

The implications of the search for life



What does the search for life provide us with?

■ Perspective

- Earth is rare; we are special; we should take better care of ourselves.
- Life is common; we are not so special; we should be more considerate to others.

■ Questions

- Questions so fundamental that no one ever tells you what they are.

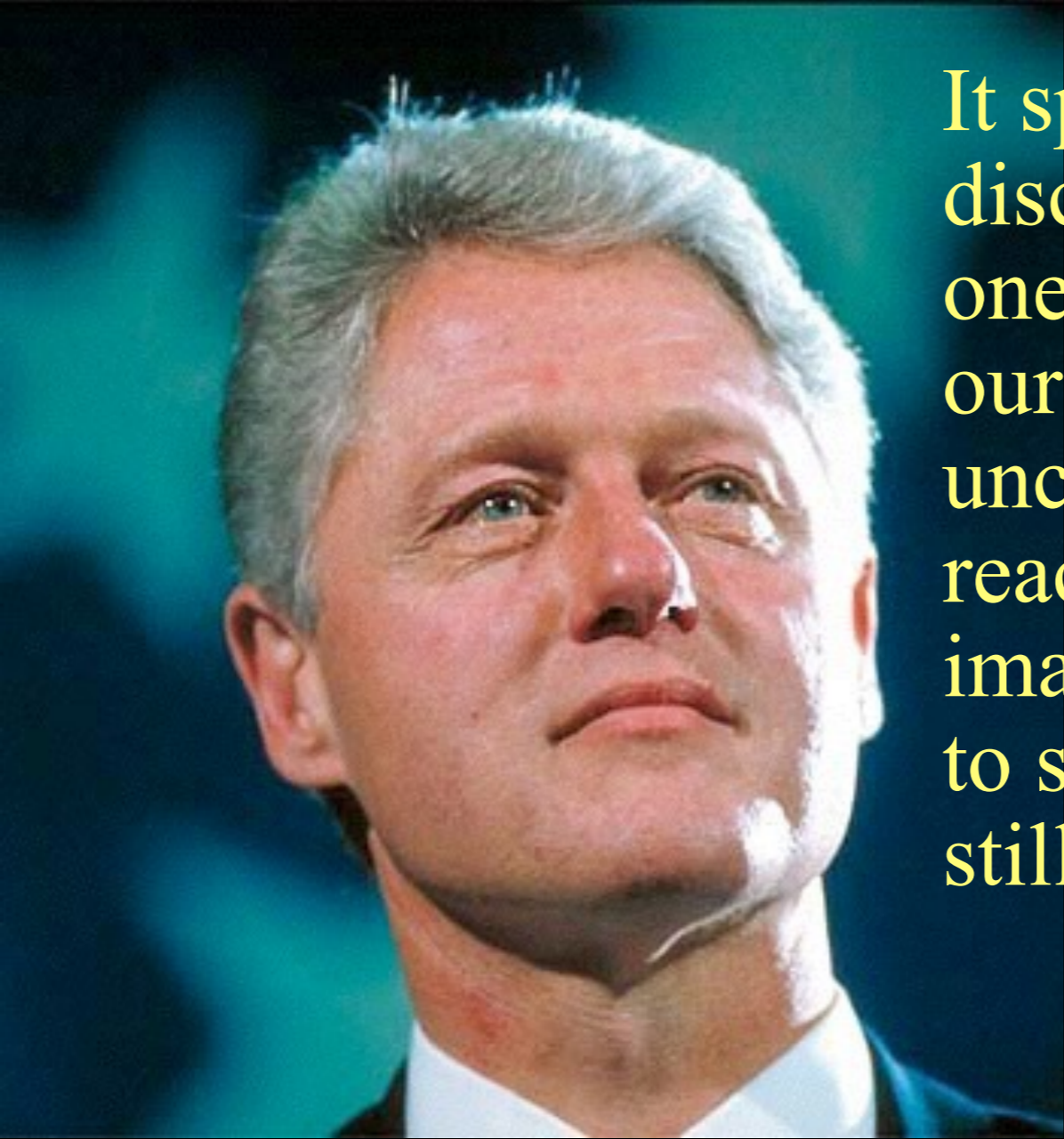
■ Answers?

- To specific science questions.
- To broader questions on the inevitability of life in the Universe.
- To questions of philosophy and faith.

The pale blue dot







It speaks of the possibility of life. If this discovery is confirmed, it will surely be one of the most stunning insights into our universe that science has ever uncovered. Its implications are as far-reaching and awe-inspiring as can be imagined. Even as it promises answers to some of our oldest questions, it poses still others even more fundamental.

**So what exactly are
those questions?**

If life were detected tomorrow, what would you do differently?

- Fossil life confirmed in ALH84001.
- Unambiguous bio-signatures detected in Earth like extra-solar planet.
- New life forms detected on Europa.
- SETI confirms the detection of an alien message.
- Non-DNA based life created in an Earth laboratory.

