Abstracts of Papers not included in the Proceedings

The Gates of Helios and an Irish Celestial Machine

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Observation of the most extreme annual solar rising and setting places on the horizon, called by Homer the "gates of Helios," is reflected in many ancient literatures including *Gilgamesh*, Homer's *Odyssey*, Macrobius' Commentary on *The Dream of Scipio*, and the Old Irish *Tochmarc Etain*.

According to Macrobius, these gates opened at the solstices, where the constellations Sagittarius and Gemini intersect with the Milky Way. On those days, the limit of the sun's journey, the dead passed from earth to the Milky Way, believed by Pythagoras to be the home of souls, or from the Milky Way, to be born again, falling through the constellation Crater, where the soul became intoxicated with matter, and thus obtaining weight, fell like a star to earth. In his search for immortality, Gilgamesh passes through the portals of the sun guarded by the scorpion people (Babylonian constellation Sagittarius). In the *Odyssey*, Book 24 Hermes escorts the slaughtered suitors like bats flitting from the roof of a cave through the portals of Helios to the Otherworld. In Book XIII, we find:

> … a charming, shadowy cave,
> Sacred to the nymphs, the Neiades as they are called.
> In it there are kraters and two-handled jars
> Made of stone….There are two entrances,
> One to the north for men leads down,
> The other to the east is holier. Not by this way
> Can men enter, but it is the way for the immortals.
> (Transl. Michael Dixon.)

This excerpt might well describe the Neolithic passage chamber at Newgrange, the setting for the ninth century Old Irish epic, *Tochmarc Etain*, (The Wooing of Etain). Newgrange lies on the River Boyne and is

oriented to the winter solstice sunrise. Like Homer's cave, it has two entrances, one for men and one for gods (the sun), and contains large stone kraters. In *Tochmarc*, the Dagdha, the chariot driving Irish sun god, enters it in order to conceive Aonghus, the god of light, by Boann, the (lunar) white cow goddess, who is properly the mate of Elchmar, god of the underworld. Aonghus later loves Etain, who is transformed into a butterfly, swallowed in a wine cup (krater) and born again 1012 years later.

Human ashes have been found in Newgrange. At sunrise on the winter solstice the sun casts a beam of light 67 feet along the passageway, illuminating a large carved triple spiral in the farthest chamber. A mile or so away, the Dowth passage chamber faces west, oriented to the solstice sunset. While it is likely that the uses of Neolithic structures will never be known, can Newgrange be imagined as some sort of celestial machine, intended to send souls on the solstice journey described by Macrobius, Homer and the unknown authors of Gilgamesh and *Tochmarc Etain*? In this presentation the medieval Irish literature will be examined, as it is concerned with the transmigration of souls, set in Neolithic structures with solar alignments.

Development of the Jewish calendar in the 1st millennium CE

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The present-day Jewish calendar has a 19 year intercalation cycle and is built upon an application of the Molad or the “mean month” technique. It is credited to Hillel bar Yehuda Nasi, c. 359 CE. We know practically nothing about the calendars used by Jews before the 4th century, yet c.922 Saadia Gaon, leader of Babylonian Jewry, claimed that the Jewish calendar “originates from Mount Sinai.” This claim later turned into a powerful myth.

In this lecture we show that the Jewish calendar system changed several times in the first millennium and and its development comprised three historical epochs related to Eretz Israel: the Roman, Byzantine and Arabic.

In the Roman period we discover two other calendar systems which were in use before the modern one. The first can be called a "week day shift" system. The second is known from Talmud as the "theory of others" and we give it, for the first time, a consistent explanation based on a 30 year cycle. Next we discuss the changes in the Jewish calendar in 5-8th centuries CE, a period which experienced an abrupt transition from Byzantine rule over Eretz Israel to Arab rule. In this period a single but singular feature of the Jewish calendar appeared, the "Deḥiyot" [postponements] of Rosh Hashana. Some of them appeared after Emperor Justinian banned Passover falling on Saturday, others at the time of the first Gaonim [heads of talmudic academies in the Arab caliphate] between 658 and 770 CE.

The last period (late 8-10th centuries) started with the translation of Almagest into Aramaic and Arabic in Abbasid Califate and led to creation of the modern Jewish calendar system. Additionally, in this period two astronomical accounts of Creation of the World were formulated, based on astronomical phenomena discovered in the 9th century, like the motion of the solar apogee.

All this leads to the conclusion that Jewish calendar tradition was lost after the destruction of the Second Temple in 70 CE and gradually recovered over an entire millennium with several interesting additions. This process, which received a new momentum in the 9th century, was slowed down by Saadia Gaon's intervention and was over by the end of the 10th century.

Similarities in Children's Initial Cosmological Models and in Historical Cosmological Models

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William F. Brewer

Recent research on the nature of young children's beliefs about observational astronomy (Vosniadou & Brewer, 1992, 1994) has revealed a very rich developmental picture. Children age 6 to 9 years believe that the earth is a flat, stationary object and that the day/night cycle is caused by occlusion mechanisms such as clouds coming in front of the sun or movement mechanisms such as the sun going out into space, or moving down behind mountains or trees. These initial models are creative

inventions of young children based on their observation of astronomical phenomena and are held in opposition to the cultural views of the adults around them.

In societies influenced by scientific astronomy children are, from an early age, exposed to the view that the earth is a rotating sphere and that the rotation of the earth causes the day/night cycle. Children in these societies come to develop "synthetic models" which attempt to hold on to the core beliefs (the earth is flat, things fall down to the ground) and yet incorporate the adult information that the earth is a (rotating) sphere. The most common synthetic models developed by children are that there are two earths (one flat and a round one in the sky), that we live inside a hollow earth, and that we live on a flattened sphere.

Our findings suggest that children's initial cosmological models are the result of the interaction of young human mind with the observable phenomena of everyday astronomy and (depending on when the adult culture begins to have an impact) should be universal. There are cross-cultural data to support this claim (Samarapungavan, Vosniadou, & Brewer, 1996).

