

The Andean World and Alternate Ontologies

- Great sense of strangeness when Spanish encountered Peru: it was an alien place. They were pagans! They worshipped rocks, springs, mountains, buildings, and pebbles. They could be married and kidnapped.
- A “filthy wooden pole” was worshipped at one of the greatest Inca temples, the home of the oracle of Pachamac.
- A ceramic pot dressed in female was venerated as an ancestor and approached for advice.
- Mummies were fed, clothed, and asked for guidance.
- Stone huacas were alive due to the action of carving, water, and/or sunlight.

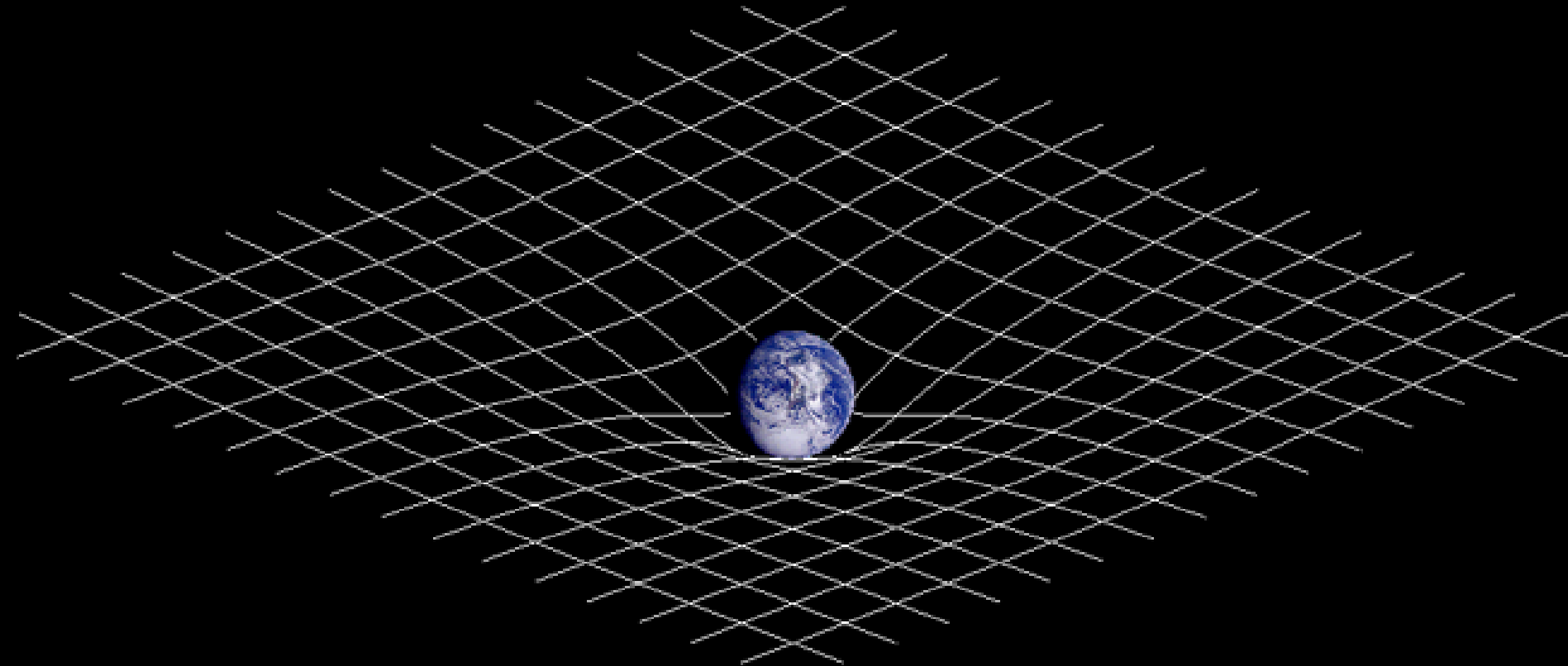
Challenge to Cartesian Dualism

- Western ontological distinction between animate and inanimate, living and dead, persons and rocks, mind and matter, subject and object, future and past.
- Ontological turn in anthropology from epistemology to ontology. In alternate epistemologies, one dealt with different descriptions of one reality. In alternate ontologies with different realities, different worlds.
- How many of these cultures that we try to understand through archaeology and archaeoastronomy lived under different ontologies, in different universes than ours?