SPECIAL EDITION

From the Academy Award®-Winning Director of "Twister" and the Pulitzer Prize-Winning Author of "Contact."

JODIE FOSTER
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A message from deep space.
Who will be the first to go?
A journey to the heart of the universe.

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The fears

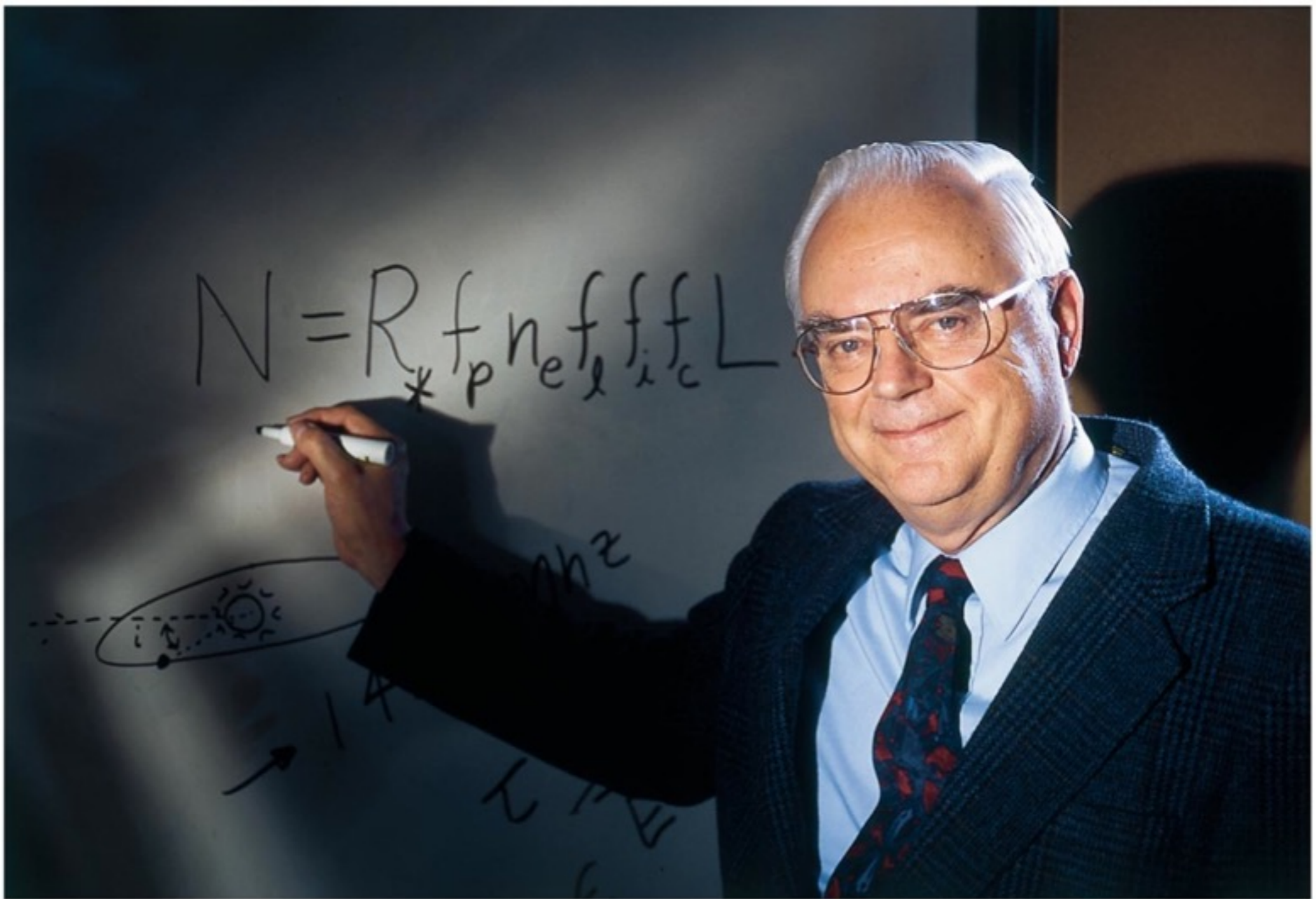
1. They will wipe us out or take over and keep us as pets/food (or even pet food!)... (*War of the Worlds*)
2. We will be duped (*A for Andromeda*)
3. The information will blow our minds (*The Black Cloud*) or trigger social collapse, world war, religious war...
4. Governments will act to appropriate and suppress the information, fight each other over access (*X Files*)

The hopes

1. We get to join the galactic club (maybe a membership fee)
2. Access to “miracle” technologies, galactic funding base, exciting travelogues, good astronomical data, immortality, decent computers, robots, supergoogle, Encyclopedia Galactica ...
3. Tutorials in how to run a planet, manage change, improve ethics, eliminate poverty, stave off eco-doom...