These recent findings in cognitive psychology have an interesting implication for the history of astronomy. The constraints that we have uncovered should have been operating in the adults who produced the very earliest cosmologies in different cultures and therefore we should expect very early cosmological models to show strong similarities to those we have uncovered in young children. Examination of accounts of the shape of earth and the day/night cycle found in the earliest Greek cosmologies (Heath, 1932), early Egyptian cosmology (Plumby, 1975), early Hebrew cosmology (Langermann, 2000) early Chinese cosmology (Needham, 1975) and contemporary Quechua culture in Peru (Urton, 1981) provide considerable support for our hypothesis.

Astronomical Research at Oxford

Allan Chapman
University of Oxford

Oxford University is the oldest place in Great Britain where astronomy has been taught, studied, and advanced for over 800 years. While pre-twelfth-century monastic schools taught the science, their activities ceased at the reformation. Merton College, Oxford was not only actively teaching astronomy by 1340, but has surviving astrolabes to prove it. And one must not forget that Chaucer's idle Oxford student, Master Nicholas in The Miller's Tale, owned an astrolabe and a copy of Ptolemy. Renaissance Oxford's Savilian Professorships of Astronomy and Geometry were to be of crucial influence in the advancement of the science, while the 17th century witnessed a veritable cascade of eminent Oxford astronomers: John Greaves (who also made the first accurate survey of the Great Pyramid), Sir Christopher Wren, and Robert Hooke, while the Revd Dr John Wilkins, Master of Wadham College, drew up the first plans for a proposed machine that might fly to the Moon! Dr Edmond Halley was both a student then a Savilian Professor, while James Bradley and Thomas Hornsby were two of Europe's leading 18th-century astronomers. Sir Isaac Newton's gravitational ideas were taught by David Gregory in Oxford, while Oxford's Radcliffe Observatory, on its completion in 1771, was said to be the finest in Europe. Victorian Oxford astronomy was largely dominated by the genial Revd Charles Pritchard, though increasing atmospheric pollution reduced the opportunities for fundamental research with the city in the 20th century. Even so, Oxford astronomers began to do their observing from 'prime sky' observatories overseas, and then work on the interpretation of their results back at home. Dr Madge Adam (d. 2001), however, was still taking daily photographs of the solar surface until the 1980s. For while people popularly think of Oxford as an arts university, one should not forget that it is not only Britain's oldest institution of astronomical research, but was also the birthplace of the Royal Society.

An American Lighthouse: John Quincy Adams, Astronomy, and Public Policy in Nineteenth Century America

A. Fletcher Cole
University of Maryland

"To me, the observation of the sun, moon, and stars has been for a great portion of my life a pleasure of gratified curiosity, of ever-returning wonder, and of reverence for the Creator and mover of these unnumbered worlds. There is something of awful enjoyment in observing the rising and setting of the sun. That flashing beam of his first appearance upon the horizon; that sinking of the last ray beneath it; that perpetual revolution of the Great and Little Bear round the pole; that rising of the whole constellation of Orion from the horizontal to the perpendicular position, and his ride through the heavens, with his belt, his nebulous sword, and his four corner stars of the first magnitude, are sources of delight to me which never tire." (Diary entry, 8 November 1838)

Perhaps nowhere else in his writings does John Quincy Adams make such an eloquent statement not only of his own inspiration by astronomical phenomena but that experienced by astronomers, both amateur and professional, for ages. But what sets Adams apart from so many of those other astronomers, of course, was his political clout. And any thorough examination of his life and career must take note of the effects of astronomy upon it.

Astronomy was a consistent interest throughout Adams's career: as college student, as diplomat, Secretary of State, President, and United States Representative. Once a young man concerned that "[f]ew discoveries are probably left to be made, and those will be owing perhaps, rather to chance, than to an extraordinary effort of genius", Adams spent much of his political career--and capital--trying to encourage both public and private investment in bringing about new discoveries both in astronomical research and applications. It is my purpose to trace the development of this interest and its effects on Adams's public life, both his policy and his rhetoric. And, in so doing, I hope to place Adams in some historical context, thereby considering what his devotion to astronomy meant in his contemporary times. Indeed, he fits nicely into a number of controversies of the day: the role of science in

developing American nationalism, the freedoms and limitations of government to invest in public interest programs, and his most famous cause, abolitionism (which he saw as closely related to issues of inquiry and education).

A number of excellent pieces have been written on this topic- A.F. Bemis and Paul Nagel's biographies and articles by Marlana Portolano and Dr. Steven Dick - but I wish to unite and expand them because I feel there is a space in which to bring together questions that have already been asked about Adams and astronomy but also to develop those questions and others. That is what this paper seeks to do.

An Ordered Universe: The Sheldon Bedchamber at Chastleton House, Oxfordshire

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Patricia R. Flores
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While many examples survive of astronomical imagery within the interiors of sixteenth and early seventeenth century royal and aristocratic houses throughout continental Europe, most notably Italy, the same cannot be said for England. With the exception of the written accounts of the decoration of the Great Chamber at Theobalds, which was remodeled after 1592, few other instances have been uncovered. However, a quite rare example of this imagery survives in a house of the lower gentry, Chastleton House, which is the focus of this paper.

Built between 1607 and 1612 by Walter Jones, a lawyer and Member of Parliament, Chastleton's sophisticated architectural design and lavish interiors embodied the ambitions of a country gentleman rising quickly up the ranks of the aristocracy. Hanging within the best bedchamber, called Mr. Sheldon's Chamber in the inventory taken upon the death of Jones in 1633, are three tapestries depicting 5 of the seven planetary gods and their zodiacal houses. Chastleton and its extant collections was acquired by the National Trust in 1991, and archival research has determined that these tapestries are indeed those listed in the inventory. Astronomy and astrology, disciplines with long traditions based on classical thought, were two of the many subjects avidly studied by the gentry in Elizabethan and Jacobean England. In particular, they reflected

the Elizabethan notion of the correspondence between macrocosm and microcosm. New research suggests that Jones, educated at Lincoln's Inn, acquired and exhibited these tapestries not only as a display of his education, but also as a vehicle for the hierarchical ordering of the interior of Chastleton, much like Shakespeare's Ulysses succinctly expressed in Troilus and Cressida when he proclaimed "The heavens themselves, the planets, and this centre; Observe degree, priority, and place; Insisture, course, proportion, season form; Office, and custom, in all line of order."

