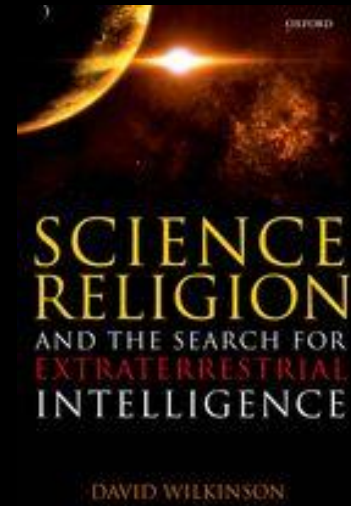


Exoplanets, aliens and God – who is out there and what is the real future of humanity?





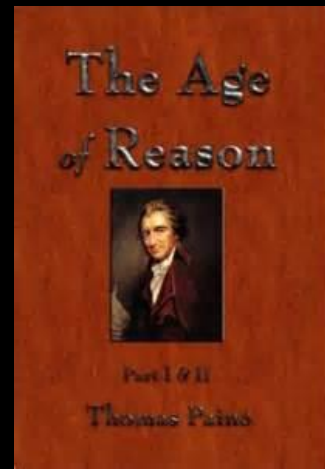




Science, religion and SETI



- **Speculation on many worlds and the role of Christianity**
- **Some of the key scientific arguments**
- **Challenges to and contributions from Christian faith**



Origen (c.184-254)



Ambrose (c. 340 -397)



Nicholas of Cusa (1401 –1464)



**Etienne Tempier, Bishop of Paris
Condemnation of 1277**



Aquinas (1225-74)

Christian Huygens (1629-95)



Hubble Ultra Deep Field

HST ■ ACS



NASA, ESA, S. Beckwith (STScI) and The HUDF Team

STScI-PRC04-07a



Richard Bentley (1662-1742)