An eerie silence?





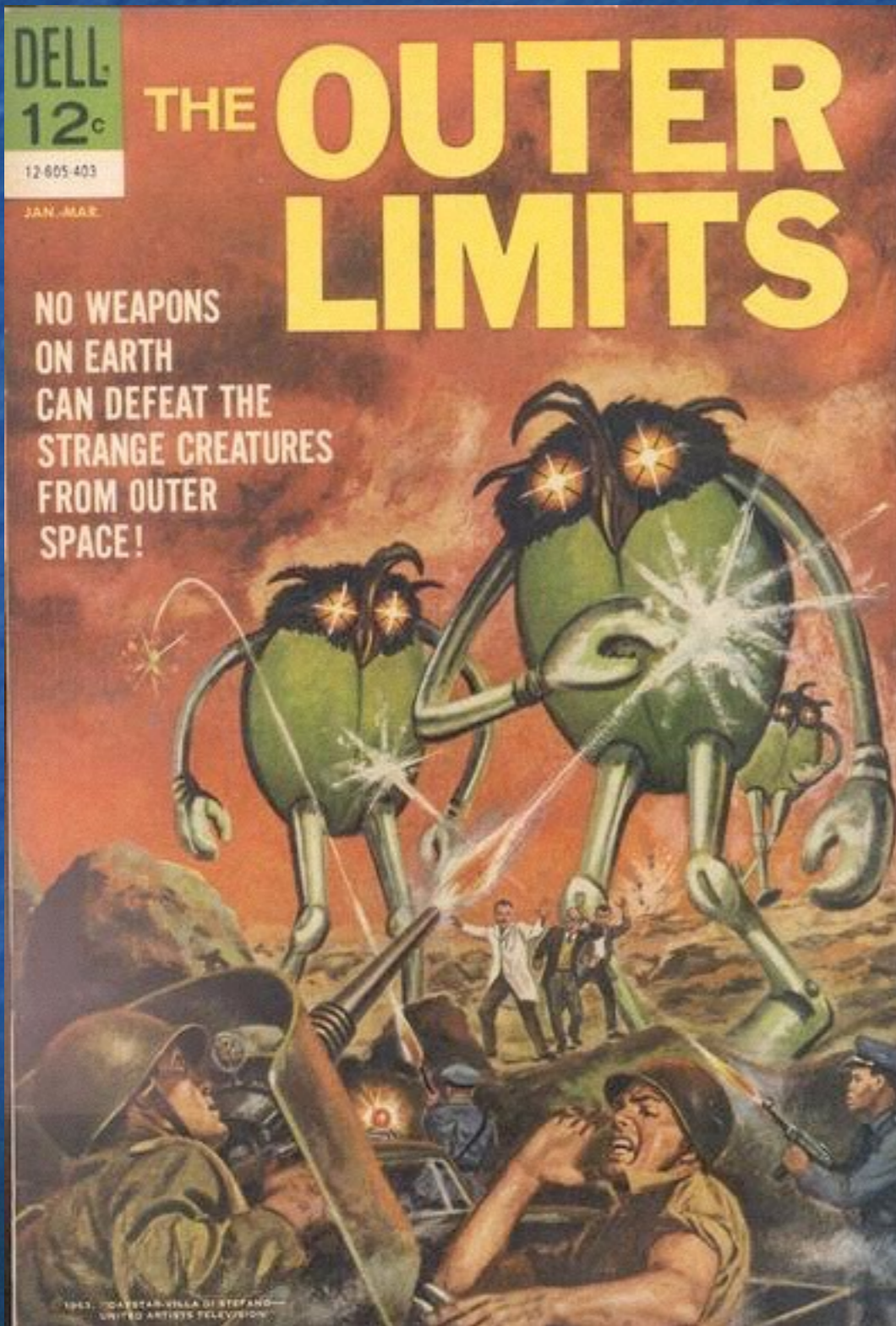
The eerie silence - what to conclude?

- Have we passed the critical hurdle in the development of advanced life or do yet greater challenges await?
- Does the "great filter" lie in our past or in our future?
- Would it be encouraging for our future prospects to discover that Mars and Europa are devoid of life?

A universal perspective on life

- Does life arise by chance or as the result of a “law”.
- Chance relies on the vast numbers of stars in the Universe (of order 10^{23}).
 - However to create a protein by chance may require 10^{120} rolls of the dice (modulo stratified stability arguments).
- Organic material is common so is life common?
- Our current understanding of physics shows no evidence of a drive from inanimate matter to life.
- However, genetic mutation and natural selection do not create complex life a priori – yet complex life forms result from Darwinian evolution.

The outer limits of knowledge?



- Look to the skies.
- Keep an eye on the test tubes.
- The truth is out there.
- Become a Martian or visit the Galaxy Zoo.
- Read the and learn from the news!