Hunting the European Sky Bears: Reflections of Ursine Cosmology, Beliefs in English Mummers' Plays and Pyrenean Basque Performances

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University of Iowa

The Great Bear constellation is classified as belonging to the most archaic strata of the star figures known to European peoples (Gingerich 1984). Although previously in Europe no archaic set of stories connected to the Sky Bear had been clearly identified, extensive field work in the Basque region has revealed a cycle of tales and related ritual performances dealing with the adventures of an archetypal hero, Hartz-Kume, the Bear Son (linked symbolically with both Ursa Major and Ursa Minor). The half-human, half-bear main character functions as a shaman-apprentice who undertakes an astrally-coded vision quest (Frank & Arregi 2001). Variants of the Bear Son saga and related ritual practices have been documented across Europe (Frank 1996, 1998, 2000, 2001; Glosecki 1989; Praneuf 1989; Stitt 1992). For example, the hero's adventures are linked those of Juan el Osito, Jeun l'Ours, Giovanni l'Orso, Hans Bär and Ivanuska.. The stories hearken back to an earlier pan-European ecocentric cosmovision and the belief that humans descended from bears. The ursine genealogy is directly linked to a set of prophylactic performance pieces called 'Good Luck Visits' which include a cast of masked figures, musicians, accompanied by a 'dancing bear' shaman-healer, often

represented as a 'Strawbear' (cf. Halpert & Story 1969; Frank 2001; Vukanovic 1959)

These traditional performances contain temporally condensed versions of the Bear Son's ritual journey, that is, exteriorizations of the message of mutual reciprocity and spiritual well being embodied in the tales. The paper will focus first on European variants of these performance pieces, specifically, comparisons will be made between the Pyrenean performances, called Maskaradak, and those found in England, e.g. St. George dramas along with the English Mummers' Play and 'Morris Dances', keeping in mind that the strong similarities holding between the English performances and the Pyrenean ones have been noted previously by the renowned English folklorist Violet Alford (1928, 1930, 1931, 1937, 1978), although without her recognizing the centrality of the ursine, astral cosmology linked to the folk plays (cf. also Caro Baroja 1965; Halpert 1969; Miles 1912). Finally, this study will conclude with an examination the older ecocentric, hetarchical value system found in the astrally-coded ontology that undergirds these modern day sociocosmic practices (Frank & Susperregi 2001; Frank forthcoming).

Heaven and Earth: The Celestial and Terrestrial Planispheres in the Royal Palace of Amsterdam

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Institute for History and Foundations of Science,
University of Utrecht

The Citizen's Hall of the former Town Hall, now the Royal Palace, of Amsterdam features three spectacular marble-inlaid maps of the heaven and the Earth, each measuring nearly 7 metres in diameter and dating from the middle of the 17th century.

In this paper I will describe the planispheres, their state of preservation and their relation with other astronomical and astrological imagery incorporated in the building. Some other examples of celestial imagery in 17-century Dutch architecture will also be briefly discussed.

Planets in Paradise

Marilyn Gridley
Kansas University

Mars, Saturn, Jupiter, Mercury and Venus stand out among the deities attending the Buddha of Blazing Light in a grand mural painting of his paradise. Originally painted in the late thirteenth century for the main hall of a monastery in Shanxi province, the paradise scene now adorns the Chinese Temple Room in the Nelson-Atkins Museum of Art in Kansas City, Missouri. What are these Daoist planetary deities doing in a Buddhist paradise? In this talk will examine what the roles played by Khubilai Khan and the Daoist Dragon King will be examined, as well as the effect the Buddhist/Daoist disputation in 1258 had in determining the planets' presence and purpose in this paradise.

The Calendar of Coligny: a Nearly Unknown Witness of Celtic Astronomical Culture

Harald Gropp
University of Heidelberg

The calendar of Coligny was found in the small village of Coligny in Southeastern France in 1897 as a bronze plate of 148 cm times 90 cm, however broken into many pieces. This plate describes 5 years of a calendar in Gaulish language in Latin script. The calendar is about 2000 years old and was probably used in Gaul in the first century BC before the conquest of Gaul by the Romans. Today the calendar can be seen in Lyon in the "Musee de la civilization gallo-romaine."

The five years of the calendar consist of 62 months or 1832 days. The basic period contains nearly five cycles of these 5-year periods resulting in 309 months of 9130 days. The exact values are as follows: 309 lunar months are 9124.9517 days, and 25 solar years are 9131.0550 days. Both values are near to integers (9125 and 9131 respectively). By using certain

counting schemes the exactness of the calendar of Coligny is about 1 day in 500 years in relation to the movement of the sun and the moon.

Altogether, this calendar is an important witness of the scientific achievements of the Celts, a nearly forgotten culture, which inhabited large parts of Europe before they were driven to the edges of our continent by the Romans. The calendar of Coligny and the astronomical knowledge which it contains could open the way to a better understanding of Celtic culture in the future. In particular, this calendar is one of the few written sources of the Celtic culture which, I think, should be compared with the already well known architectural witnesses of Celts and their predecessors in many parts of Europe, e.g., Stonehenge in England and Newgrange in Ireland.

Since the calendar of Coligny was the earliest document of the Gaulish language which modern mankind found again, the calendar was discussed in the last century mainly by Celtologists and language scientists who were interested in Indoeuropean languages. Only in the last 15 years the calendar was also investigated from the point of view of astronomy, mathematics and the history of these two sciences. This is mainly due to theinitiative of Carlos Jaschek who started a colloquium on "astronomie et sciences humaines" in Strasbourg in 1986.

