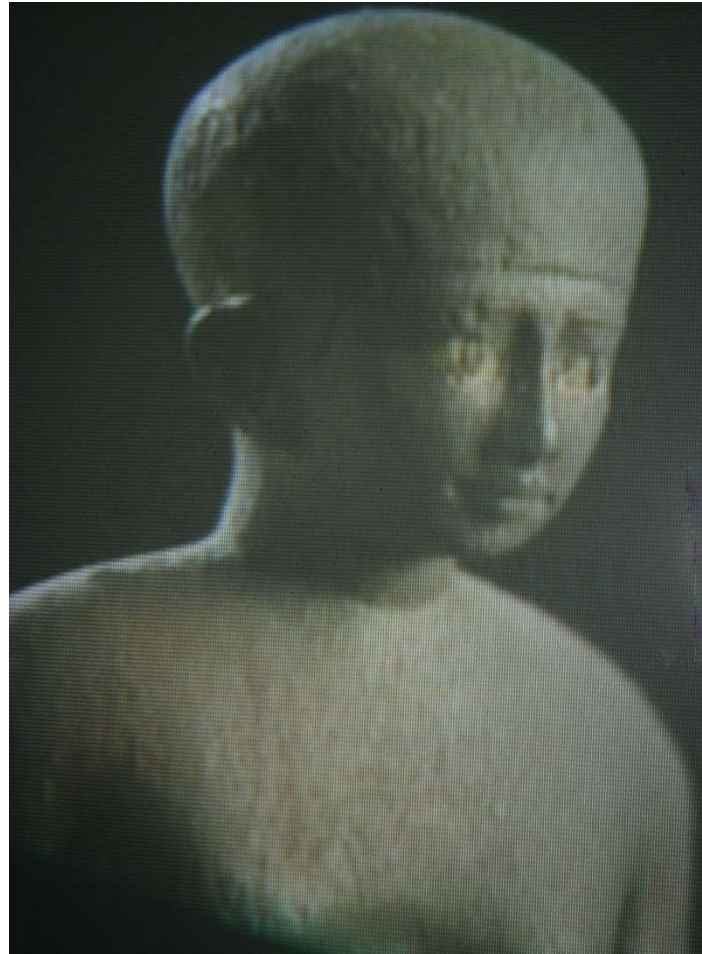


# The Old Kingdom and its “Space Programme”

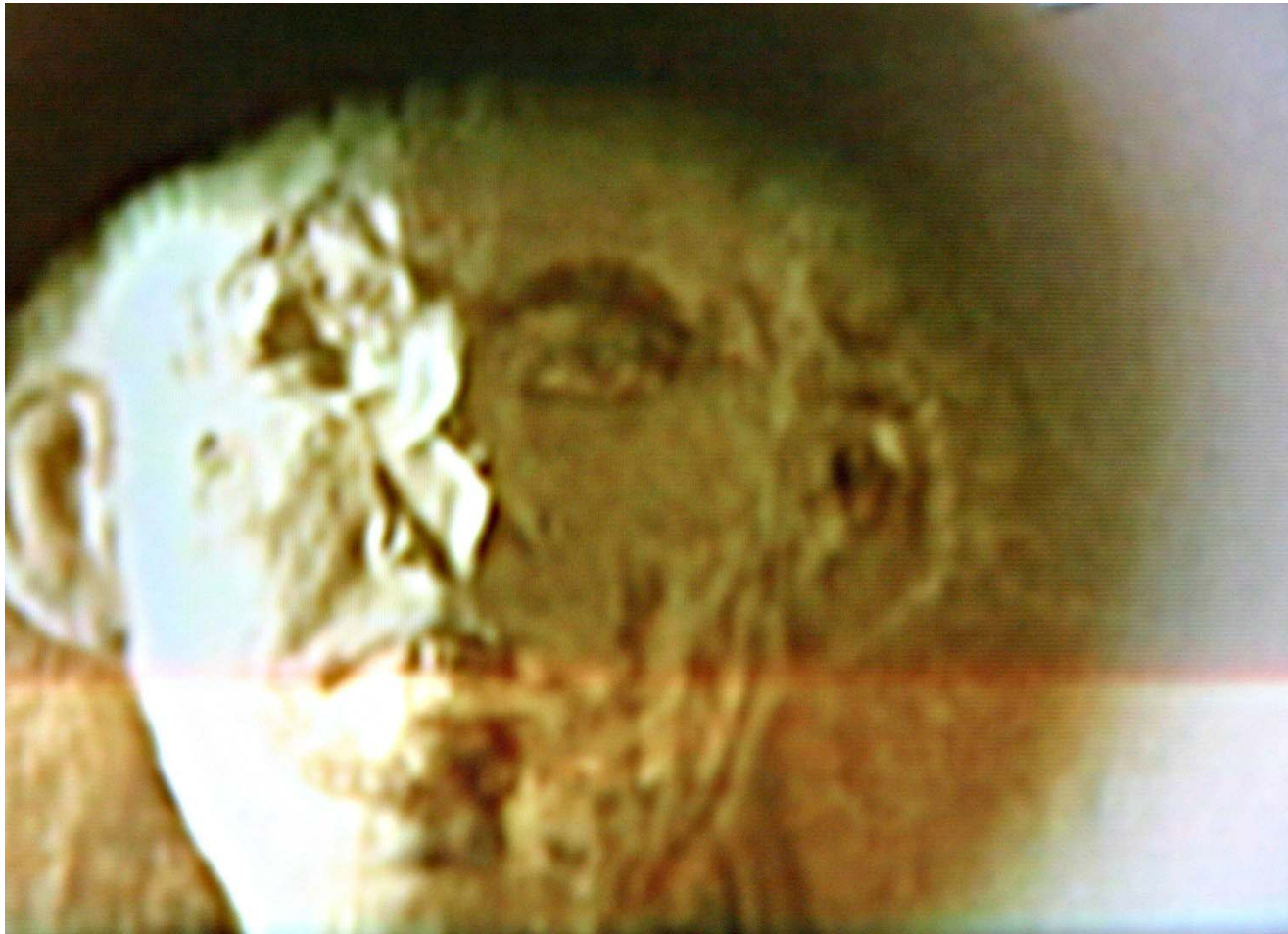
- 1/Egypt was unified into the Old Kingdom, c 3000BCE
- 2/The resulting Peace led to Order, prosperity and the first nation State
- 3/ Irrigation, writing, and new technology grew the population, in harmony with the Nile
- 4/ Observing the skies, and writing, was vital in planning the harvests and festivals
- 5/Their Gods lived in a real Kingdom, and Pharaoh was semi-divine
- 6/Pharaoh had to ascend to the Gods to ensure Egypt’s success
- 7/ The Old Kingdom tried to do by Magic what we must do by science- reach for the stars. The efforts and problems involved have features in common



