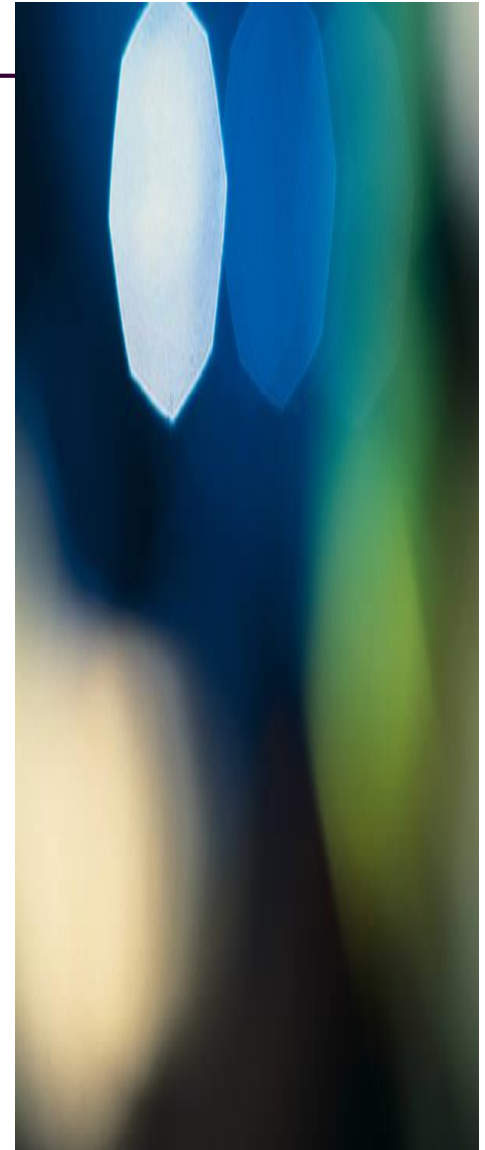
Transcultural Themes & Images

- Babies & Children
- Pets & Animals
- Sports
- Love, Marriage,
Relationship Conflicts
- Self-image
- The Birth-Life-Death
Cycle
- Water



Trans-Galactic Themes

- Reproducing & Preserving Life
- Family Bonds
- Models & Methods of Social Interaction
- Religion / Philosophy of Life
- Environmental Awareness
- Governance
- Economic Systems
- Self Defense
- Altruism