In the 1990s at least 4 books were published discussing the calendar from different points of view ((3), (5),(4), (1)). In (2) the calendar of Coligny has been discussed in the broader context of Celtic mathematics and astronomy. The calendar was found around 2000 years after its construction. More than 100 years after this excavation it is time for a detailed study. For the first century of the third millennium AD there should be a focus on investigating all aspects of the calendar from the points of view of several different sciences in order to learn more about Celtic culture of the first millennium BC.

On Astronomy at Stonehenge

Gerald S. Hawkins, DSc. (Astronomy)
and Vance R. Tiede. (Archaeology)

We present new evidence to discern the intent behind the construction of Stonehenge in Southern England by Neolithic peoples 5,000 years ago. Citing the historian Hecatæus [ca. 500 B.C.], Diodorus of Sicily [ca. 50 B.C.] describes a temple in Hyperborea (identified as Stonehenge by R. Hennig, "Die Anfänge des kulturellen und Handelsverkehr in der Mittelmeerwelt," Historiche Zeitschrift 139:19[1929]):

> And there is also on the island a magnificent sacred precinct of Apollo and a notable temple which is adorned with many votive offerings and is spherical in shape… They also say how the moon (σελήνην), as viewed from this island, appears to be but a little distance from the earth… The account is also given that that the god (θεόν) visits the island every nineteen years, the period in which the return of the stars (άστρων) to the same place in the heavens is accomplished; and for this reason the nineteen-year period is called by the Greeks the year of Meton. (Diodorus of Sicily II: 47.1-6, [C. H. Oldfather, trans.] Cambridge: Harvard University Press, 1979, p.41, cf. XII.36)

We suggest a new translation of Diodorus to mean that Stonehenge pointed to the Solstice Sun and High Moon when they were both at their turning points against the background of the zodiac stars every 19+18+19 years. Archaeologically, astronomically and etymologically speaking, it is not the return of the stars, but rather of the luminous bodies (άστρων/astron, i.e., sun, moon and stars) to the same place in the heavens nearly every 19 years that is marked by the horizon alignments at Stonehenge (cf. The Classic Greek Dictionary, Chicago: Follett Publishing Company, 1943, pp. 109-110). We also present new evidence linking lunar eclipses and the 56-sided polygon of Typhon (the god of eclipses and disasters reported by the Greek astronomer Eudoxus [of Cnidus, 408-355 B.C.]) with the 56 Aubrey holes at Stonehenge, according to a 56-year cycle of 19+18+19 years.

Confirmation of Solstice Sun & High Moon Alignments at Stonehenge from Atkinson's 1978 Survey

Stone	Seen From	True Azimuth	Object Centre	Target Declination	Horizon	Vertical Dis-placement
Avenue Axis	Centre	49.91°	Midsummer Sunrise	+23.95 °	0.63°	0.00°
Heel Tip	Centre	50.90	"	+23.95	1.19	- 0.02
91	92	49.48	"	+23.95	0.63	- 0.22
94	93	48.89	"	+23.95	0.63	- 0.53
92	91	229.48	Midwinter Sunset	-23.95	0.53	+ 0.06
93	94	228.89	"	-23.95	0.53	+ 0.36
94	91	318.89	Midwinter High Moonset	+29.10	0.37	+ 0.18
93	92	319.93	"	+29.10	0.37	- 0.27

When Gerald Hawkins first published the moon-sun interpretation of Stonehenge (Nature 200:306 [1963] and 202:1258 [1964]), archaeologists questioned it because the accuracy of the existing site plan was poor. After R. J. C. Atkinson (Nature 275:50 [1978]) resurveyed the Station Stone rectangle and Avenue Axis, we repeated the astronomical analysis. Our new calculations confirm that the stones mark Solstice Sun and High Moon orientations more accurately than originally reported.

Thanks to Atkinson's survey, archaeologists may now accept the astronomical interpretation of Stonehenge with confidence. Accordingly, both the sun and moon alignments should be presented to the public at English Heritage's Stonehenge Visitor Centre when it opens in 2005.

The Harmony of the Spheres of Francesco Bianchini

John Heilbron
Worcester College, Oxford

Francesco Bianchini (1662-1729) was a man of exceptional achievement who deserves to be better known. As an astronomer, he built the most beautiful of all meridian lines in the church of Santa Maria degli Angeli in Rome, perfected the aerial telescope, documented the change in the obliquity of the ecliptic, anticipated the discovery of the aberration, and mapped the Papal States and the invisible surface of Venus. As an historian, he had charge of all the antiquities of Rome, wrote a pioneering universal history, and converted it into a card game. As an exact chronologist, he tied down ancient dates by astronomical events and devised calendrical schemes for the calculation of feast days and for the count of time since Creation. As a churchman, he had a steadfast faith, lucrative benefices, and few ecclesiastical duties. As a good Catholic, up-to-date astronomer, and lover of the quiet life, he found a way simultaneously to hold and not to hold the Copernican system. A responsible, learned, charming, and honorable man, he won the esteem of his contemporaries and, what was more useful, direct access to two popes. These are the spheres -- of activity, not of the heavens -- mentioned in the title. The harmony among them is the subject of the lecture.

Urania's Servants; external and internal images in representations of astronomers and astrologers, 1470 - 2002

Peter Hingley
Royal Astronomical Society

Personal depictions of astronomers/astrologers, both named and anonymous, down the years display a variety of internalised and externalised imagery that often varies with the purpose for which the

image was created. There are some portrait paintings, more recently photographs, and also many illustrations in books, tracts and engravings. This talk will explore the ways in which the astronomer figure is shown in relation to the heavens, to their equipment, and to Urania, the Muse of Astronomy.

Joseph Cornell's Space Object Boxes: Cosmology and Collage

Kirsten A. Hoving
Middlebury College

Throughout his long career, the reclusive artist Joseph Cornell was fascinated by the stars. In numerous shadow box collages, he evoked the night sky through titles such as "Observatory Corona Borealis Casement," "Casseopeia #1," or "Radar Astronomy." From the yard behind his home on Utopia Parkway, in Flushing, New York, Cornell would contemplate the night sky, while at the Hayden Planetarium in Manhattan Cornell further expanded his interest. But it was in his collages, beginning in the 1930s and continuing into the 1960s, that Cornell most fully explored the scientific and metaphorical associations that the planets and stars held for him. Combining his interests in Surrealism and Christian Science, Cornell produced one of the most fascinating bodies of work that contemplate humanity's relationship to the stars.