# Imhotep, Chief of the Observers, the “Leonardo “ of the Third Dynasty



Pharaoh Zozer, Boss and Friend of  
Imhotep, Chief Architect, 2680 BCE



# Zoser's Step Pyramid of Saqqara- the World's first stone building



# Zozer's Complex, as it looked in his day



the Ben Ben stone, prob. a meteorite:  
Seed of Amun cult at Heliopolis

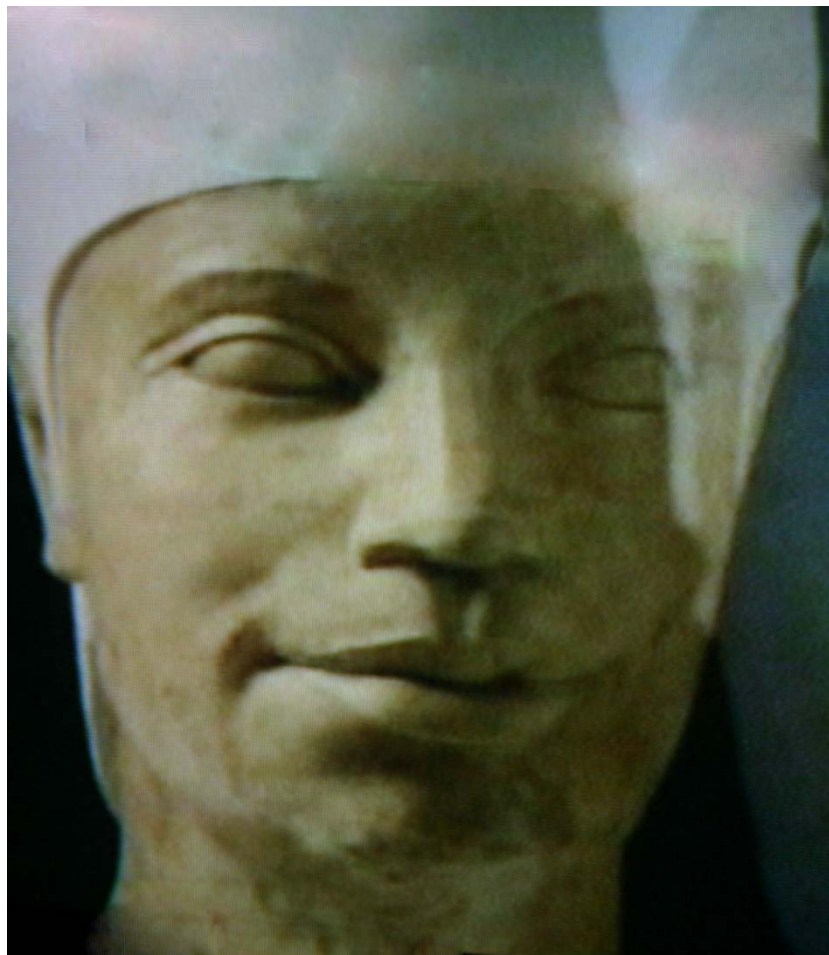


# The Ben Ben stone

- 1/ The Ben Ben stone, from descriptions resembled the cap of a pyramid, and fell from Heaven, as the Seed of Amun
- 2/ It was revered at Heliopolis from pre-dynastic times
- 3/ It was almost certainly a meteorite, and convinced observers that the lands of the gods was real and material; ergo, somehow, it could be reached



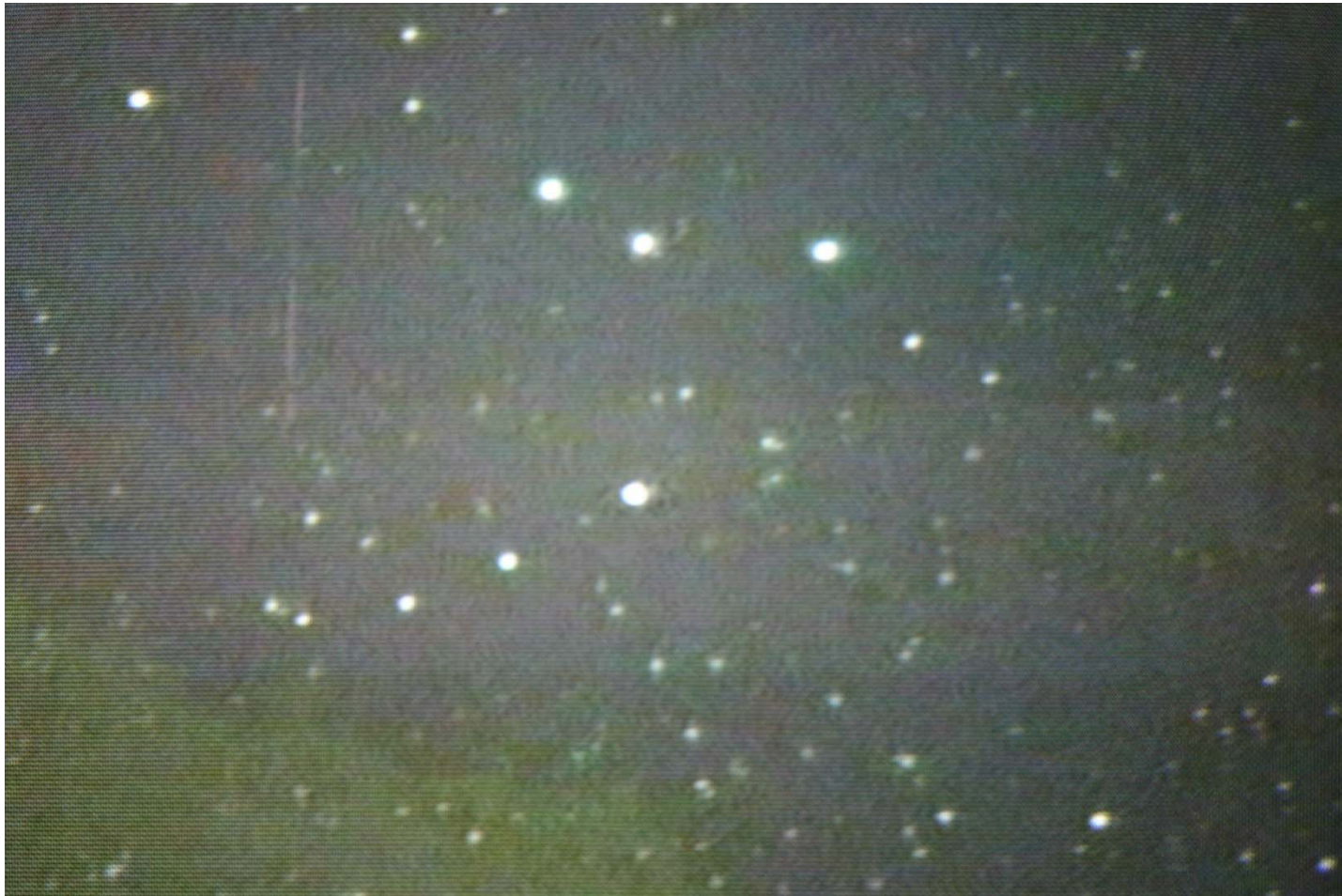
Pharaoh Sneferu, Fourth Dynasty, built  
first true pyramid, c 2550BCE