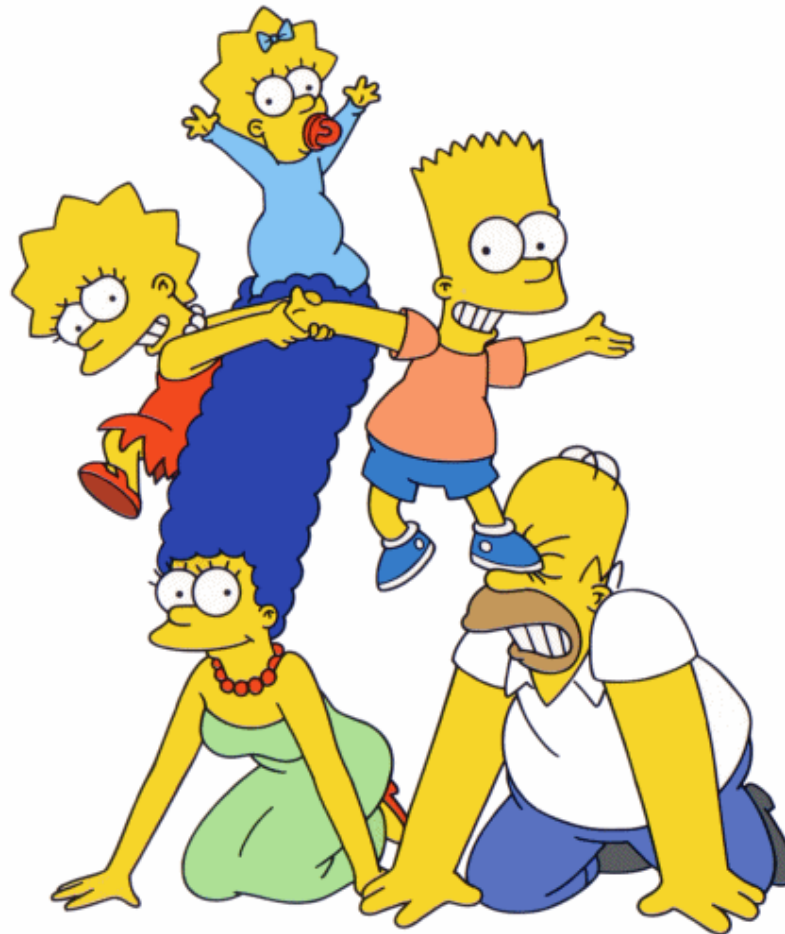
Trans-Galactic Themes

■ Reproducing & Preserving Life



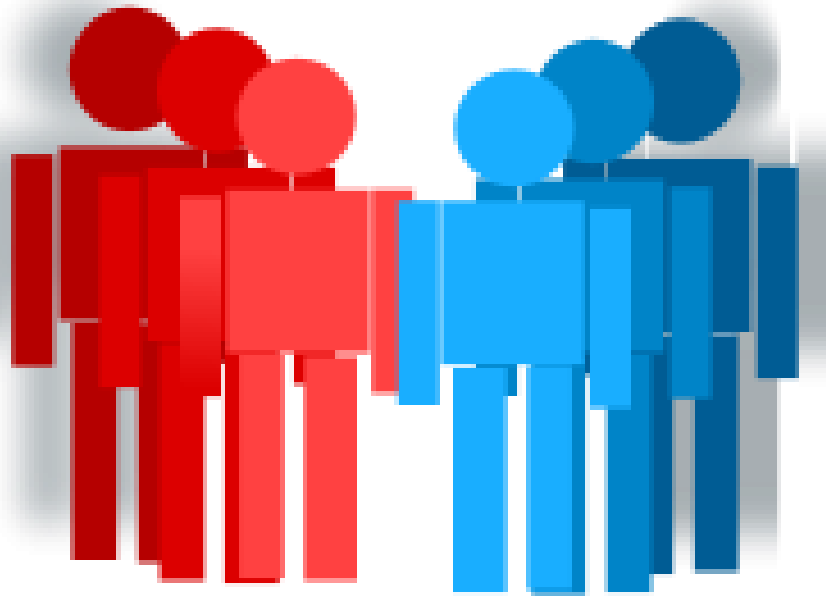
Trans-Galactic Themes

■ Family Bonds



Trans-Galactic Themes

- Models & Methods of Social Interaction



Trans-Galactic Themes

- Religion / Philosophy of Life



"TO DO IS TO BE" -Nietzsche