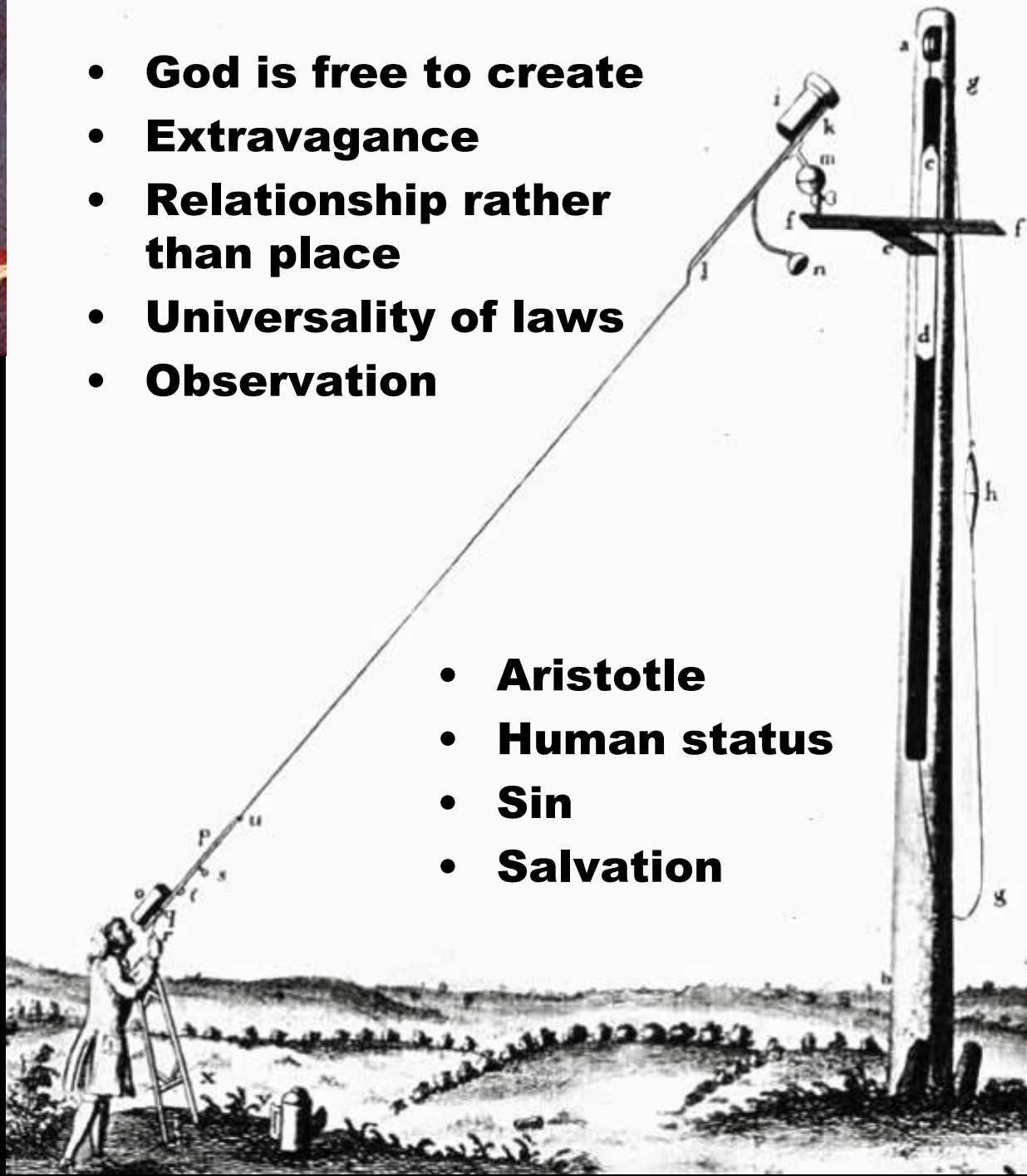




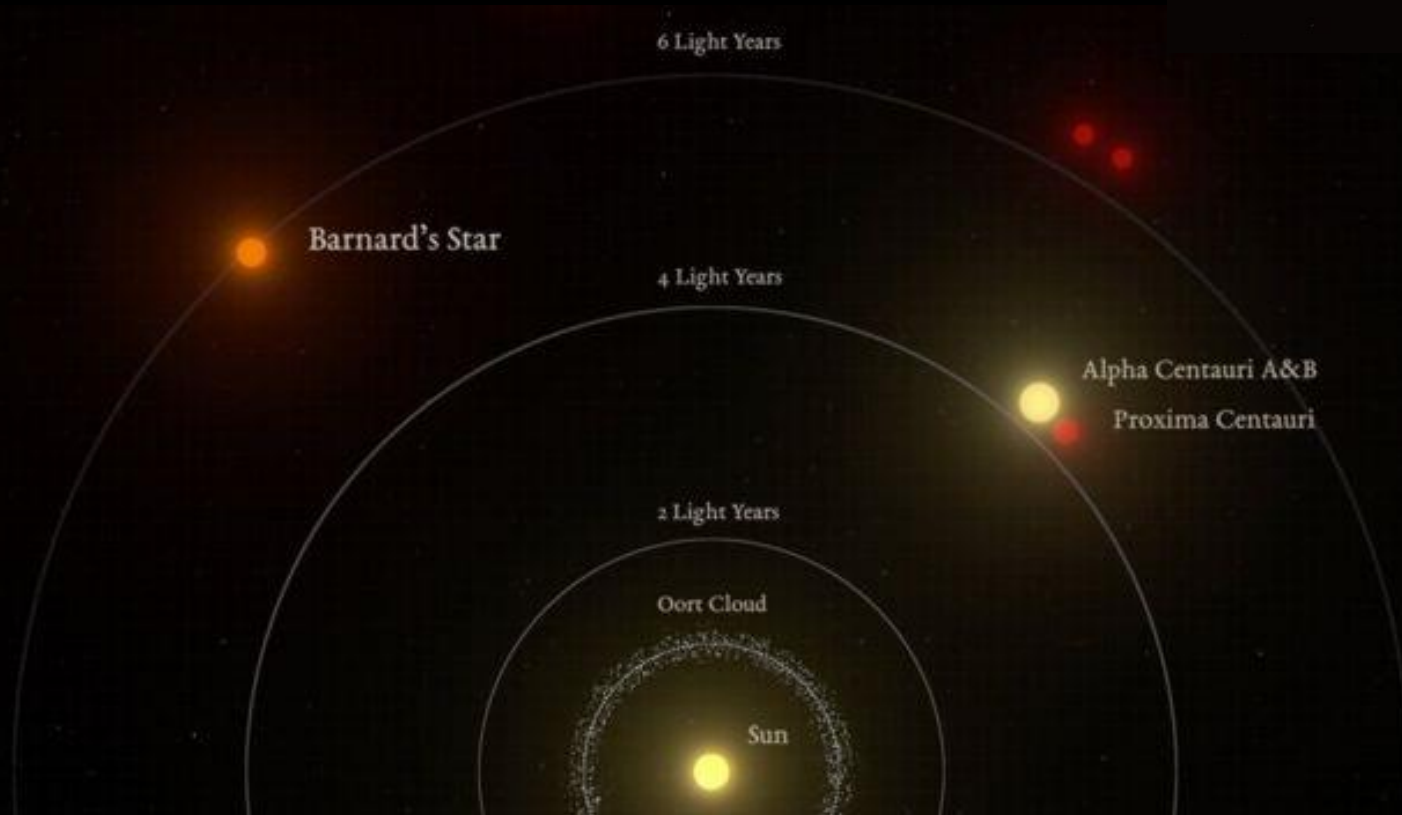
**'You man of
Galilee, why
do stand you
gazing up
into heaven?'**

**Tommaso
Caccini
1614**

- **God is free to create**
- **Extravagance**
- **Relationship rather than place**
- **Universality of laws**
- **Observation**



- **Aristotle**
- **Human status**
- **Sin**
- **Salvation**



Neighbouring star Proxima Centauri has Earth-sized planet

By Jonathan Amos
BBC Science Correspondent

24 August 2016 | Science & Environment

Share



Artwork: The planet's mass would suggest it is a rocky world like Earth

Top Stories

Syrian forces 'drop chlo Aleppo

Syrian government forces are dropping barrel bombs containing chlorine gas on a suburb of Aleppo, injuring