# Sneferu's learning curve- the Bent Pyramid at Dashour



# Egyptian astronomers found the physical Land of the Gods



# The First Act ; aligning Khufu's Pyramid id, aligned to "The Indestructibles"



# Architects planning the Project



# Built by Humans?

- 1/ over 130 years, > 30 million tons of stones were cut, dressed, moved and placed in the Pyramid Era
- 2/ Khufu used 2.5 million x 2.5 tons over <20 years, with 25,000 workers; ie 1 stone every 2.5 minutes according to “Alien” cultists -or “Pyramidiots”
- 3/ But these stones were moved 500/day in parallel, not 1 in 2.5 minutes in series!!
- 4/ a massive job, but the miracle was not feasibility, but the organisation and moral conviction displayed
- Can we match it?

# The Step and Great Pyramids compared



“The Strong Boatmen of Khufu”, a team of 200, earning their bonus!





Martians at work? 100 men can haul 2,500 kilos of stone without alien aid



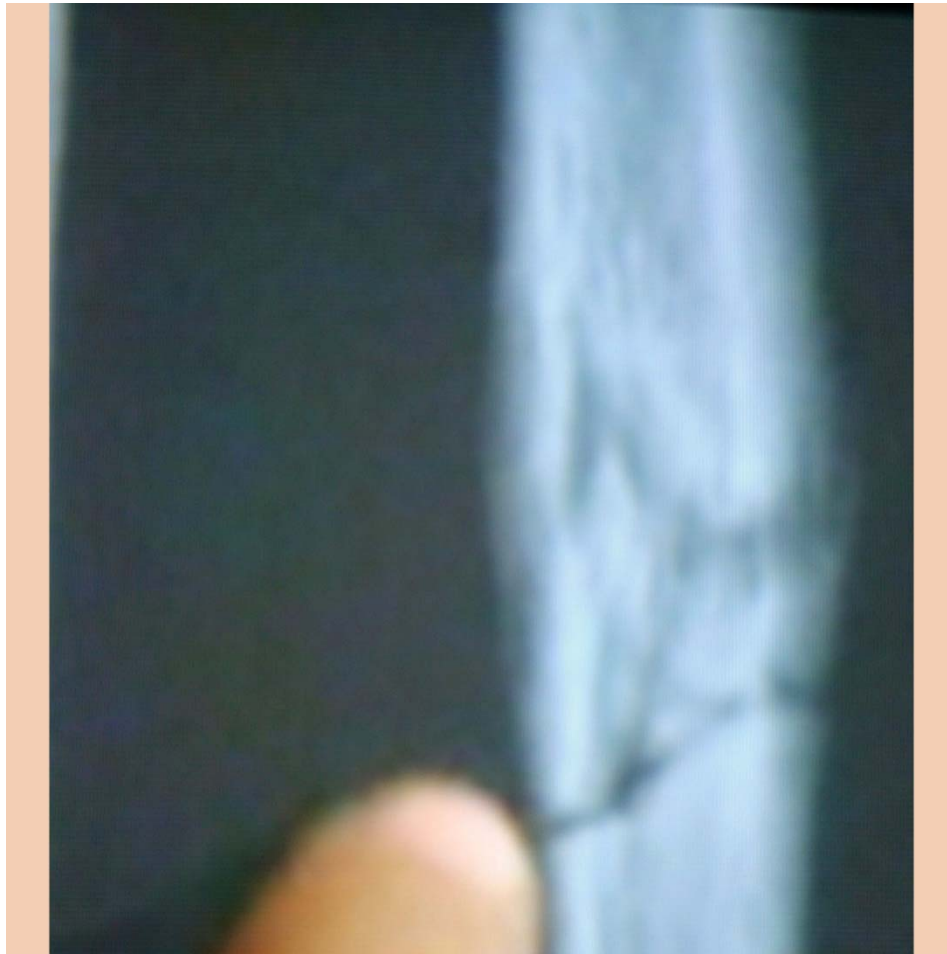
# We have found the mysterious workers at Giza



From the archaeology, we find middens, and signs of a good diet



A skillfully healed fracture- surely not  
for a mere slave?



Pharaoh, like our spacemen, need preparations for the flight



# Khufu's Pyramid- a Resurrection machine, ready for launch



# Shafts pointing to the polar stars- an Inertial Guidance System



# Journey's End- among the Gods of Heaven





# Old Egypt in Summary

- 1/Egyptian magic prescribed a symbolic voyage by a Pharaonic Ambassador to the stars- physical realm of their gods
- 2/their programme for this was comparable in scale to our major space programmes, needing much new learning and technology
- 3/A major belief in an ordered future for Humanity sustained over generations was needed
- 4/But it was magical/symbolic; the Old Kingdom collapsed due to Climatic disaster within 500 years, and the serene order of Maat never resumed its full authority again; Egypt's civilisation nevertheless endured until the coming of Christianity

# What Came next?

- 1/ The magical quasi physical/metaphysical concepts were replaced by pure metaphysics, and a perfect/divine view of the Heavens
- 2/ There was no question of a physical, magical access to the Heavens-before or after death!
- 3/This could only be achieved by strictly immaterial souls, in a State of Grace, The Heavens were held to be perfect, unchanging, divine and centred on the Earth, until..16 centuries later

Galileo's Telescope, harbinger of a bloodless revolution, disproved 16 centuries of dogma in a few weeks



A Crescent Venus, clearly NOT orbiting  
the Earth, but the Sun



Venus a few weeks later, different phase, and much further from Earth!



