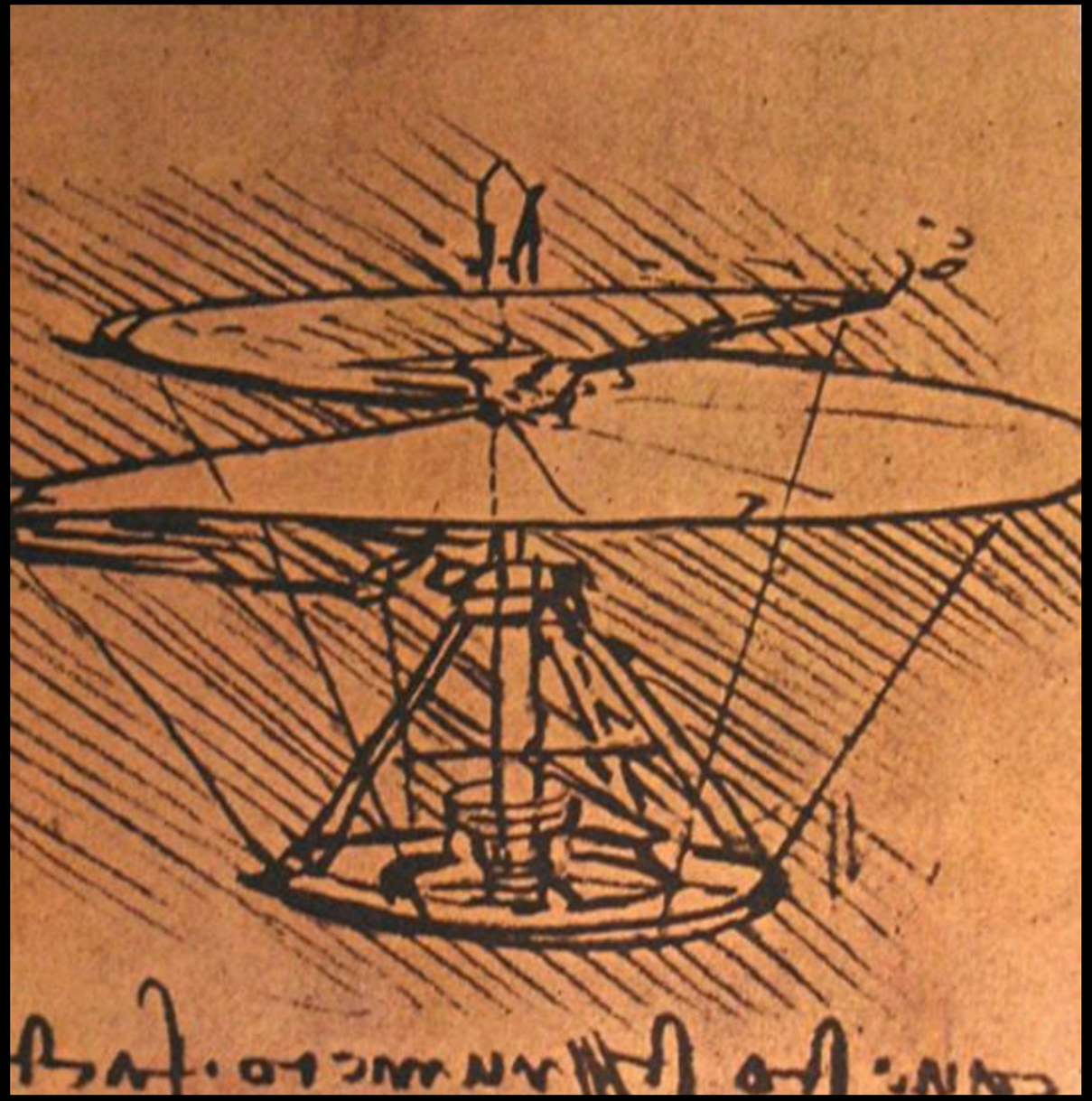
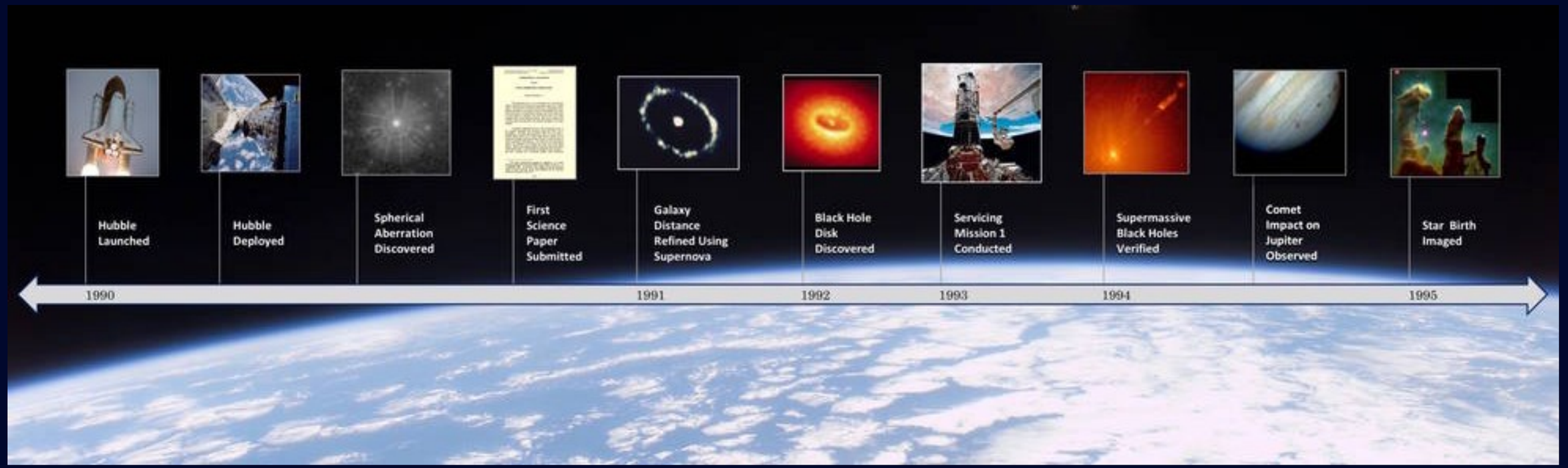
Riccardo Giacconi
a Modern Day Leonardo