Alternate Ontologies

- We don't need to explore other cultures to encounter other ontologies. We have our own.
- General relativity presents a different ontology than Newtonian physics.
- As we understand General Relativity, there is no force of gravity, no downward pull, only free particles (e.g. apples) travelling along curved lines in space-time.

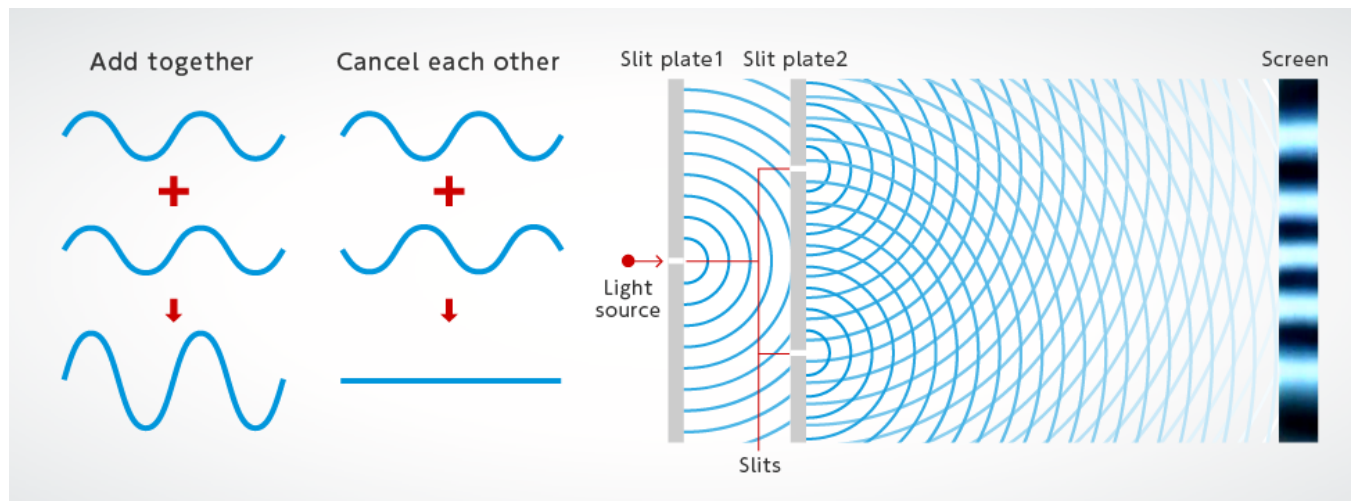
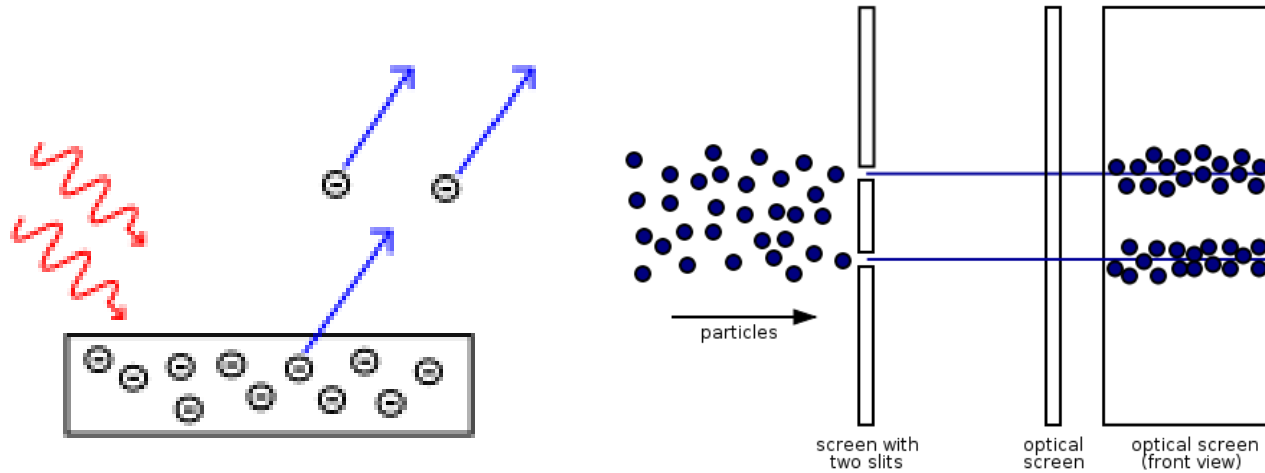
Free particles travel along curved paths in space time- no “force”



The Ontology of Quantum Mechanics

- When light passes through double slits it behaves as waves.
- When light hits a metal plate it behaves as a particle, a photon.
- It never behaves as both.
- Bohr describes it in terms of complementarity- light has two mutually exclusive natures, which is determined by an entanglement of physicist, experiment, and phenomena.