In this paper I plan to explore one group of collage boxes, which I think of as Cornell's celestial hotel series. These works include such objects as "Hotel de l'Étoile," "Hotel Sun Box," "Grand Hotel de l'Univers," "Hotel Night Sky," "Hotel de l'Étoile, Night Skies:Auriga," and "Hotel Neptune." Using star charts, lunar maps, and visualizations of constellations taken primarily from nineteenth-century texts, such as La Science Amusante (1890) and Popular Diagrams (1850), together with metaphorical objects such as soap bubble pipes, bracelets, and doll's heads, Cornell created tiny universes. While the boxes were known and exhibited as Surrealist poetic objects, the cosmology implied in them goes far beyond Surrealism's fascination with the unconscious. In particular, the hotel metaphor relates, I believe, to Cornell's attempt to

combine science and scripture in his art, to produce Christian Science "hotels" that "oh, tell" of the link between the human and the cosmic. In his art, Cornell's night sky concretizes the more abstract idea of heaven he wished to impart--a spiritual concept he understood through elaborate scientific metaphors and strange poetic objects.

Medieval Heliocentric Universes: a Novel Perspective on an Old Problem

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Keith Hutchison
University of Melbourne

Some years ago I observed that heliocentricity emerges in the 'backgrounds' of religious paintings, somewhat before it was taken up in computational astronomy. Examples are the Botticelli illustrations to Dante's Paradiso, or Pintoricchio's Coronation of the Virgin in the Vatican Pincoteca. My project is to work out what is going on here.

I have a tentative hypothesis. The central 'sun' in these illustrations is not the material sun of the Aristotelian universe, but the Platonic form of that sun, the immaterial sun of the neo-Platonic heaven, identified with the Christian God. The paintings express a belief that the true design of the universe is heliocentric, even if the exemplification of that design in the imperfect material world is so flawed that the earth replaces the sun at the centre. The idea that the material cosmos is a blemished copy of its original is routine in Gnosticism, and reflections of it can be found in Christianity, e.g., the idea that the ecliptic was tilted as punishment for original sin.

At the conference I want to (a) present some of the evidence for this pre-Copernican heliocentricity (most of it in pictorial form), and (b) present some of the evidence for my interpretation of what is going on.

The Festival of Lammas

Ronald Hutton
University of Bristol

The feast which opened the month of August ought to have been the most remarkable and magical of the festivals of ancient Europe, because its season is most suited to outdoor revelry. Instead it has become a conundrum to historians and folklorists, in which many difficult issues meet: the concept of the study of folk customs as pagan survivals, the notion of a 'Celtic' cultural province covering much of Europe, and the functional interpretation of traditional seasonal rites. This paper wades resolutely into the lot, to celebrate the fruits of three decades' crop of revisionism.

Between Text and Image: Incidents and Accidents in the History of Astronomical Illustration

Kristen C. Lippincott
National Maritime Museum, Greenwich

Art historians who study the iconography of the heavens owe a great debt to the pioneering work of such great scholars as Aby Warburg, Fritz Saxl, Erwin Panofsky and Jean Seznec. As they were primarily interested in issues relating to the survival of classical culture, however, these scholars tended to focus their attention on continuities and the revivals of forms. This paper will explore the other side of the history of astronomical iconography – those periods when invention and conjecture, as well as error and dissonance, play a major role in the transmission of ideas and images.

The Cross and the Scales

John North
Oxford University

The crucifixion of Christ, marking the beginning of what for Christians is the most important event in human history, has been represented in various ways in connection with the visible heavens. Two examples will be presented here, one in the work of a fourteenth-century poet, the other in the work of a sixteenth-century painter. The constellation of Libra, the Scales-an appropriate symbol of Christ in judgment on the cross-was used by Geoffrey Chaucer in a highly technical allegory in his Canterbury Tales; and the painting known as The Ambassadors by Hans Holbein not only appears to make use of similar imagery but supplements it in several related respects, notably by using another crucifixion image in the form of Cygnus, the constellation of the Northern Cross. Unlikely as it might at first seem, there are potential links between the poet and the artist.

Assuming Time

Daniel Oberti, Scultore
Sebastopol, CA, USA

It is the hand of man that generates, illustrates, provokes and illuminates thought in the physical realm. What exists is drawn through the imagination toward the possible.

This process is something that others before me have endeavored to refine. I am part of a lineage that finds solace in defining oneself by forming materials of the earth into works of art that inform and inspire inquiry within. I work to unveil the elusive, and at the same time, I seek an audience and affinity with others who recognize the value of this pursuit.

Since building the first ziggurat, artists have interpreted, knowingly or not, the scientific paradigms of their time. I see that while science can prove a line of thought and most certainly excite our intellect, it is the

masterful stroke of the artist's hand that reflects a soulful interpretation of such knowledge.

Art is a gift that presupposes the dignity of its recipient. It also recognizes that each expression is one among many—unique and unrepeatable, or capable of begetting untold generations of its relatives.

The 12th century Sufi poet, Rumi, writes, "Let the beauty we love be what we do. There are hundreds of ways to kneel and kiss the ground." I will offer a slide presentation and poster exhibition of my work.

Old Theology, New Theology, and the Cosmos In The Mystic Ark by Hugh of St. Victor

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Conrad Rudolph
University of California, Riverside

Sometime around 1130, Hugh of St Victor wrote a treatise that is unique in the study of medieval art, The Mystic Ark. Ignored until relatively recently because of the immense difficulty of its text, this very widely read work is a fifty-six page description of the most complex work of art from the entire Middle Ages (a painting also known as The Mystic Ark), making both the text and the painting among the most unusual sources we have for an understanding of medieval visual culture--including astronomical phenomena--and its polemical context. Structured in the semblance of a "step-by-step" s et of instructions for reproducing the painting of The Mystic Ark--which depicts all of physical existence (the entire cosmos, including the visually dominant images of the Signs of the Zodiac and the Twelve Months), all of human history, and all of human learning--the purpose of the text was to enable scholars and students to undertake discussions related to the current controversy over the role of "scientific" learning in the education of the elite.