7 September 2016

UK to explore trade deal with Australia

7 September 2016

NHS boss had new job offer

7 September 2016

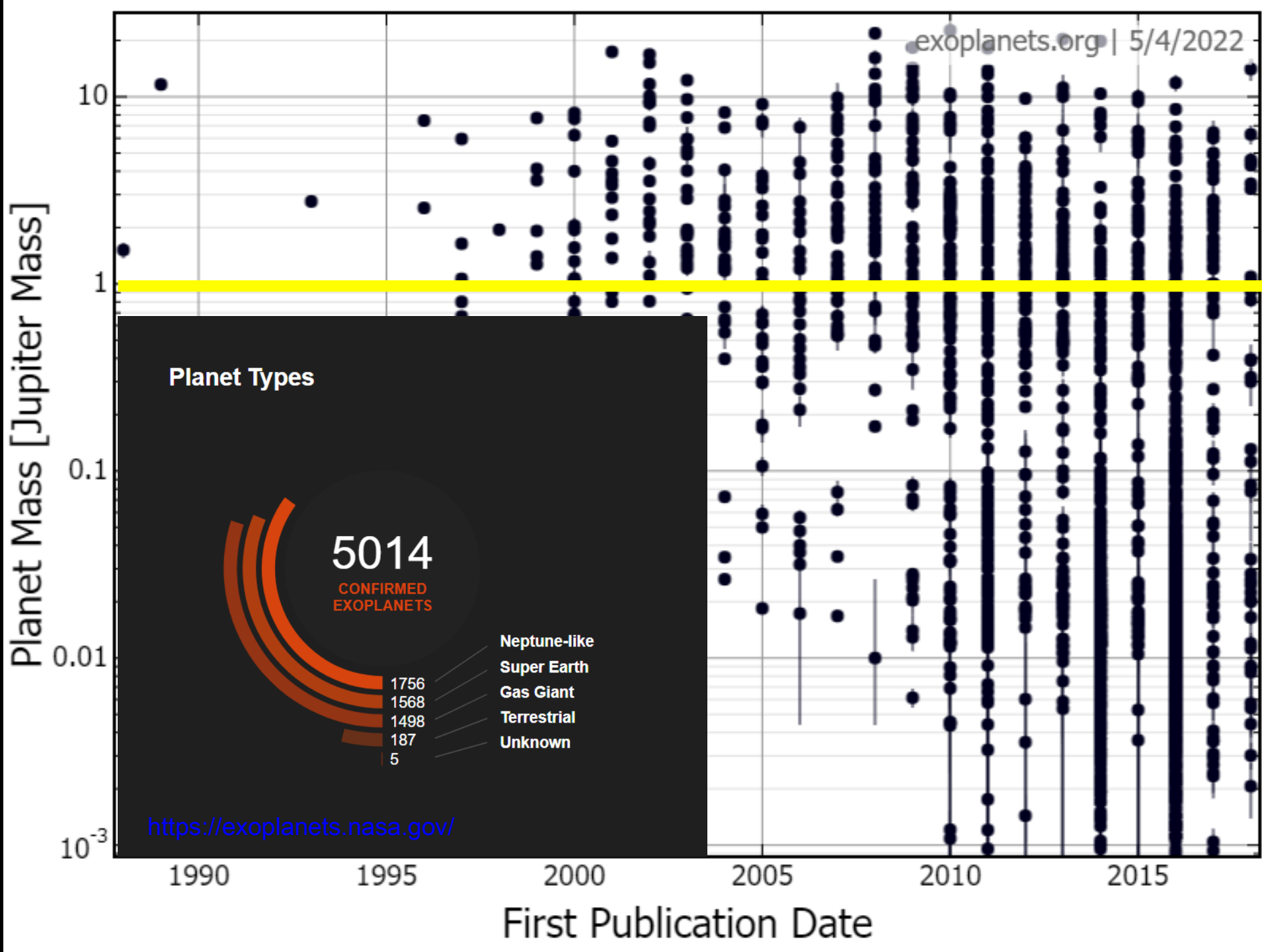
Features

BBC

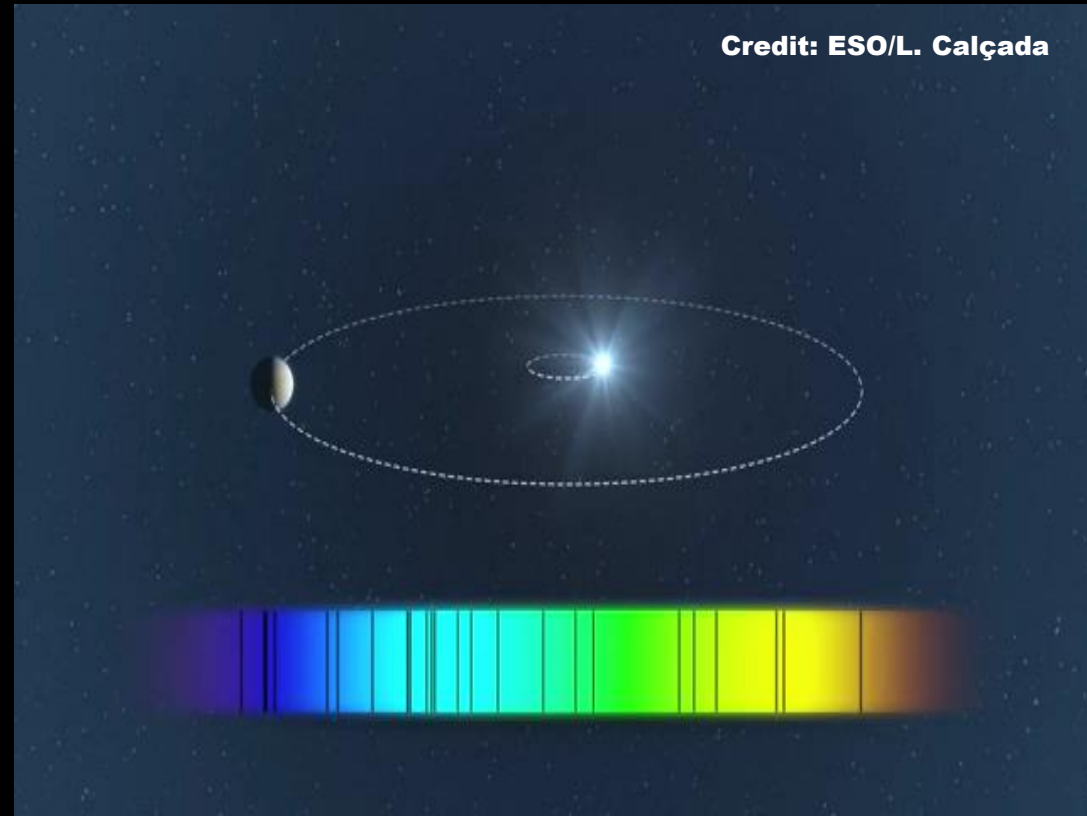
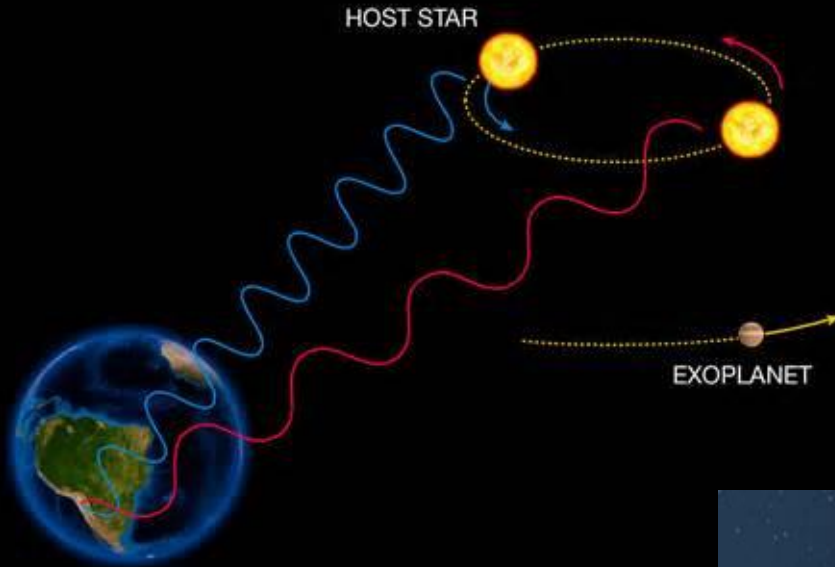
Young guns