A modern “Galileoscope” refractor.  
An 8 year old can disprove Mediaeval  
Christendom without a Kalashnikov



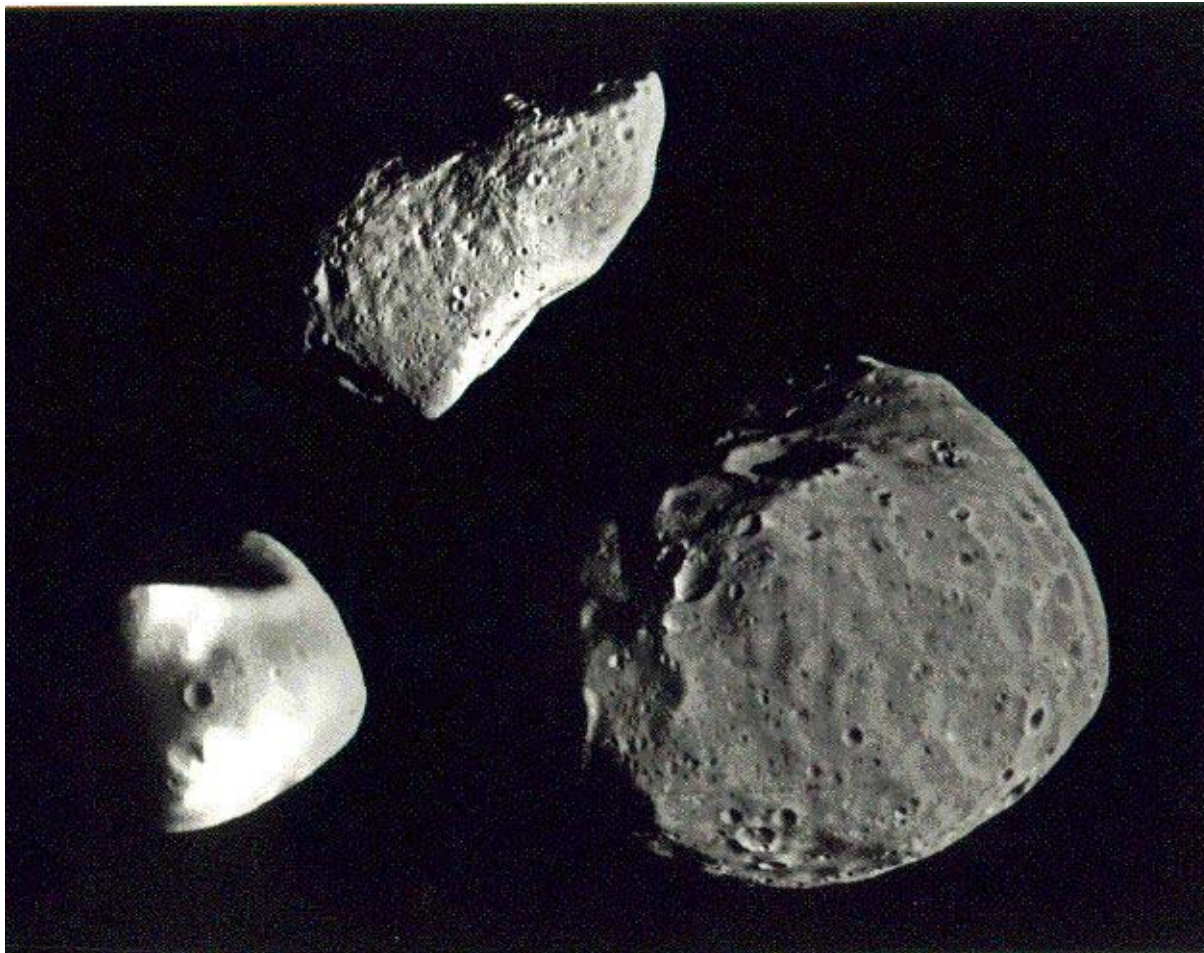
# The Enlightenment- under threat..

- The scientific and democratic Revolution has not only given us Knowledge and Liberty but also vast wealth. 6.5 billions live, mostly, better than the nobles of Rome or Tenochtitlan.
- But we face shortages of resources and energy, and, say some, threats to our Climate
- Return to Absolutism, and end to Freedom is promoted both by Religious Fundamentalists and Environmentalists; human enterprise and aspiration must be curbed, “to Save the Planet” or in submission to God’s Law; we are all sinners.
- We must curb our living standards, or populations, on pain of the Wrath of God or Nature, we are told. . Induced guilt will become the Father of dictatorship and worse
- But History shows us that this would cost billions of lives- through incompetence or malice!
- For the sake of Freedom, scientific learning ( our greatest achievement) and human(e) civilisation, we must find another way...
- We must build on our science and new civilisation, like the Egyptians before us, to forge a new relationship with the resources of Heaven. These are not divine, but, as the Egyptians realised real enough. We must deploy not Magic, but Science