"TO BE IS TO DO" -Kant

"DO BE DO BE DO" -Sinatra

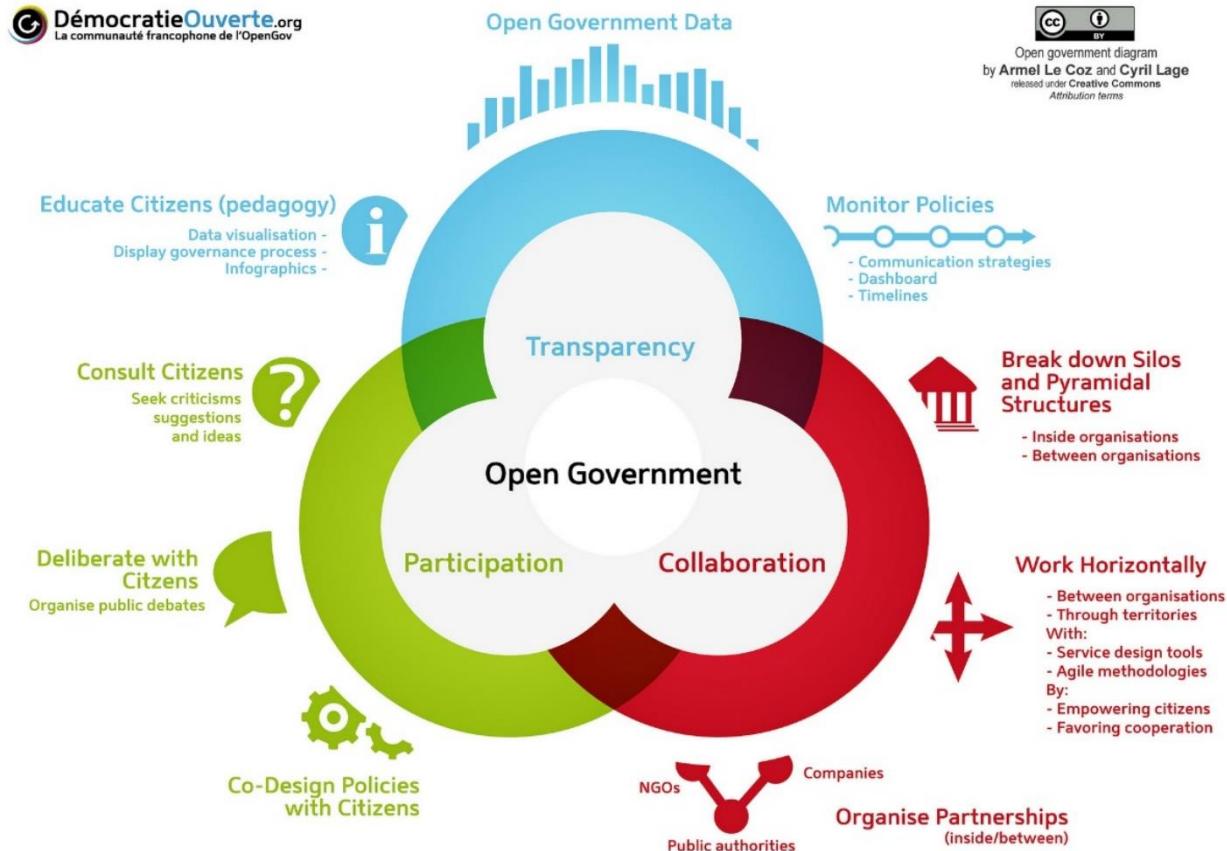
Trans-Galactic Themes

- Environmental Awareness



Trans-Galactic Themes

■ Governance



Open government diagram
by Arnel Le Coz and Cyril Lage
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Attribution terms