Life and death on the lost streets of Chicago

Proxima b
4.25 ly
Red dwarf/flare star







Radial velocity

- Radius of orbit of planet
- Minimum mass

Transit method

➤ Orbit, size and temperature of planet

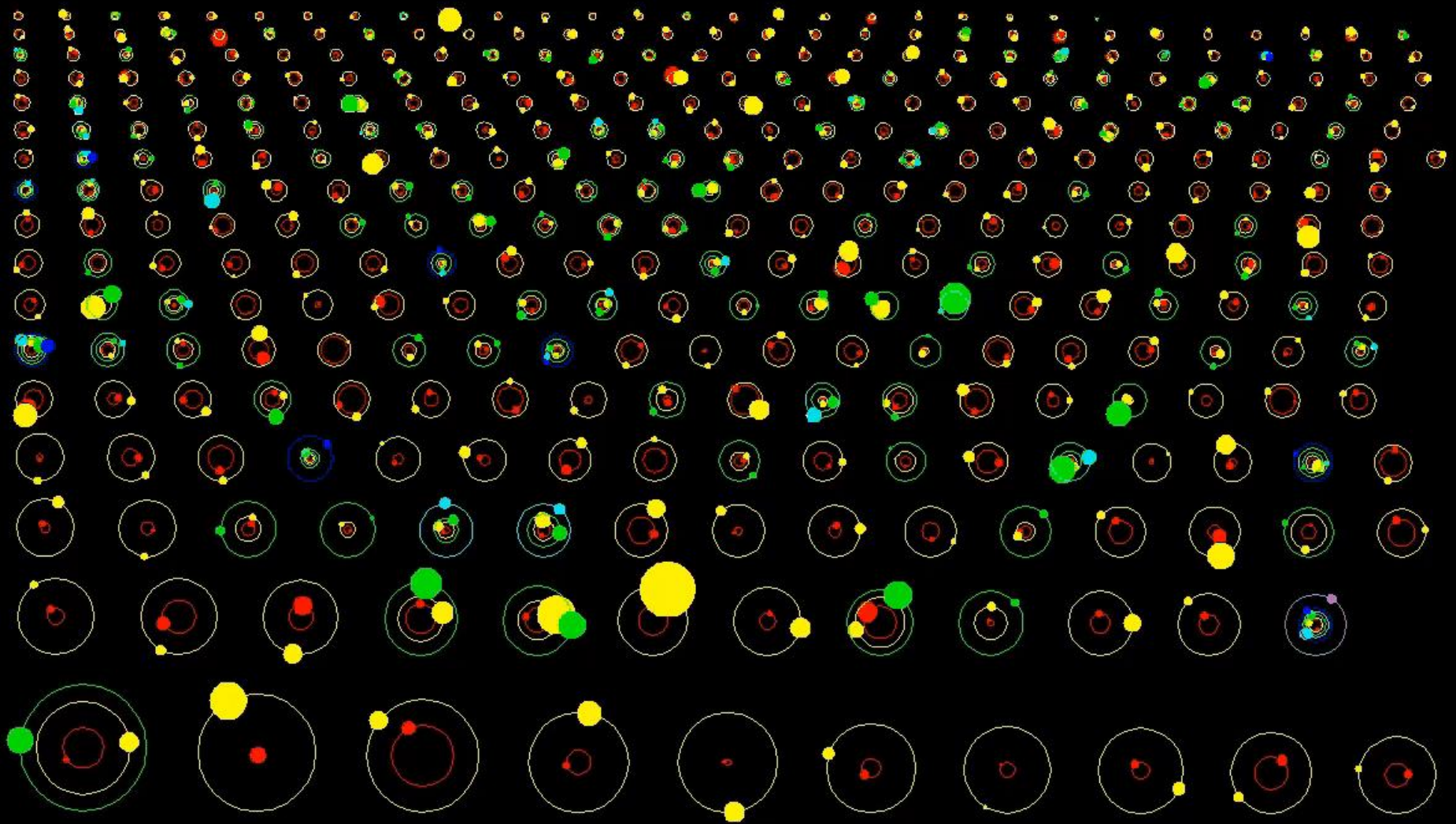
Animation credit: NASA



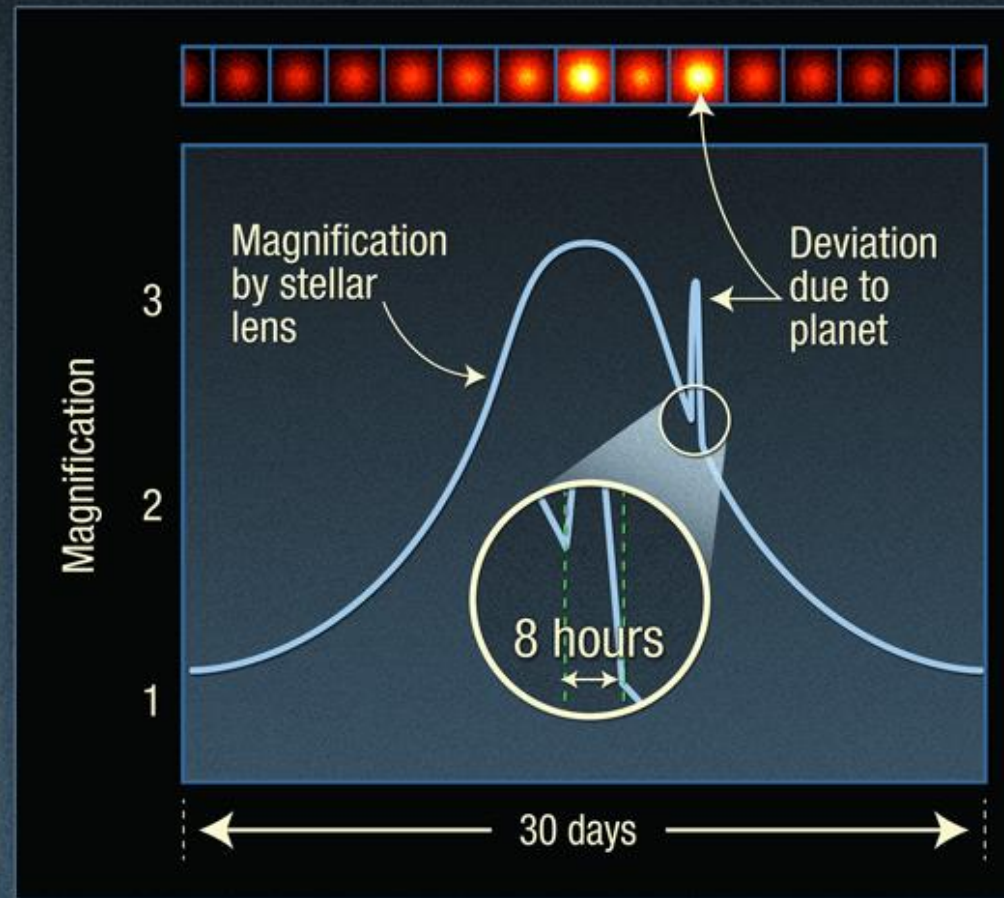
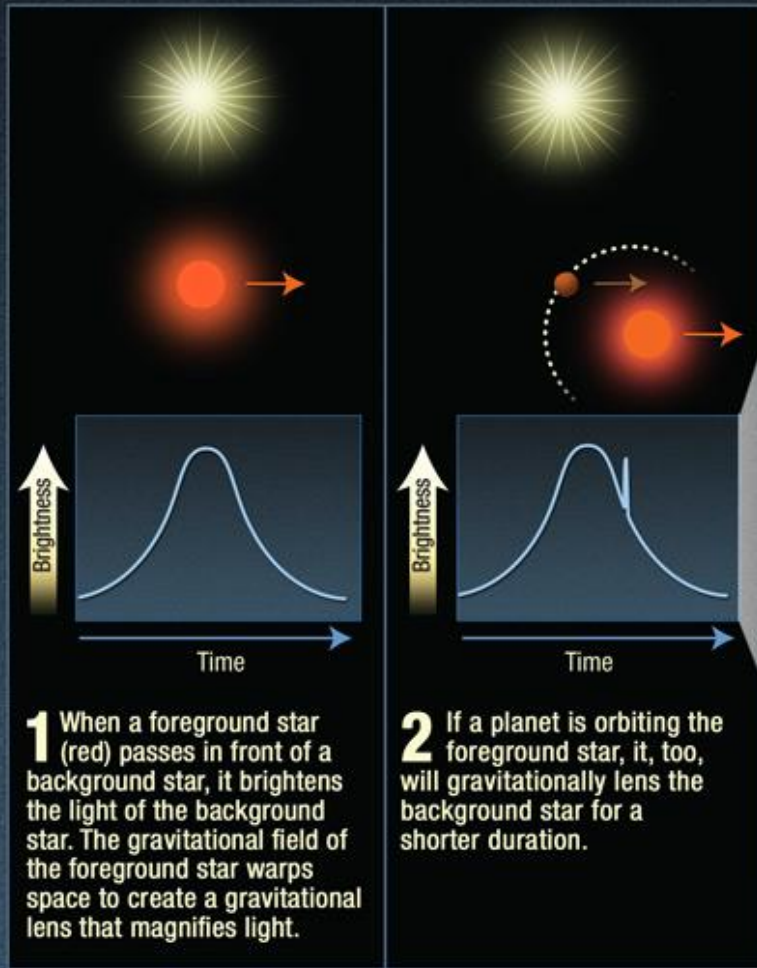
The Kepler Orrery II

t[BJD] = 2455879

D. Fabrycky 2012



Extrasolar planet detected by gravitational microlensing



Exoplanet Missions



Transiting Exoplanet Survey Satellite (TESS)