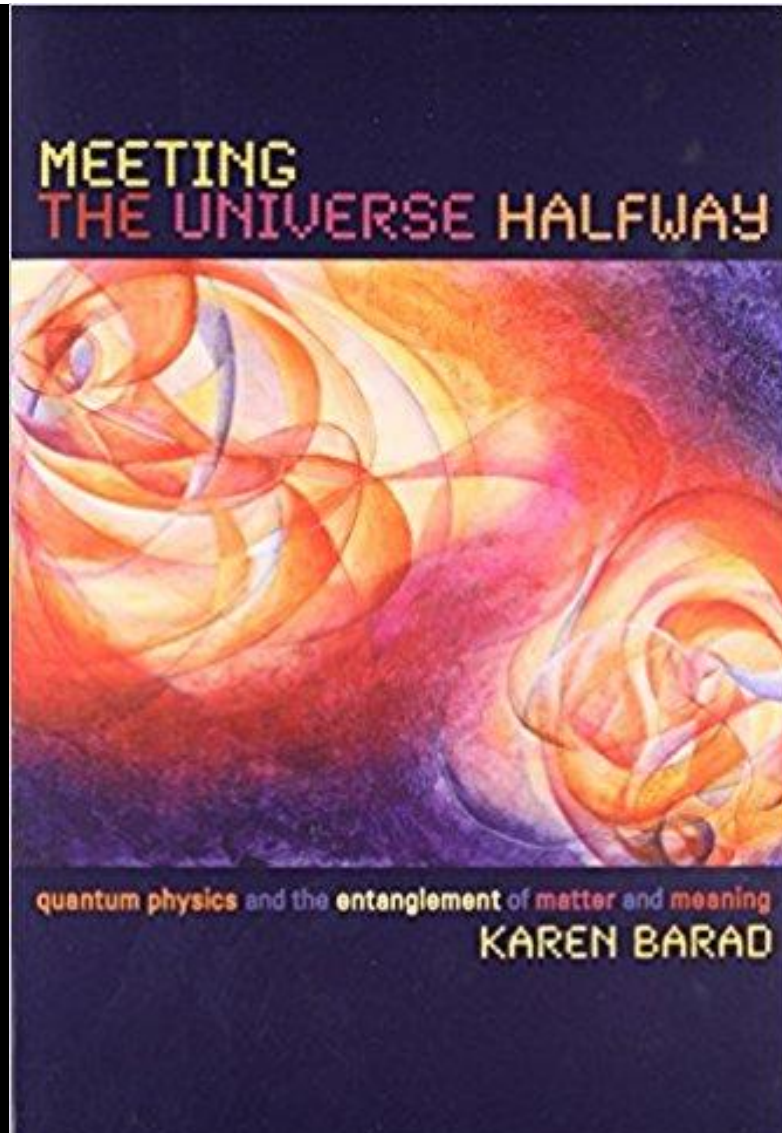
Particles and Waves



The Ontology of Heisenberg's Uncertainty Principle

- Position and velocity of an electron can not be simultaneously measured.
- Heisenberg: small particles are disturbed in the act of measurement
- Bohr: uncertainty is a fundamental characteristic of reality because of the entanglement of observer, measurement technique and phenomena

Karen Barad and A New Ontology: Posthumanistic Agential Realism



Agential Realism

- Barad is a theoretical physicist who has become an Professor of Feminist Studies at the University of California and has developed the concept of agential realism, in which---
- Primary ontological unit in our universe are events or phenomena, which are entangled- not independent objects or things with inherent properties and boundaries.
- Phenomena are not discovered but created.