One of the great struggles of the twelfth century was that between the "old theology", an experiential theology of blind faith which is best represented by traditional monasticism, and the "new theology", a theology of inquiry whose faith was based on logic which is best represented by Abelard and his circle. Among other things, these two parties argued over the questions of to what degree worldly knowledge (the liberal arts) was permissible in the search for spiritual knowledge,

and whether the greatest proponents of worldly knowledge (the pagan philosophers) should be studied. The question is, then, why would Hugh, who never discusses cosmic or macro/microcosmic theories to any degree in vast body of his pedagogical writings--and who was openly opposed to the "new theology"--give such a visually predominant place to the cosmos in his highly theoretical painting? Traditionally, art historians have seen depictions of the Zodiac and Months as references to the passage of divine and human time, and little more. But it seems that Hugh intended a meaning for these particular astrological forms which has, I believe, never been observed before. In this talk, I will discuss the role of the cosmos and its astronomical phenomena in the ideological context of The Mystic Ark and the current controversy over scientific learning. In particular, I will examine this major statement of Hugh's position as an attempt to leave the rejection of secular learning and logic of the "old theology" behind while at the same time co-opting the intellectual basis of the "new theology", thus attempting to prevent the "new theology" from claiming this prestigious intellectual position exclusively as its own.

Sublime Omens: Natural and Astronomical Phenomena

Jan White
University of Auckland, New Zealand

The English poet, artist, critic, social revolutionary and conservationist, John Ruskin (1819-1900), was Slade Professor of Fine Art at Oxford University between 1870-79 and 1883-84. His text, Modern Painters (arranged in 5 volumes, 1843-60), was hugely influential for much of the 19th century on generations of artists who either followed his suggestions as they endeavoured to formulate visual emblems representing aspects of identity and reality. This developed initially through the Pre-Raphaelite painters in England, then later in the 1900s impacted on the emerging “New” cultures such as America and New Zealand.

Ruskin’s favourite exemplar, J.M.W. Turner and the Pre-Raphaelite artist, William Holman Hunt, were two English painters who carried Ruskin’s theories to fruition. The twentieth century New Zealand painter,

Colin McCahon (1919-87) was also influenced by ideas Ruskin set out in Modern Painters. His work continues to influence on contemporary artworks.

This paper examines selected works including The Scarlet Sunset (1832) by J.M.W. Turner (1775-1851), May Morning on Magdalen Tower (1890) by William Holman Hunt (1827-1910) and Storm Warning (1980) by Colin McCahon all of which use astronomical and natural phenomena as emblematic metaphors. An analysis of these works reveals parallel elements, influenced by ideas put forth in Ruskin's Modern Painters. Analyses function to "unpack" the "visual strategies" natural and astronomical emblems imply, tying these to social agendas.

All the Hosts of Heaven: Astronomy in Ancient Israel Revisited

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J. Edward Wright
University of Arizona

The biblical editors did not create a record of the entire spectrum of ancient Israelite culture. Theirs was by necessity a selective and bias account. It is left to scholarship to sift through all the evidence to create a more complete picture of ancient Israel. Until the late-twentieth century scholarship on Israelite culture was dominated by the study of biblical texts mostly by scholars with strong religious convictions or formal theological training. This resulted in scholarly reconstructions that unwittingly adopted the socio religious biases of the Hebrew Bible/Old Testament's latest editors. The end of the twentieth century witnessed major shifts in scholarship in this field. Biblical scholarship is now led by a new generation of biblical scholars, historians, archaeologists, and literary scholars whose research 1) is non-sectarian in motive and methodology, and 2) depends on a wealth of new inscriptional and archaeological data. These new approaches and new data have led to new perspectives on ancient Israel, its history, religion and culture.

One topic that has yet to receive significant attention is the role and nature of astronomy in ancient Israelite society during the Iron Age. My research looks beyond what the final editors of the Hebrew Bible wanted people to believe or what they deemed appropriate to record and explores

the available artifactual, inscriptional, literary, and iconographic evidence to reconstruct what ancient Israelites actually believed about the heavenly realm and its impact on human affairs. This presentation builds on my earlier research (The Early History of Heaven, Oxford, 2000) and is the first fruit of my new research project into the role of astronomy in ancient Israel during the Iron Age.

Abstracts of Poster Presentations not included in the Proceedings

ELLIPSIS, exploring the ideas of spatiality, materiality and frontiers – a reading of space, in the work of the Italian artist, Lucio Fontana.

Marea Atkinson
University of South Australia, South Australian School of Art

The provocative and violent gestures of the Italian artist Lucio Fontana, (1899 -1968) who in the 1950's and 1960's started to cut and puncture his canvases, can be viewed as a performative act to break the Western traditions of the flat picture plane and to unsettle the dominance of Christian symbolism, (the cut being associated with the wound of Christ), (Whitfield). Fontana, was compelled to break with traditions and allied an ambiguous link with the Space Era, aligning the slashes and holes in his canvases with the creation of an infinite dimension corresponding with the cosmos. He created ambient installations to fuse environment, art and architecture. In his writing, in the 1952 document titled Why I am spatial, he predicted 'a future art based on the evolution of the medium in art, lights, neon, television, radar'. (Lucio Fontana, Exhibition Catalogue 1986). From an astronomical view, the deep slit into blackness, (photographs taken of his work in his studio) reveal an extraordinary visual nexus through the picture plane into the notion of outer space. Other more earth-bound interpretations of his work describe the slit as a performative act on western art, the holy wound as influenced from funerary art, as a sexual form, others describe his work as kitsch, and its connection to base materialism. Some writers argue that his work failed to integrate with space, perhaps this is linked to some of the perplexing issues of being able to imagine deep space.