Kepler-452
System

Kepler-186
System

Solar
System

Kepler-186f

Mercury

Venus

Earth

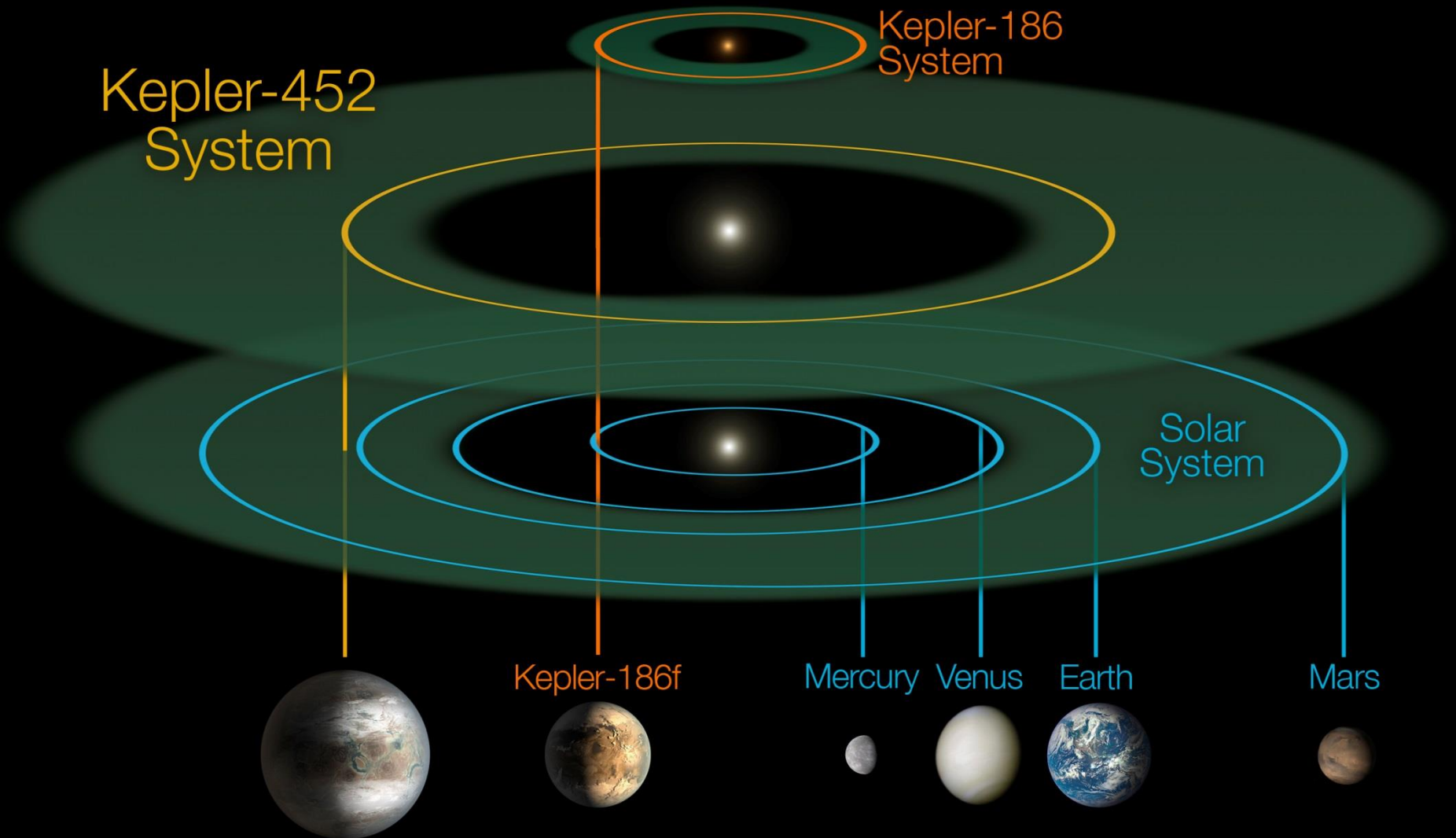
Mars

Kepler-452b

ARTISTIC CONCEPT

Comparison of the known stars with planets orbiting in their habitable zones: Kepler-186, Kepler-452, and our sun.

Credit: NASA/JPL-CalTech/R. Hurt

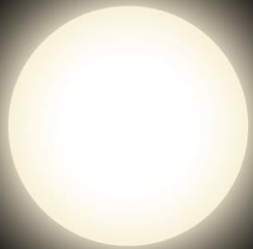


Kepler's Small Habitable Zone Planets

As of July 2015

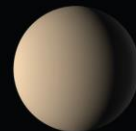
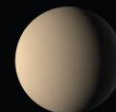
Planets enlarged 25x compared to stars

G Stars



Kepler-452b (Earth)

K Stars



Kepler-442b

155c

235e

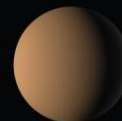
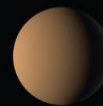
62f