Barad

- Humans are part of an interwoven, complex, entangled world, which is always in flux- there is nothing that is truly isolated or independent. The universe is engaged in interactive becoming.
- She uses diffraction and interference as an example of entanglement. Waves come together, occupy the same places, can not be separated and have agency to create new patterns

Interference and Diffraction of waves



Entanglement and interactive becoming in Anthropology

- Early societies were entangled with their ever-changing environments over which they had little control.
- Andean people in their ever-changing, threatening agentive environment- sacred living mountains, floods, earthquakes over which they seemingly had no control.
- They attempted to have some control through reciprocal relationships, such as offerings to the sun, mountains, glaciers capacocha sacrifices on mountain summits.
- Some communities in Peru saw themselves as children of mountains, shaped the heads of their children to mimic mountains, stil wear hats that mimic mountains.

Critique of Barad

- Opaque jargon: such as ' phenomena are "the ontological inseparability of intra-acting agencies.
- Diffraction and quantum mechanics are not used as metaphors but presented as actual phenomena in the human world- differences of scale are a problem.
- Quantum entanglement is fragile, involves only subatomic particles thus far.

Andean Astronomy

- The Spaniards found pillars on the horizon surrounding Cusco: were these simply inert objects useful for establishing dates when the sun would rise between them, or were they living powerful beings who could act.
- Huacas are arranged in 42 lines in Cusco as a walk-through calendar, 328 days. (what was the meaning of these huacas? Were they alive?)
- Torreon of Machu Picchu: sun light enters a window and touches a rock: the shadow of a string in the window would determine June solstice. It was an “observatory”. (what was the meaning of the place? Was it alive)
- There are giant pits at Moray- they were an agricultural research station. (was there a deeper meaning? Could they have been animate, active, and powerful by themselves, did they need to be fed?)

Camay

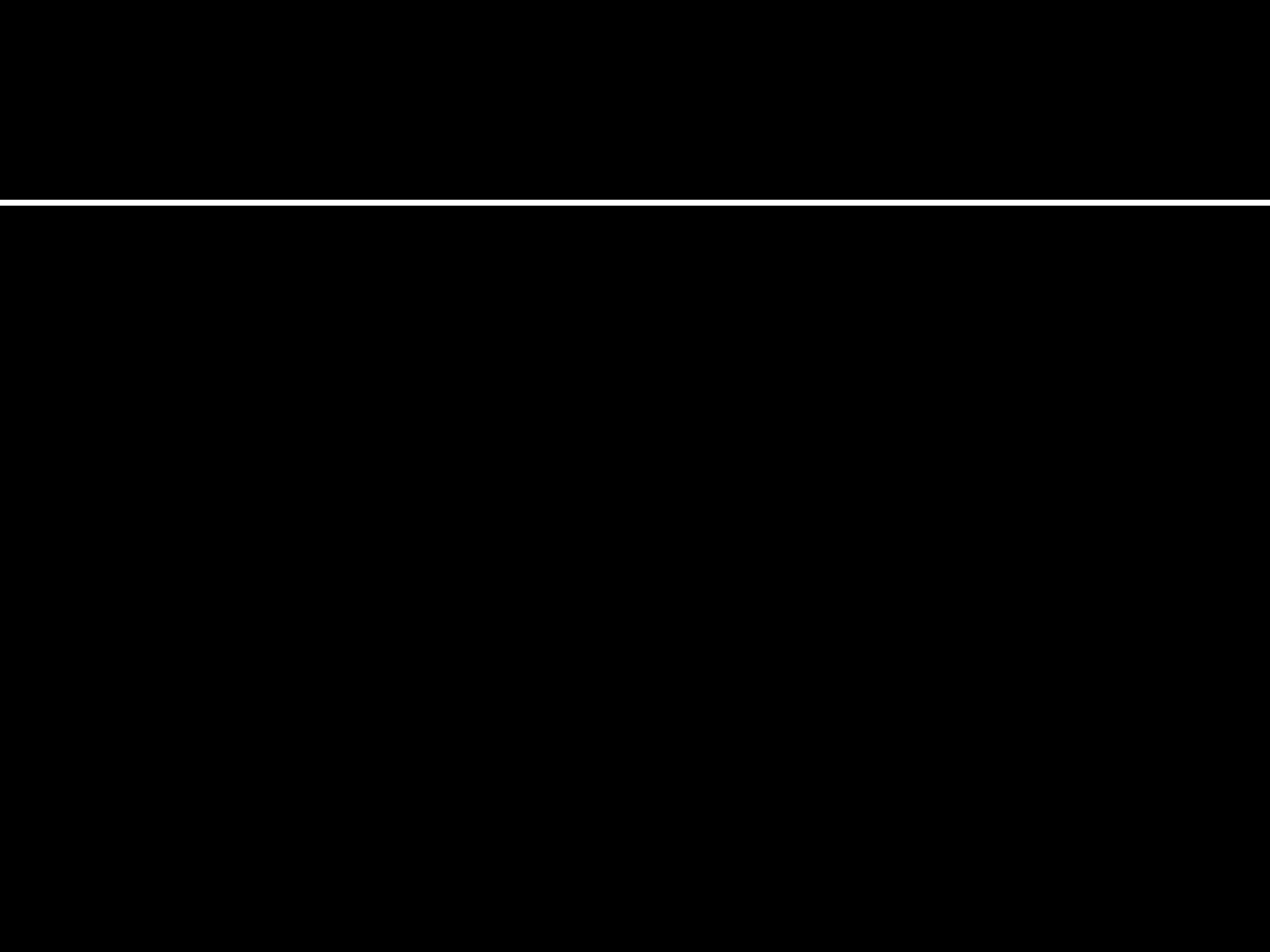
- Spanish in their desire to destroy Inca culture, inadvertently revealed the inner workings of the culture and give us incontrovertible evidence of their ontology.
- Huarochiri Manuscript: Quechua term Camay- to charge, to make to give form and force to animate. It animates the inanimate-rocks, through the action of water, sunlight, shaping, can be turned into living and powerful beings