Antonella Nota
ESA Senior Representative at STScI

Memorial Symposium
in Honor of Riccardo Giacconi
May 29, 2019




The genius of
Leonardo da
Vinci


Hubble Launched
Hubble Deployed
Spherical Aberration Discovered
First Science Paper Submitted
Galaxy Distance Refined Using Supernova
Black Hole Disk Discovered
Servicing Mission 1 Conducted
Supermassive Black Holes Verified
Comet Impact on Jupiter Observed
Star Birth Imaged
1990
1991
1992
1993
1994
1995

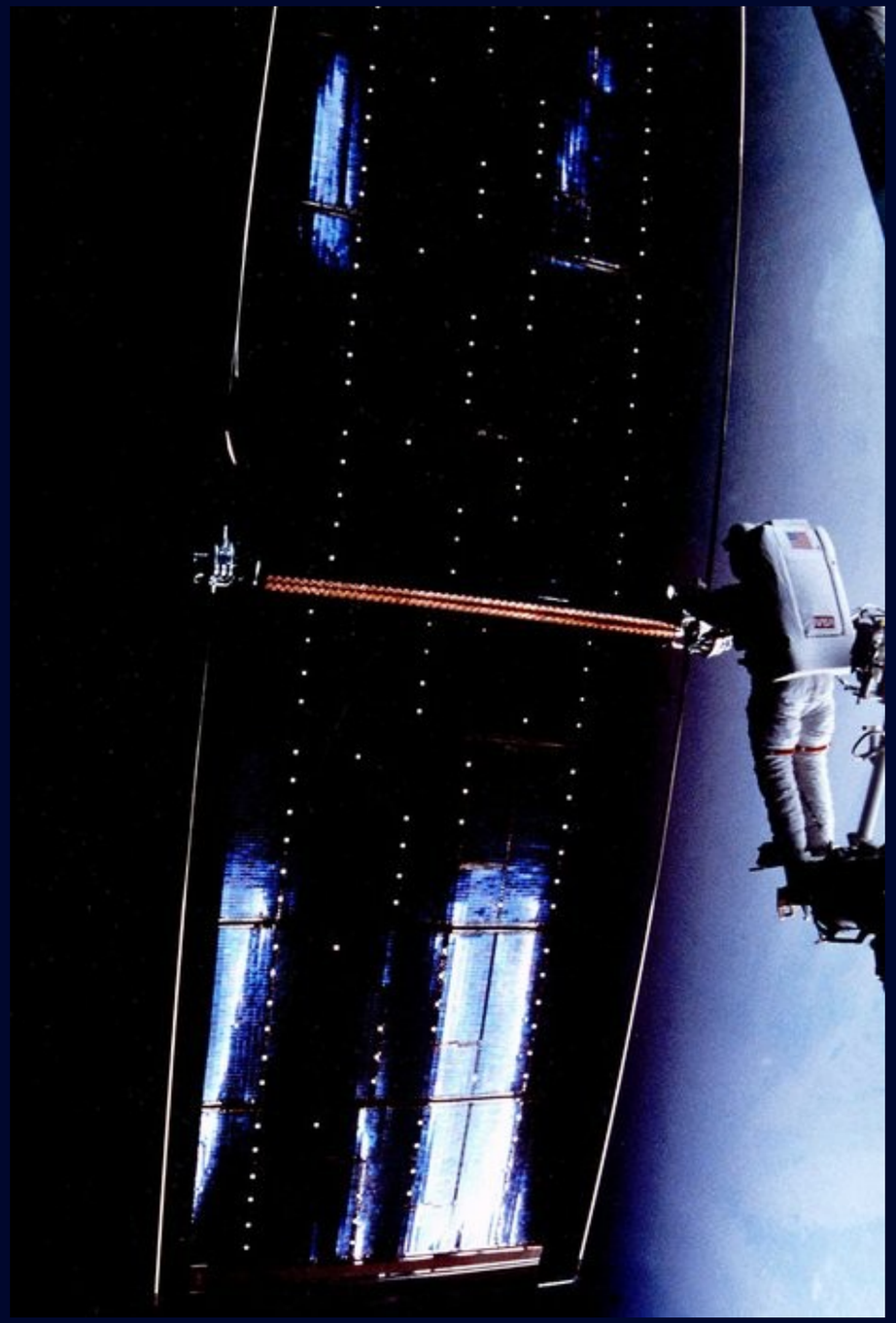
1981 - Riccardo becomes STScI Director

1975

ESA becomes part of the Hubble project

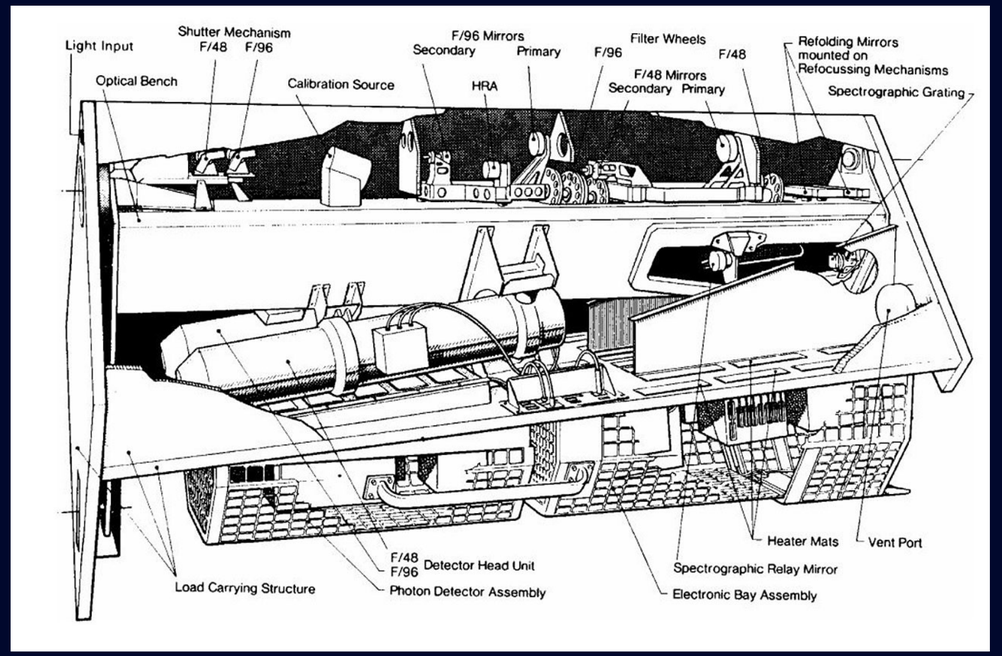
ESA was established in 1964

ESA had contributed the first generation solar arrays



and the Faint Object Camera

FOC Facts	
Instrument type	Camera
Field of View	Low resolution F/48: 22” Medium Resolution F/96: 11” High Resolution F/288: 3.6”
Resolution	F/48: 0.043” F/96: 0.022” F/288: 0072”
Wavelength	122 - 550 nm