62e

283c

440b

M Stars

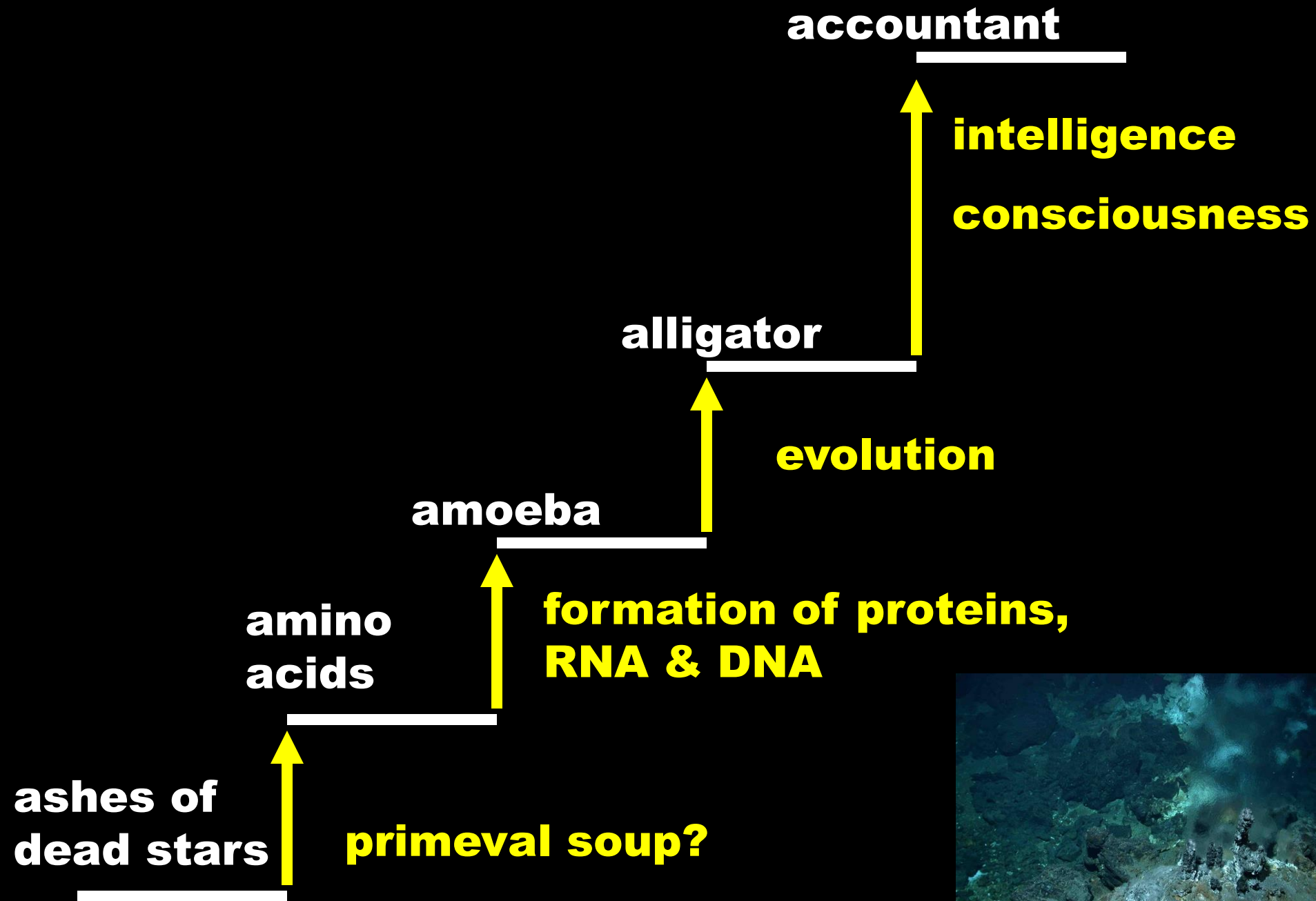


Kepler-438b

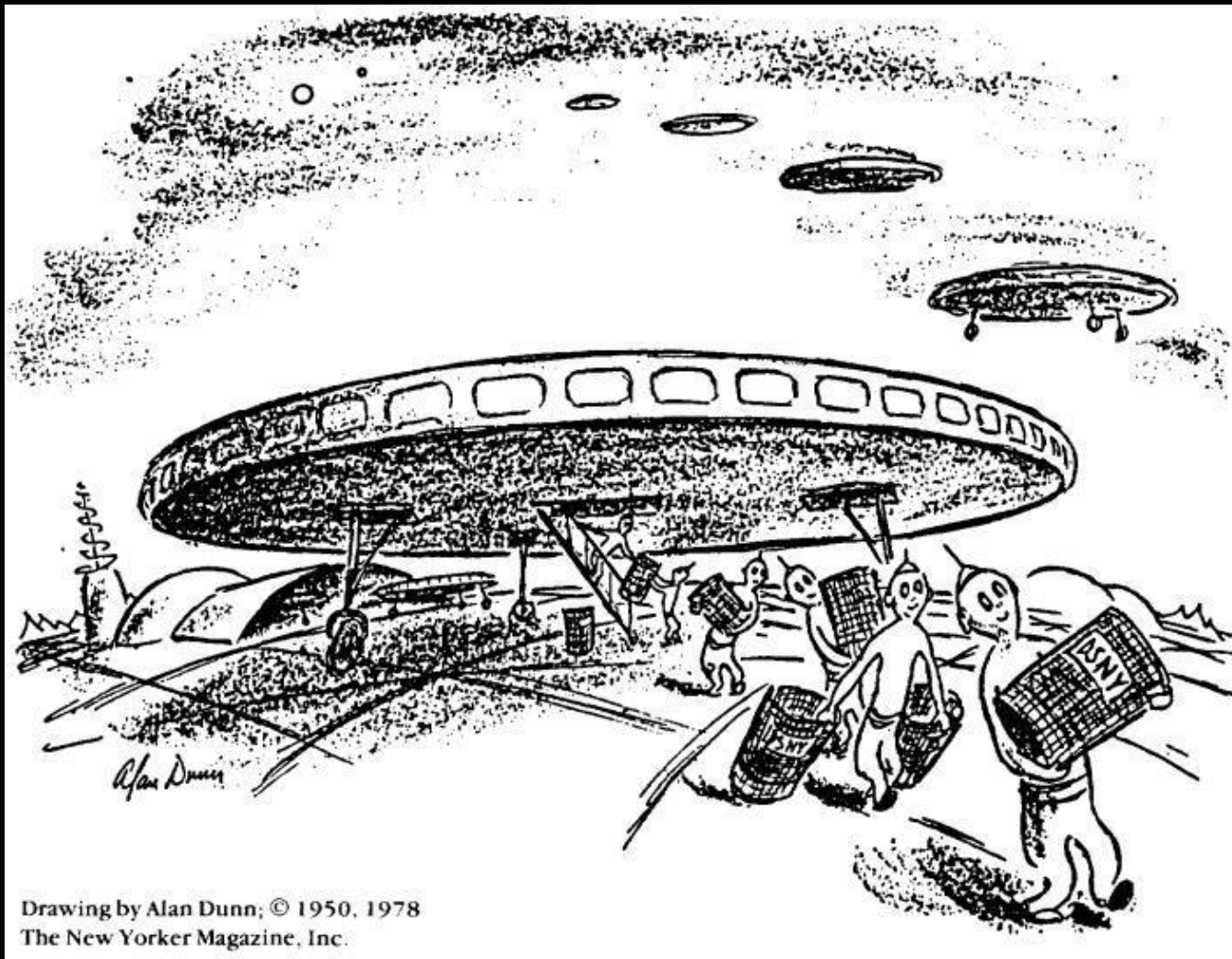
186f

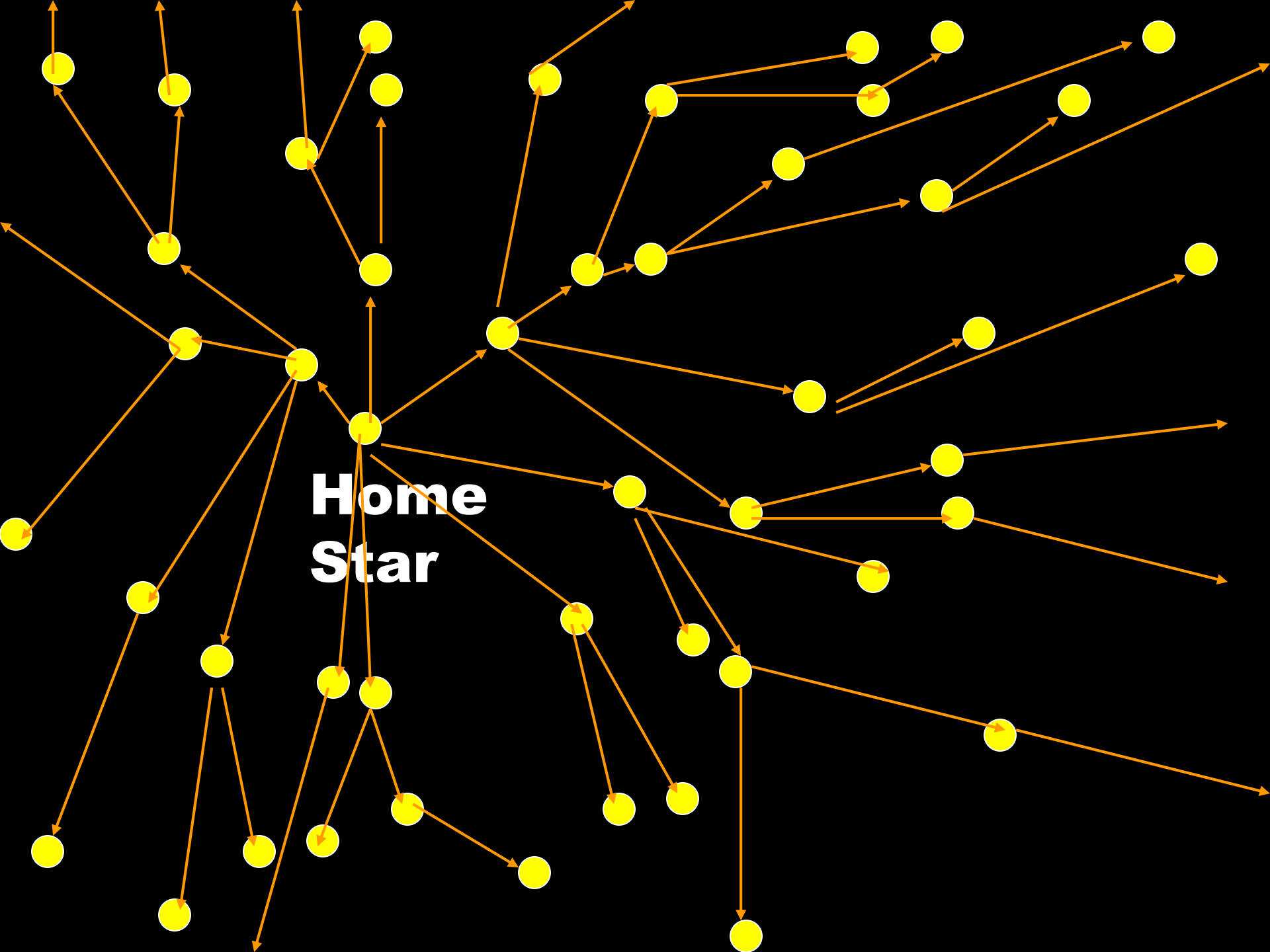
296e

296f



Where is everybody?







300,000,000 years

10,000,000,000 years

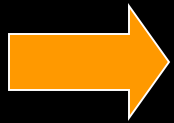


Visited planet?

- **Hoaxes?**
- **Conspiracies?**
- **Sleep paralysis?**
- **Electromagnetic pulses?**
- **Is there enough evidence?**



Weighing the evidence?



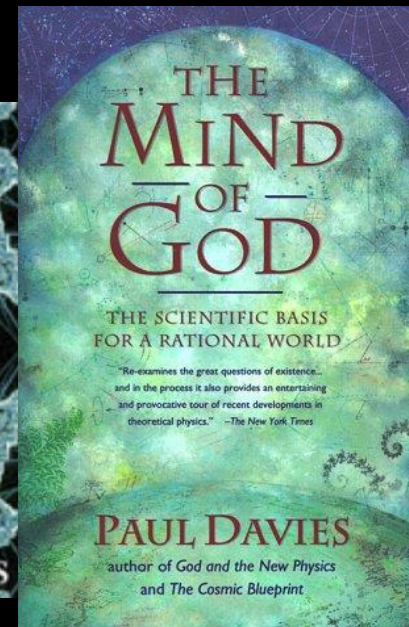
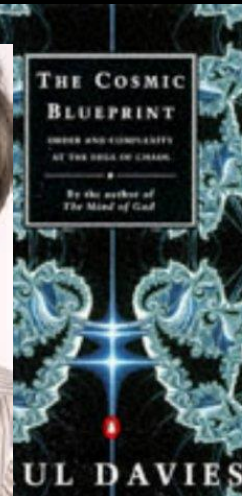
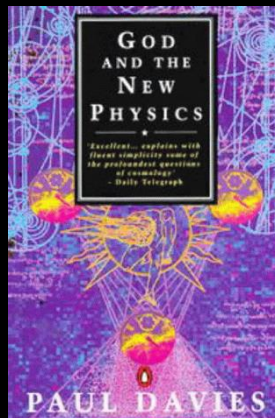