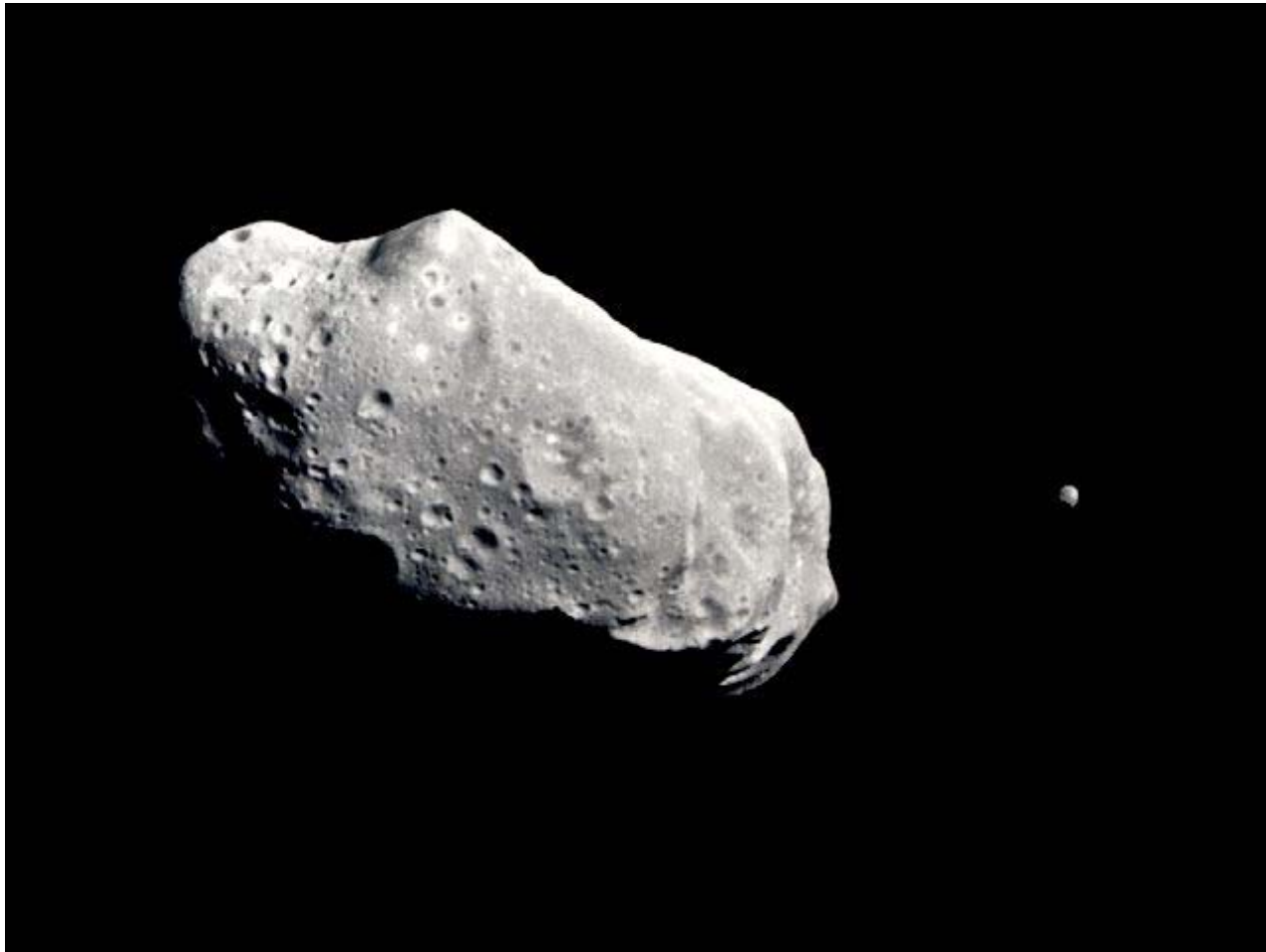




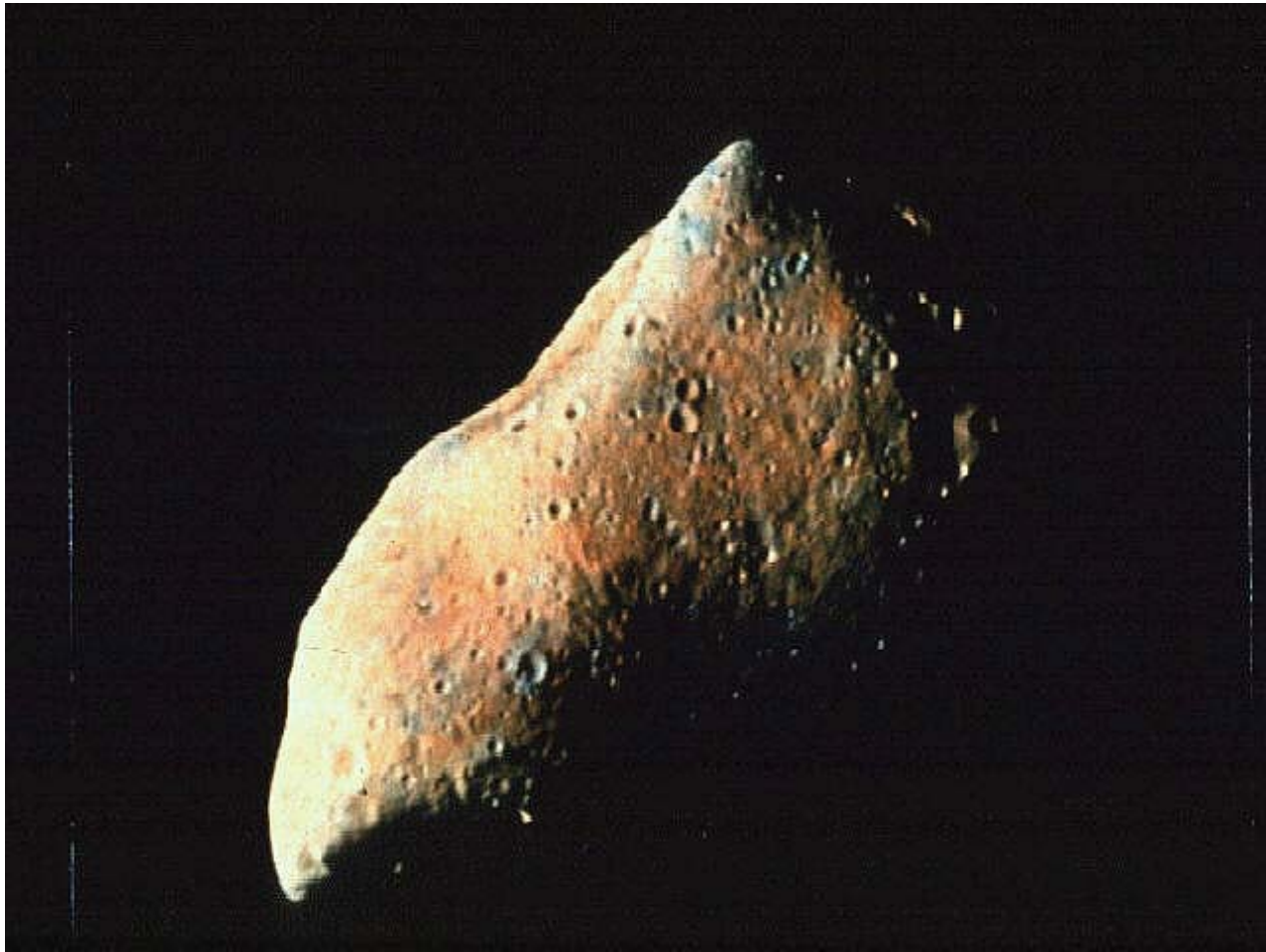
# A montage of asteroids, taken by various spacecraft



Even asteroids have moons- here is Ida  
and her small “moon”, Dactyl



Asteroid 433 Eros- already visited by  
our robot ambassador, NEAR



Our neighbour, the Moon- another world , reached by humans already.