And a team of scientists supporting the mission: the first ESA/Hubble team - 1983-1984









THE IMAGING PERFORMANCE OF THE *HUBBLE SPACE TELESCOPE*

CHRISTOPHER J. BURROWS,[1,] JON A. HOLTZMAN,[3,4] S. M. FABE[3,5] PIERRE Y. BELY,[1,2]
HASHIMA H[illegible]AN,[1] C. R. LYNDS,[3,6] AND DANIEL SCHROEDE[7]

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ABSTRACT

The *Hubble Space Telescope* suffers from significant spherical aberration and does not give the predicted diffraction-limited images. A maximum of about 16% of the light from a point source is concentrated in a 0".1 radius, where 70% was expected. The images consist of this core, surrounded by a complex 4".0 diameter inner halo that contains most of the light and is caused by portions of the primary mirror that are not focusing correctly. Ground test results uncovered by the Allen Commission agree with results derived from studies of the on-orbit imagery.

The pointing performance is also degraded, with guide stars for fine lock presently limited to 13.5 mag, compared to an expected limit of 14.5 mag. Some areas of the sky are therefore not accessible in fine lock. In addition, the spacecraft undergoes severe pointing disturbances during portions of the orbit, caused by thermal shocks.

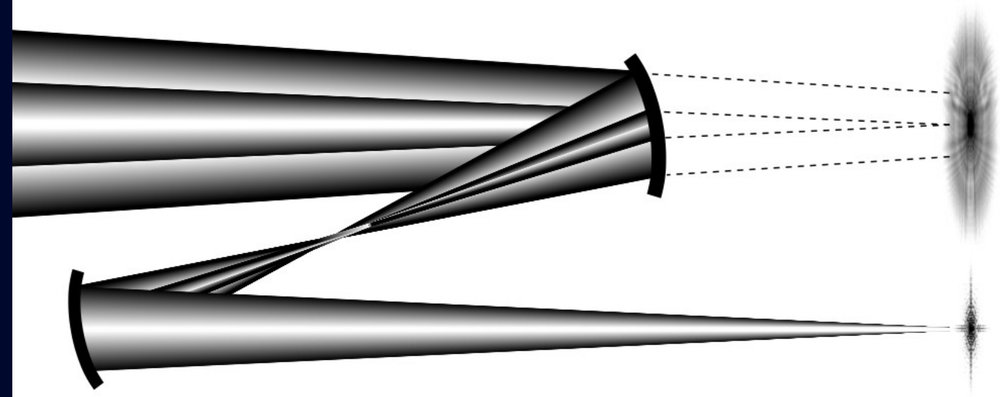
Nevertheless, *HST* represents a unique resource for high-resolution imaging of low-contrast bright objects through deconvolution techniques. Such techniques rely on the detailed information about the PSF that is given here. *HST* can split higher contrast fields into components when photometric accuracy is not important. There is a loss of about 2 mag in limiting magnitude for point sources.

Subject headings: analytical methods — image processing — instruments — numerical methods — photometry — sky photographs — ultraviolet: general

Report of the HST Strategy Panel:

A Strategy for Recovery

The Results of a Special Study
August–October 1990



Edited by R. A. Brown and H. C. Ford

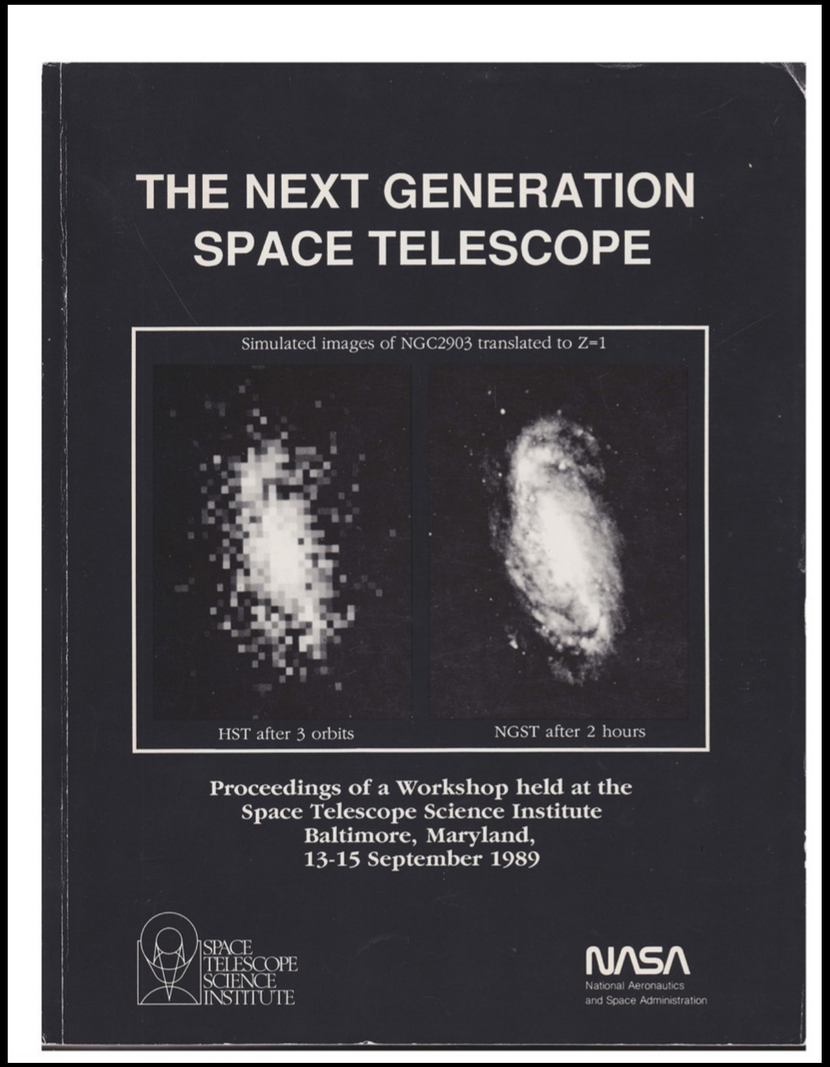
Panel Members

Robert Brown, *Co-Chairman*	Space Telescope Science Institute
Holland Ford, *Co-Chairman*	Space Telescope Science Institute
Roger Angel	University of Arizona
Jacques Beckers	European Southern Observatory
Pierre Bely	Space Telescope Science Institute
Piero Benvenuti	ST European Coordinating Facility
[illegible]	Ball Aerospace
Christopher Burrows	Space Telescope Science Institute
James Crocker	Space Telescope Science Institute
Rodger Doxsey	Space Telescope Science Institute
Sandra Faber	Lick Observatory
Edward Groth	Princeton University
Shrinivas Kulkarni	California Institute of Technology
Bruce McCandless	Johnson Space Center/NASA (Ret.)
Francesco Paresce	Space Telescope Science Institute
Lyman Spitzer, Jr.	Princeton University
Raymond Wilson	European Southern Observatory

Riccardo Giacconi, then the Institute Director, challenged Peter Stockman (Research Branch Head) and me (Deputy Director) to "think about the next major mission beyond *Hubble*."

While the core of the group that led the development of the Next Generation Space Telescope (NGST) mission concept at that time was Pierre Bely, Peter Stockman and me, we were extremely lucky to have Riccardo's continuing support and encouragement, and an extraordinarily talented and imaginative group of engineers and scientists at the Institute—including James Crocker, Mark Rafal, and Chris Burrows—who worked with us on many aspects of the concept development.

Garth Illingworth - STScI Newsletter



The rest is history

Riccardo's principles

Ruthless intellectual honesty
Truthfulness in pursuit of excellence
Respect of other's opinions
Mutual support

are prerequisites to build the premiere research team to solve scientific problems, not to build clever things

R. Giacconi,Secrets of the Hoary Deep

Before their eyes in sudden view appear
The secretes of the hoary deep, a dark
Illimitable ocean without bound,
Without dimensions, where length,breath and height,
And time and place are lost;
where eldest Night
And Chaos, ancestors of Nature,
hold
Eternal anarchy, amidst the noise
Od Endless wars, and by confusion
stand.
For hot, cold, moist and dry, four
champions fierce
Strive here for mastery and to
battle bring
Their embryon atoms.

Milton, Paradise Lost

May your vision be the beacon
that guides or navigation
May it be the light that illuminates
our path forward.