Alone as intelligent life in the Galaxy



Problem of communication

The Religious Implications of Extraterrestrial Intelligence

1. Evidence for Cosmic Design?



'If life is widespread in the universe, it gives us more, not less, reason to believe in cosmic design'

The Religious Implications of Extraterrestrial Intelligence

1. Evidence for Cosmic Design?

2. Contact problems for religion?

**'long-lived extraterrestrials
either never had, or have
outgrown, organised religion'
Jill Tarter**

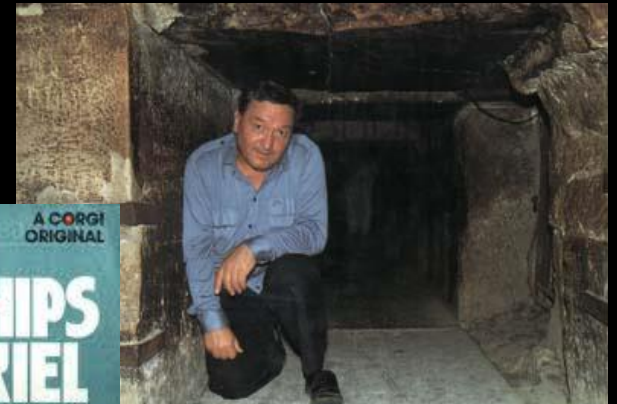
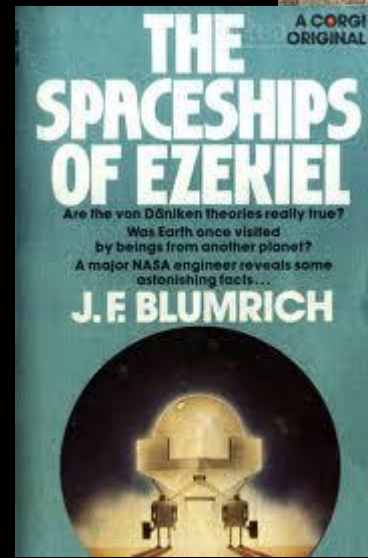