Mummies, ancestors, and the dead

- The line between the living and the dead was blurred, as it was blurred between stones and humans and between the present and the past.
- The mummies of royal personages were treated no differently as when they were alive: clothed, fed, brought out for audiences, maintained their palaces and cultivated lands, carried in processions, and asked for advice.

Huacas

- While huacas were often inanimate objects, they were living beings with extraordinary powers who were honored, fed, and consulted. Huacas were an aspect of ancestor worship of the Andes with great wisdom and the ability to influence the living world.
- Huacas had vibrant lives, participated in processions. They were fed, dressed in clothes, married, and sometimes abducted and destroyed by enemies. Their well-being relied upon a continuing flow of offerings. These offerings were understood to be necessary to maintain equilibrium and balance in the world, an expression of the symmetry and reciprocity between the living and the dead.



Huacas



Modern animism

- Animism is a wide-spread ontology; animists do not separate themselves from the environment.
- Beings and things are all bound together and entangled, part of a web, parts of which can not be cut out.
- Graham Harvey (Handbook of Animism) the world is full of beings and only a fraction of them are human (Harvey); these other beings may have the ability to influence the world, indeed some may be immensely powerful.
- There may be some sort of symmetry between these beings: symmetrical anthropology- what we can do so can they- both may possess agency.
- Humans may establish reciprocal relationships with non-human entities such as the landscape, i.e. mountains which control weather, avalanches, thunder and lightning, water for agriculture may be very dangerous : offerings, sacrifices, respectful behavior

Alternate Ontologies, Alternate Hypotheses

- Wonderful and exciting opportunities to explore the meaning of astronomy in other cultures, using these alternate ontologies in ones interpretative tool box.
- Escape from Eurocentric pre-conceptions
- Nabta Playa—oldest megalithic astronomical site—what did those stones mean?
- Machu Picchu- Torreon- animated by water and the sun- a sun door for the sun to enter, not for astronomers to peer out from; ancestors in the cave.

Alternate Hypotheses

- Horizon calendars in the American Southwest- the sun rising above features—a calendar or the sacred sun joining with the sacred landscape- a theophany?
- Rock art: animate the stone? Make the inanimate sacred.- bring the sacred visible
- Stone markers for solstice—are they inert or alive? recumbent stones alive or dead? Dolmens- inert stones or living beings?
- Surya Puja in India: the date of equinox marked by the entry of the sun into the sanctuary of the temple, or the sun prostrating himself to Surya asking for forgiveness.

Alternate realities: clothed huaca in Bolivia



PAQCHA: Ritual device for encouraging the flow of water throughout the cosmos, opening up of agricultural ditches, and maintaining balance throughout the Inca world



Paqchas- not just carvings but the cosmos



Saihuite Peru