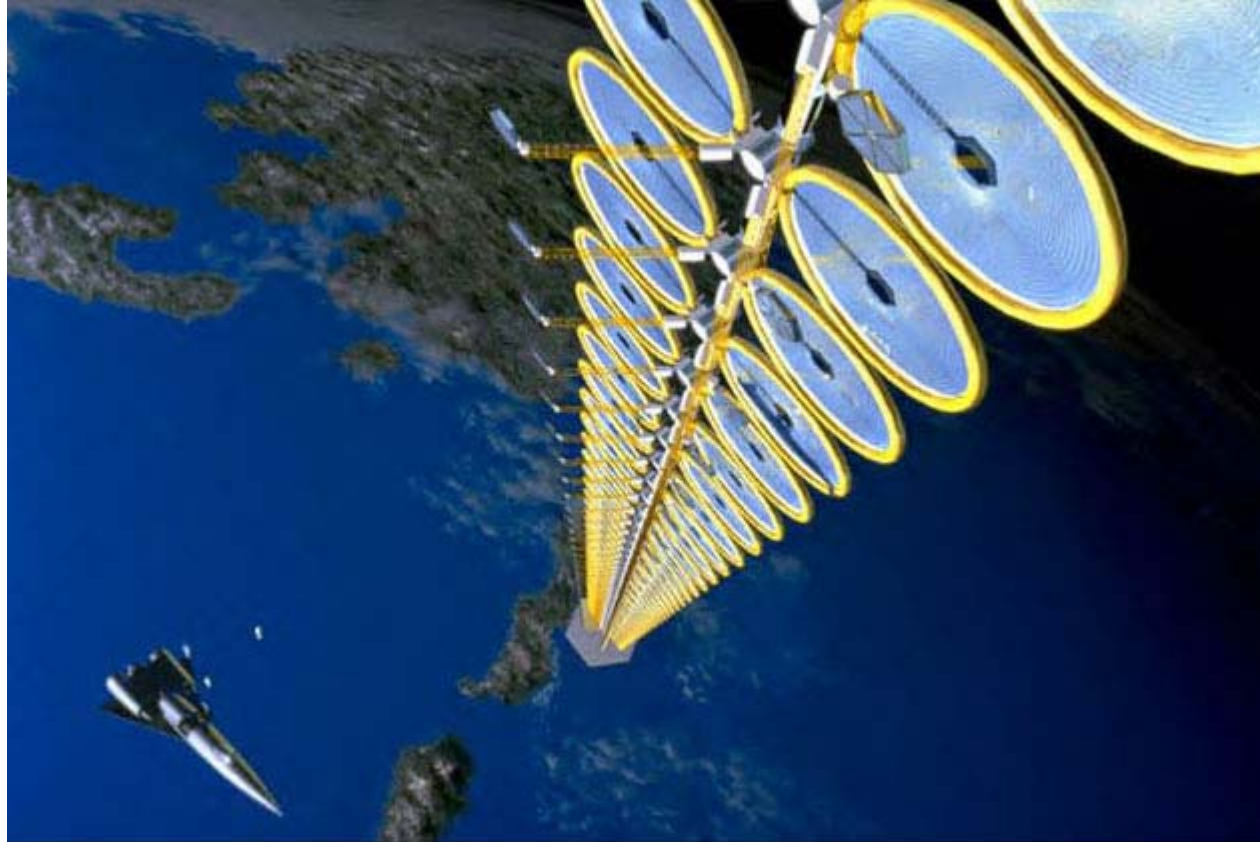
Our legacy from Apollo- we did get there



The Sun- not spotlessly Divine, but still  
the biggest thermonuclear powerplant  
around!



# Solar Power satellite converts light into microwaves, beaming energy to Earth



# Xcor's Lynx 2 spaceplane. Due 2010-12

## Cheap access to Space essential for SPS





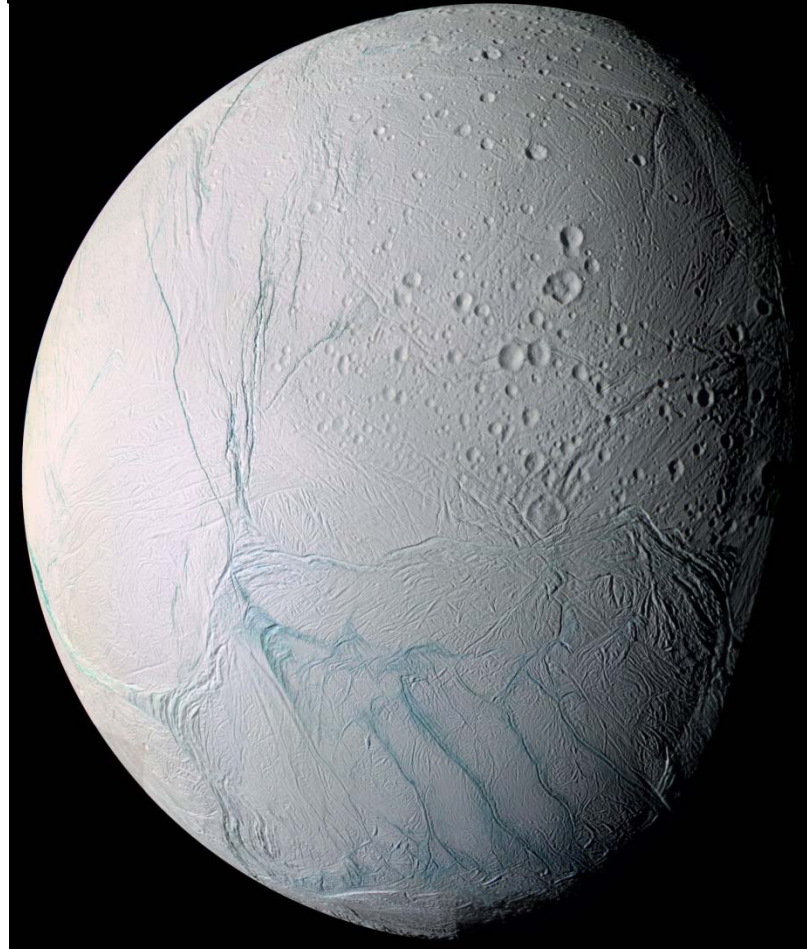
# Genesis 1 and 2 are prototypes for a commercial Space Station/Hotel