This speculative paper covers some of the interpretations of Fontana's work with spatial concepts, materialism, the positioning of art and the Space Era, with reference to writings by and on Fontana, public media, photography, and reflections on time and space.

Also:

Exhibition Project # 1. The Shard Series
A body of artwork exhibited by Marea Atkinson

Exhibition Project # 2 – The Space Project 2.
The Space Project 2 will be a suite of prints and texts by members of the South Australian School of Art Printmaking Studio at the University of South Australia. Exploring individual interpretations on art, space and interpretation of space, curated by Marea Atkinson with sponsorship from the Magnani Paper company in Italy.

Cigarette and Trade Card Astronomy

Martin Beech
Campion College, The University of Regina,

Of the many hundreds of Cigarette and Trade card sets that have been issued since circa 1900 just a rare few deal with the subject of astronomy, but it is upon these that we wish to concentrate. The cards are literally a pictorial history of early 20th century popular astronomy and a summary of what 'everyone' was supposed to have known about the heavens. The various astronomy card sets not only provide us with a overview of the development of astronomical thought, but they also offer us some insight into the evolution of how scientific ideas are presented to non-specialist audiences. In my talk I will examine the evolution of the pictorial and textual representations of astronomical ideas, and I will explore how the concept of what constitutes 'popular' astronomy has changed during the past century.

Exhibit: Bringing the Heavens to Earth

Marvin Bolt
Adler Planetarium & Astronomy Museum, Chicago

The exhibit is an existing one that opened in March 2002 with the helpful input of Rolf Sinclair, Ed Krupp, Tony Aveni, Clive Ruggles, and others. It portrays dozens of cultural astronomies from around the world, organized around a theme with 3 variations: how people have used the sky to meet physical, social, and spiritual needs. We have examples spanning centuries and from each continent (not Antarctica, though - we decided we would stay away from contemporary astronomy, for various reasons) represented through images, video, and interactives. We believe that we have succeeded in bringing astronomy and its history into interdisciplinary classroom projects, as well as providing a different type of experience for planetarium visitors.

New Frontiers in Space as Reflected in a New Series of Paintings

Ellen Feinberg
University of New Mexico

Contrary to what C.P. Snow once said about the "two" cultures of modern Western society, art and science need not be opposed to one another. Indeed, I am striving to strike a new if very subtle balance between art and science in my paintings by drawing on certain aspects on nature that have seldom if ever before been the subject of artworks. Perhaps because of their very "abstractness", telescopic glimpses of the stellar sphere have almost never been employed as material for the arts even as the new application of technology to studying the heavens have opened up ever new horizons. It is precisely the dramatic, even "sublime," new frontier of space disclosed by the most current technological advances that I wish to use as a point of departure for my new series of paintings.

Over the past decade, enormous advances have been made in refining instruments which produce high definition imagery all of which could

lead to the innovative creation of images in the visual arts. These instruments range from high-powered electron microscopes capable of scanning infinitesimal particles to television cameras mounted on satellites that flash images back to us from the cosmos. These technological refinements have resulted in the production of images which are at once utterly specific and remarkably abstract. My presentation will focus on the results of my research as viewed through my paintings.

Greek Constellations in Thales' Times - Suggesting an astronomical reading of the animal friezes on archaic Greek vase painting

Raimondo Ferrario

There is a close resemblance between many figures of the animal friezes on archaic Greek vases and the names of the constellations offered by Mesopotamian astronomical texts. In my study I suggest we should read the animal friezes figures of the Orientalizing Period as representing constellations, according to indications provided by MUL.APIN and filling the gaps of still "obscure" images (i.e. sphinx, siren and griffin) with logical associations mainly derived from their collocations in Greek literature.

The so collected clues, have later been tested with an astronomical software (SkyMap Pro8), to show the presence of peculiar celestial configurations on given dates. The schemes that emerged seem to be connected to the heliacal rising, setting or culmination of those asterisms about a month after the summer solstice, when Sirius had its heliacal rising. A date often found in Greek calendars as characteristic of the beginning of the year. Another emphasized date seems to be the winter solstice. These results coincide with what we already know about the early Greek astronomical observations.

To demonstrate my thesis, after a brief introduction and a note on method, the posters will be completed with pictures of some vases and graphs (celestial maps) as examples. A brief essay by the author and small copies of the posters will be freely placed at the disposal of the attendees.

Moon Studies

Sharon Harper
Ohio University

Some time ago as an Artist in Residence at the Headlands Center for the arts in Sausalito, California I began photographing and video taping the full moon, the night sky and the ocean illuminated by the full moon. What began as an intuitive exploration of the abstract qualities of the moonlit natural world has developed into a ritualized body of work. Each month during the full moon I plan a trip to the nearest ocean with a video camera or a 4 x 5 camera and make work using moonlight. These Moon Studies are a continuation of previous bodies of work I¹ve made that also explore a sense of grandeur evoked by the natural world. Two of these bodies of work, Flug (Flight) and Moonfall (As Imagined by the Off-Duty Ferryman Charon in Flight over the River Styx) were the subject of a solo exhibition last year at the Whitney Museum of American Art. Moonfall, an installation of various-size, toned, aerial photographs of clouds, led directly to my interest in photographing the night sky. The Moonfall photographs are black and white photographs toned different colors in chemical baths to create a dark, muted 'twilit' tonal range that looks like moonlight. It was a logical step to begin using the moon as a light source.

Ancient Cosmology in Contemporary Fiction: Umberto Eco's Foucault's Pendulum and Island of the Day Before

Charles W. Leming and Paula S. Leming
Henderson State University

Modern science fiction ordinarily depicts settings populated by scientists and featuring the technological fruit of scientific labor. The two science-based mysteries by Umberto Eco considered here are based instead on influences of science in early modern times. Both novels intermingle

ideas from early science with older notions of magic and the occult. For example, in Foucault's Pendulum the transmission of ancient Celtic and Mediterranean magical schema by underground religious orders is disrupted by the belated adoption of the Gregorian Calendar in England. As part of the seventeenth century setting of Island of the Day Before, the mystery of the longitude is investigated not only through accurate timekeeping and various astronomical observations, but also by invoking sympathetic magic. This paper describes the elements of early scientific thought and practice upon which the novels are based and explores the relationship between pre-scientific magical thinking and science of early modern times as developed in Eco's fictional yet scholarly accounts.