The Religious Implications of Extraterrestrial Intelligence

1. Evidence for Cosmic Design?

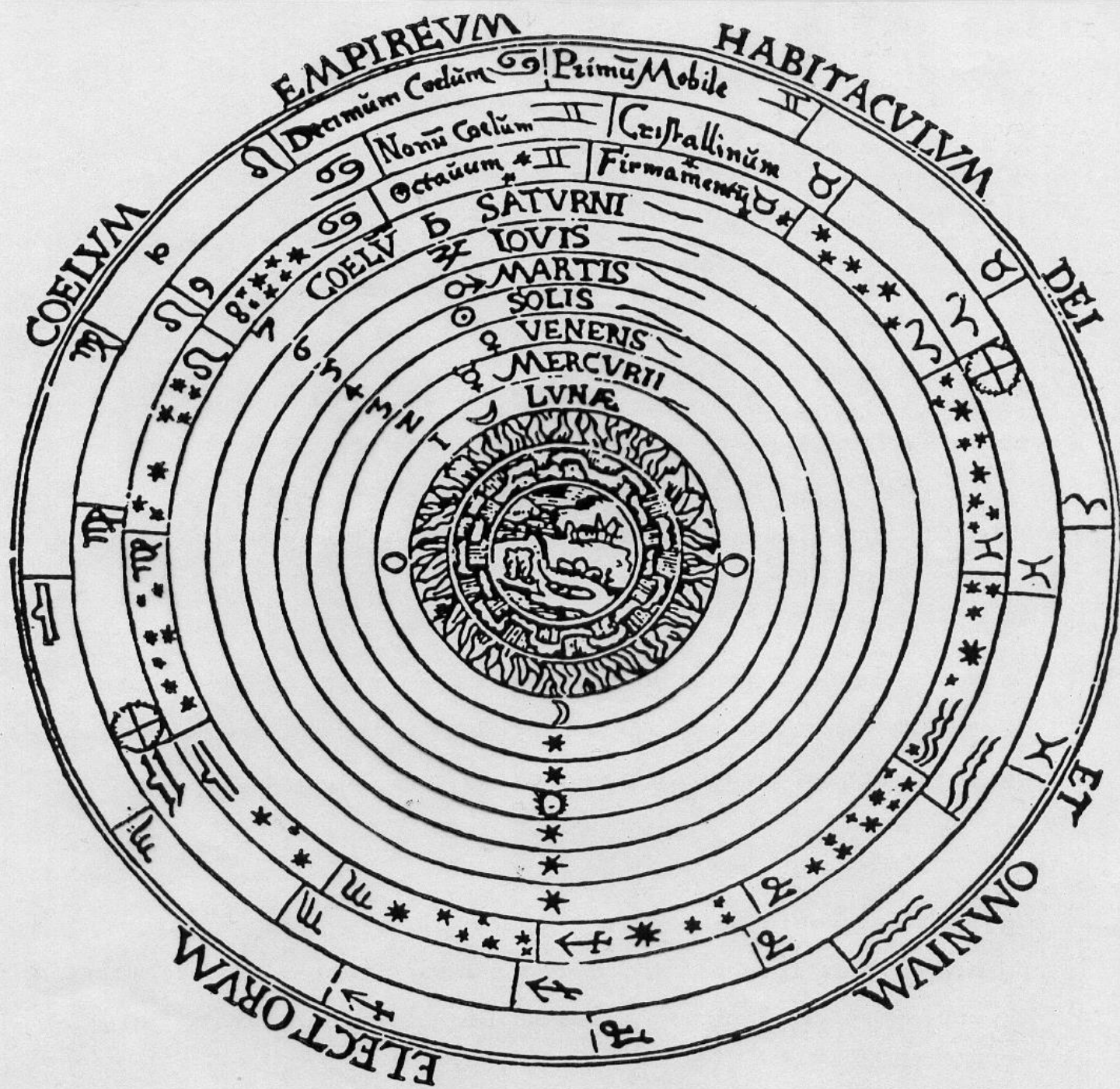
2. Contact problems for religion?

3. Is God an alien?



The Religious Implications of Extraterrestrial Intelligence

- 1. Evidence for Cosmic Design?**
- 2. Contact problems for religion?**
- 3. Is God an alien?**
- 4. Would it be the end for the Christian faith?**





Milne
1896-1950



Mascall
1905-1993



Origen (c.184-254)

Christ's redemptive work as a transcendent action which gradually through time takes effect in every realm of creation but which, nevertheless, needs to find corporeal expression in a particular place on a particular occasion that is, on Calvary



The Borderlands of SETI

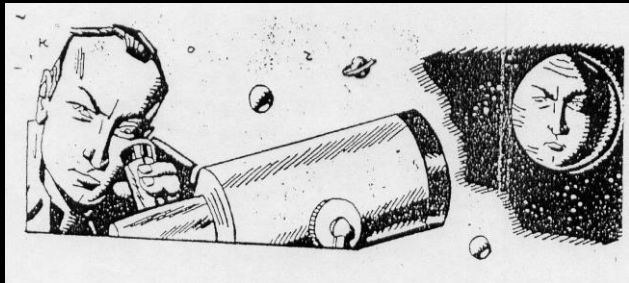
1. The 'religious' dimension of SETI?

Loneliness

Purpose



Identity



Fear



Salvation

The Borderlands of SETI

1. The 'religious' dimension of SETI?

2. The challenge to religion of SETI

Your God Is Too Small

We shall never want to serve God in our real and secret hearts if He looms in our subconscious mind as an arbitrary Dictator or a Spoil-sport, or as one who takes advantage of His position to make us poor mortals feel guilty and afraid. We have not only to be impressed by the "size" and unlimited power of God, we have to be moved to genuine admiration, respect, and affection, if we are ever to worship Him.

J.B. Phillips

The Borderlands of SETI

1. The 'religious' dimension of SETI?

2. The challenge to religion of SETI

3. The contribution of theology to SETI

- **Nature of ETI**
- **Consequences of future contact**
- **Encourage and affirm SETI**
- **Ethical dimension**



‘Be not so positive’

EQUIPPING
CHRISTIAN
LEADERSHIP in an
AGE of
SCIENCE



<https://www.eclasproject.org>

ST. JOHN'S
COLLEGE



AFP PHOTO / EUROPEAN SOUTHERN OBSERVATORY / M. KORNMESSER

This photo released by the European Southern Observatory on Nov. 20, 2017, shows an artist's impression of the first interstellar asteroid: 'Oumuamua.