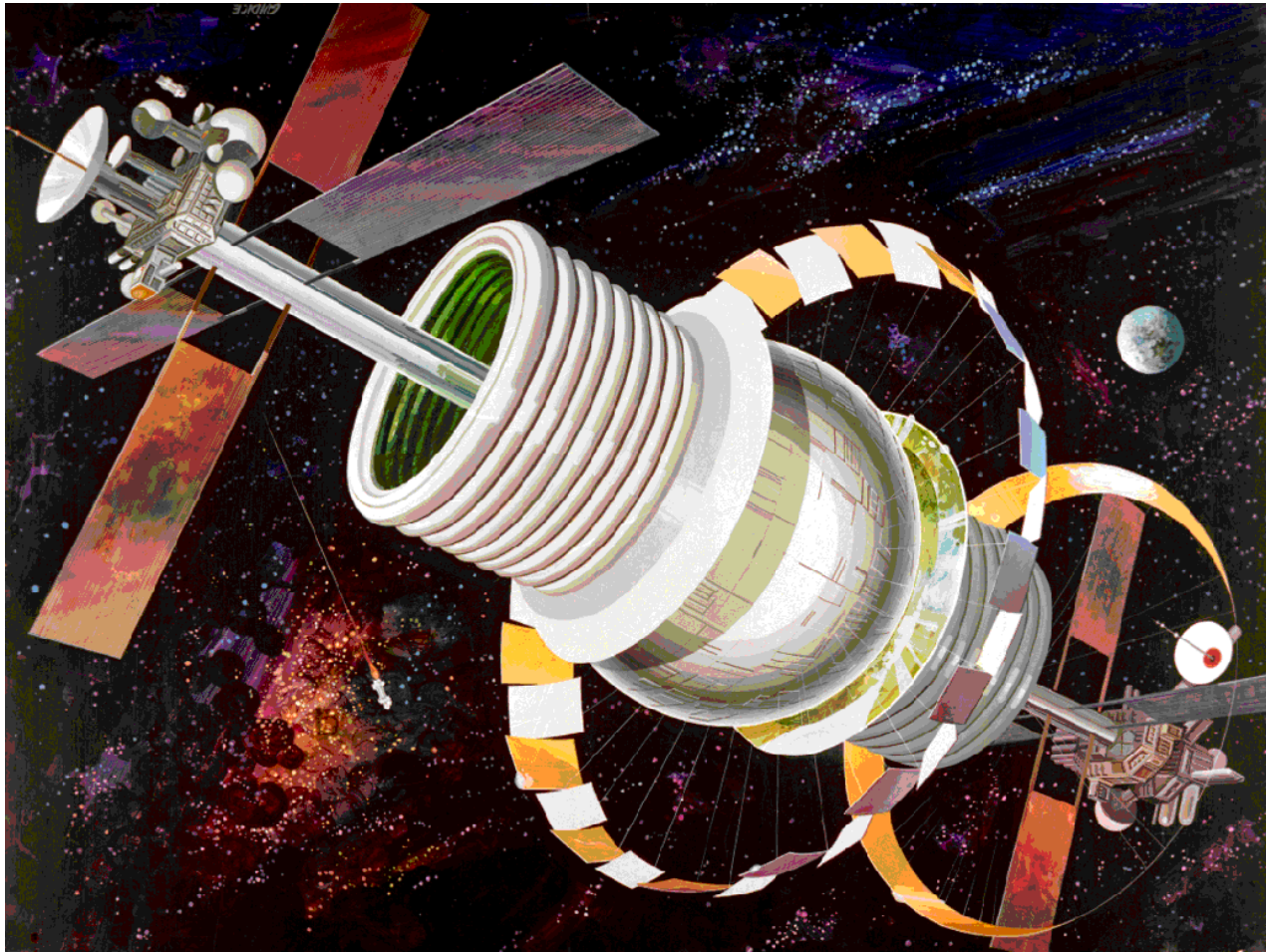
# Full scale Model of Bigelow's space station module, due 2015



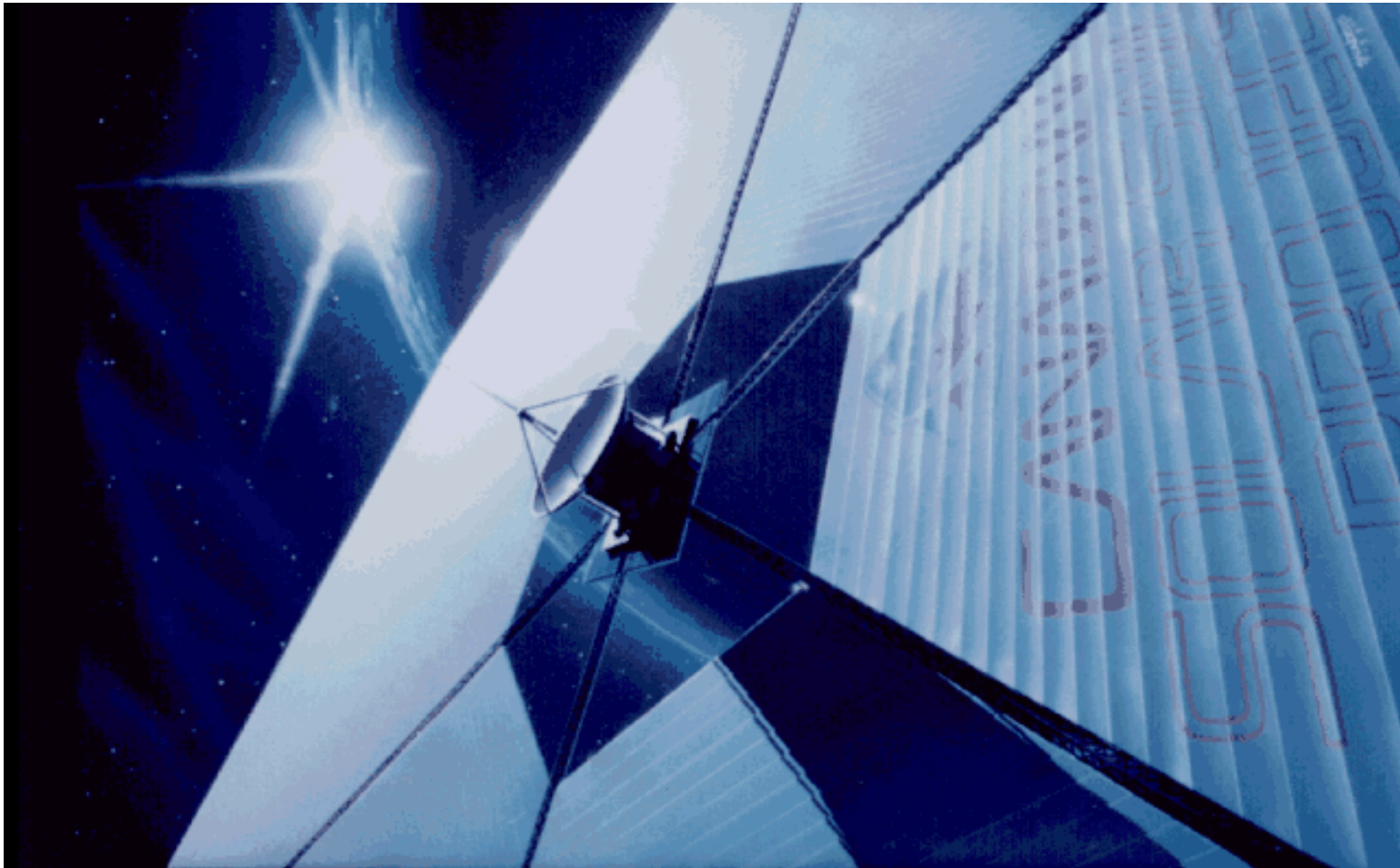
Enceladus, at Saturn has a water rich  
Ocean. Space cities need not fear  
resource shortages