■ Economic Systems



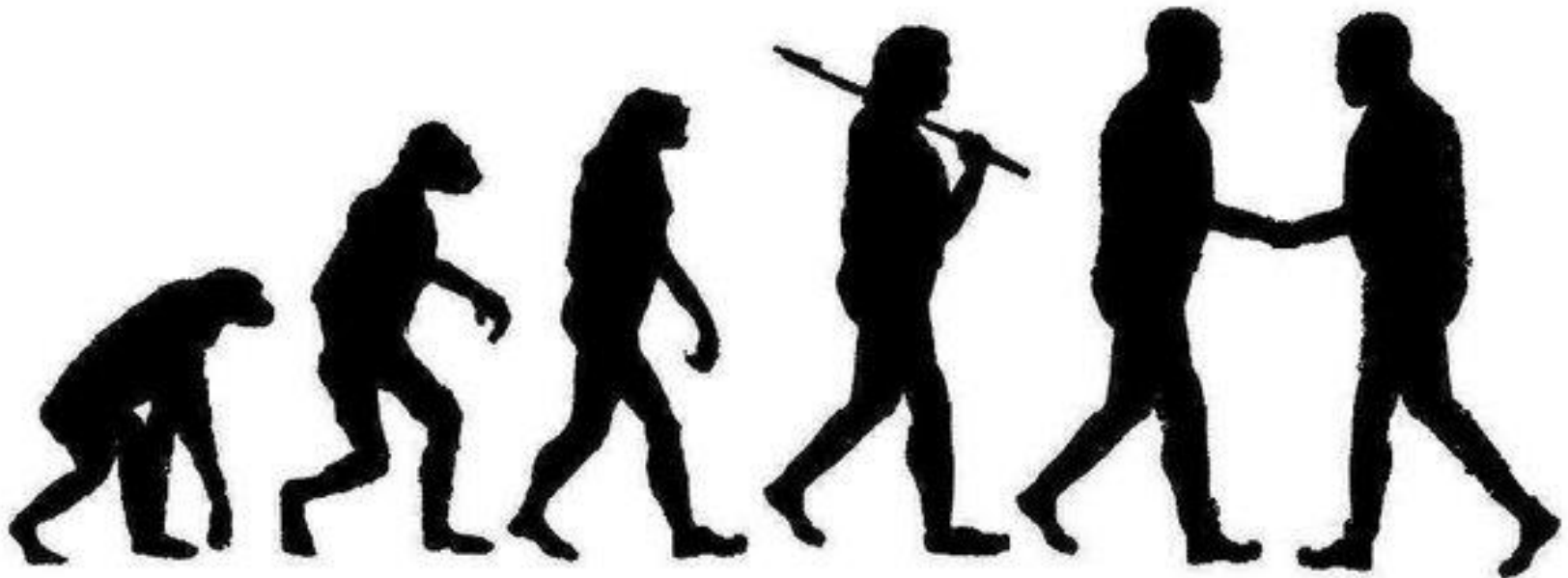
Trans-Galactic Themes

- Self Defense



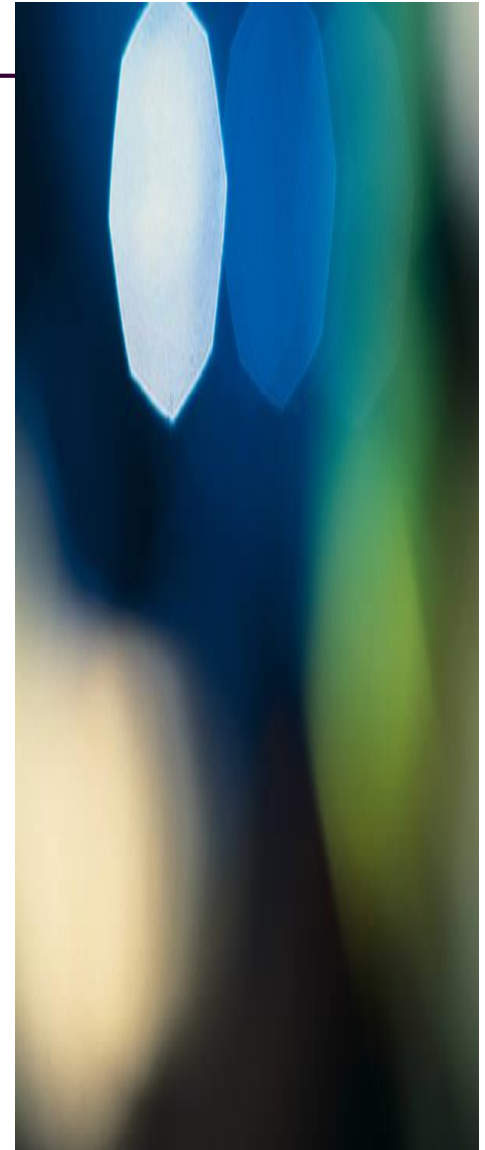
Trans-Galactic Themes

■ Altruism



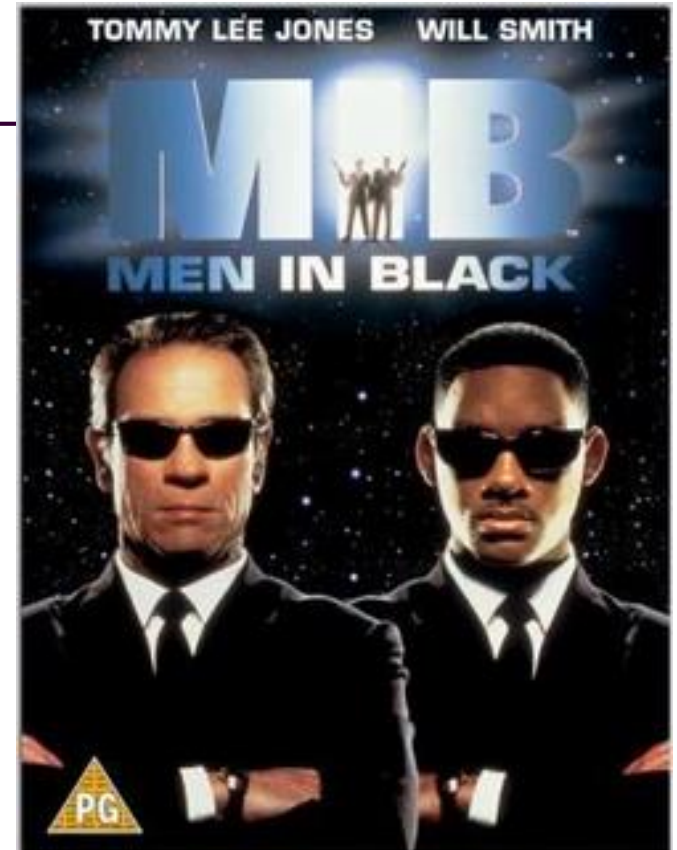
Trans-Galactic Themes

- Reproducing & Preserving Life
- Family Bonds
- Models & Methods of Social Interaction
- Religion / Philosophy of Life
- Environmental Awareness
- Governance
- Economic Systems
- Self Defense
- Altruism



Why the Secret?

- Edwards: *“Why the big secret? People are smart. They can handle it.”*
- K: *“A person is smart. People are dumb, panicky dangerous animals and you know it.”*



Men in Black
1997



Don't Panic!





Questions? Comments?

Steven R. Van Hook / Kip Roffo

- **University of California**
*Language, Culture
& Business Programs*
- **Educare Research inc**
*Nonprofit International
Educational Resources*
- **Second Life: Educare**
Learning Centers
- <http://educares.net>
- <http://wwmr.us>
- steven@wwmr.us