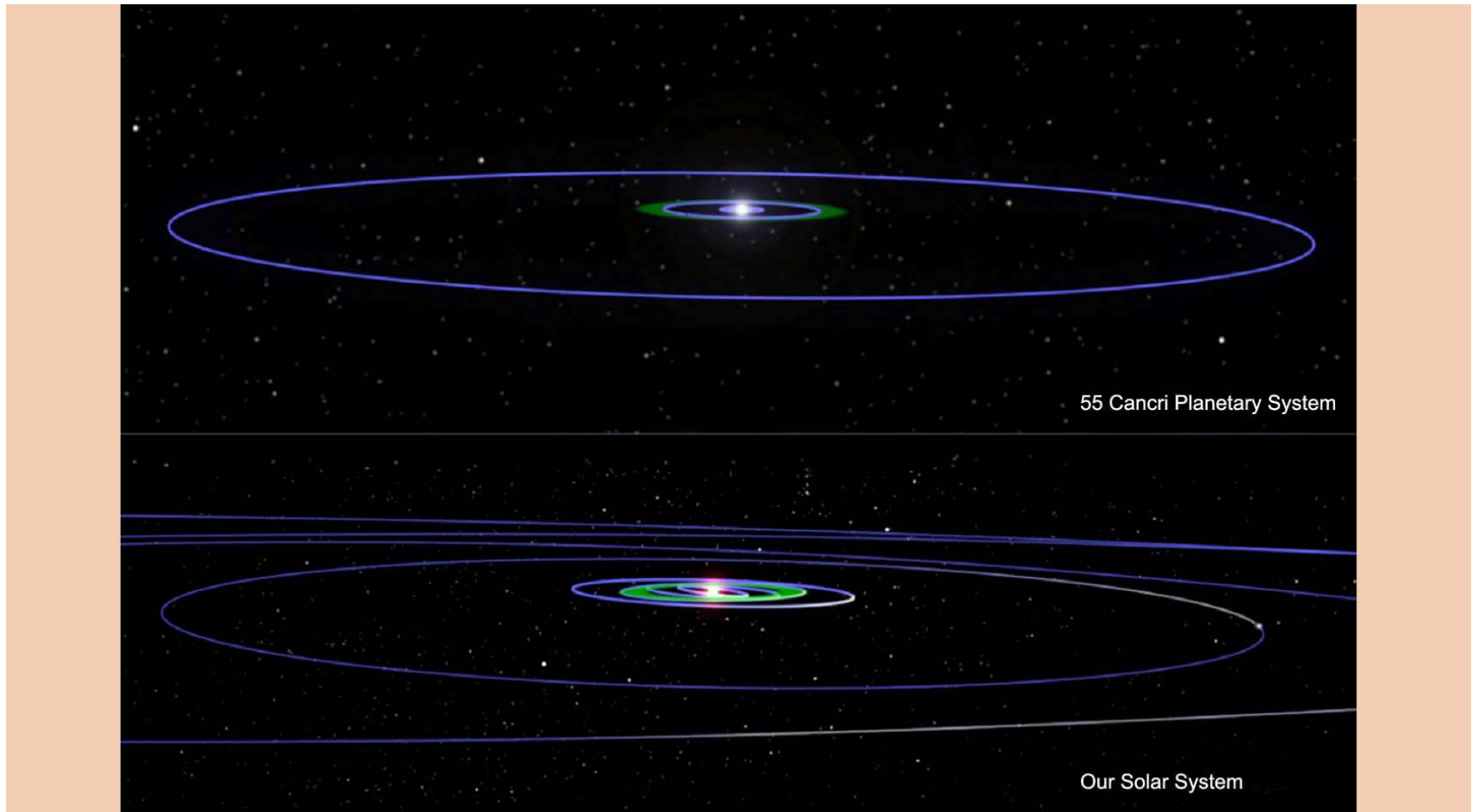
# O'Neill's Island One concept- a self sustaining city state of 10,000



# Solar Sailing- free energy for space propulsion



# Two solar systems- ours, and 55 Cancri



# In conclusion

- 1/ Egypt sought by Magic to link Man and the Gods via a Pharaonic “Reach for the Stars”, for human benefit, Order, and wisdom
- 
- 2/ We must choose between poverty and oppression from neo-Malthusians, Religious and ecological fundamentalists- the End of the Enlightenment- and the Way of the Explorer
- 3/ We can use our science and human adventurism to break out of the closing prison being built around us; prisons are deadly places and will not sustain us for long.
- 4/ The expansion into Space is sound for economic and evolutionary reasons- but most of all it alone will safeguard Liberty and the Enlightenment , and the spirit of Exploration and Adventure- the Human Spirit itself
- 5/For their own widely different reasons, I believe Imhotep and Zozer would rejoice in the attempt!