Viking Constellations

Martin Lunn
Astronomy Curator, Yorkshire Museum

One of the finest of the early sea faring nations, the Vikings or Norse people have left virtually no record of their knowledge of their constellations (more properly called "asterisms" in contemporary nomenclature) and star names. The Vikings appeared around the year 800 CE with raids on monasteries and coastal towns in Britain, Ireland, Normandy, and Brittany. Yet these Norse people who would go on to explore vast parts of the World from Europe to Iceland, Greenland, and America, did so by means of their superb navigational skills using the Sun and stars.

They had, like other civilizations, their own legends and myths. However, while most other civilizations left details of their legends that can be seen in the form of star patterns or asterisms, the Vikings appear not to have done so. While researchers have stumbled across a few tantalizing references to star names and asterisms, the Norse peoples left very few written records as theirs was an oral tradition. This circumstance makes it very difficult in obtaining an overall picture of the appearance of their asterisms.

The preponderance of the information about Viking sky lore has been obtained from sources in 13th century Iceland, some 500 years after the first Vikings appeared there. There are suggestions that some of the names given to bright stars and asterisms by the Vikings were due to

influences from the Arab world after the former encountered Arabic astronomers during the 10th century.

Eventually, I hope that my own research will allow me to present a Viking star map, showing how it compared with a more traditional Greek representation of the night sky.

The Century the Sky Disappeared: Changing Perceptions of the Heavens During the Pagan/Christian Transition

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Sean McClachlan, Arizona
Almudena Alonso-Herrero, Steward Observatory, Arizona

In the late 4th century A.D., the Roman official Claudius Mamertinus, complaining about conditions under the Christian Emperor Constantius II, said paganism was so persecuted that farmers and sailors neglected to study the sky for fear of being mistaken for pagans. Even leaving room for exaggeration---Mamertinus was writing to Constantius' pagan successor, Julian---the statement carries a ring of truth. Constantius was the son of the Emperor Constantine, who in 313 made Christianity a legal and favored religion. Paganism was tolerated during Constantine's reign, but Constantius II destroyed the old temples and banned non-Christian rituals.

In the previous two centuries, pagans increasingly looked to the sky for religious symbolism. Mithraism, the most widespread mystery religion of the time and a major competitor with early Christianity, used the zodiac as a vital part of its theology. Even Constantine worshipped the Sun God during his youth and tried to fuse its worship with Christianity. The sun appeared next to the cross in many of his coins. As Christianity became dominant, however, such symbolism was seen as suspect. During the late 4th century, astrologers were banned and study of the night sky was discouraged as it was feared to cause pagan thoughts. Scholars and laymen alike changed from viewing the sun, moon, planets and stars as visible manifestations of the divine to distant and irrelevant objects or, worse, temptations of the Devil.

There are few studies of the heavens written in the 5th or 6th centuries, the first 200 years of Christian dominance. This lull in astronomy allowed

later investigators to look at the sky with a new eye. Although astrology survived, the majority of early Christian astronomy was dedicated to a more secular, if not rationalistic, course of study. Thus the rapid transition from a pagan to a Christian mindset led to a fundamental break in perceptions of the sky.

In this paper, we will look at the historical and artistic record to study changes in perception of the sky during the pagan/Christian transition. We will also study contemporary accounts to observe shifts in opinion during the Late Antique period.

Space Art Before Space Flight

Ron Miller (in absentia)
Black Cat Studios

A collection of images of the worlds of our solar system as visualized by artists from the 19th century to the early 1960s. These represent not only the evolution of astronomical painting itself, but are a visual record of science's increasing knowledge of the planets. Included are the first tentative attempts by artists who had no special knowledge of astronomy as well as examples by later artists who made a specialty of creating planetary scenes and worked closely with astronomers and other scientists. Over all, the exhibit demonstrates the genuinely symbiotic relationship between astronomy and the arts.

The Cultural Appreciation of Astronomy in the Nineteenth Century: 'the great moon hoax' in Europe 1835-1840

Ben Peperkamp
University of Utrecht

During the final week of August 1835, a long article appeared in serial form on the front page of the New York Sun. It bore the headline:

GREAT ASTRONOMICAL DISCOVERIES LATELY MADE BY SIR JOHN HERSCHEL, L.L.D. F.R.S. &c. At the Cape of Good Hope
[From Supplement to the Edinburgh Journal of Science]

The article began by triumphantly listing a series of stunning astronomical breakthroughs that the famous British astronomer Sir John Herschel, had apparently made "by means of a telescope of vast dimensions and an entirely new principle." Herschel, the article declared, had established a "new theory of cometary phenomena"; he had discovered planets in other solar systems; and he had "solved or corrected nearly every leading problem of mathematical astronomy." Then, almost as if it were an afterthought, the article revealed Herschel's final, stunning achievement: he had discovered life on the moon.

Much has been said about the reception of the news in America, which appeared to be entirely false. There had been no attention for the problems concerning the reception in Europe, although several translations of the items in the New York Sun were published (in Italian, French, Irish and Spanish) and European literary writers reflected on the implications of 'extrateressational moonlife' in their own articles.

In my INSAP-contribution I'll discuss some of the problems - what has been discussed and why? – to understand more of the cultural appreciation and representation of astronomy in nineteenth-century Europe (and the Netherlands in particular).

Significant Solar Sites Celebrating the Solstice - June 21/22

Maelee Thomson Foster
School of Architecture, University of Florida

A number of prehistoric sites designed to celebrate the Summer Solstice(and the June 21/22, Winter solstice in the Southern Hemisphere) are explored visually in this presentation. This is part of an ongoing investigation of how specific design determinants, such as orientation to solar, lunar, and other cosmic events, were utilized by ancient builders in their placemaking. The photographic documentation with accompanying text will be included in a forthcoming publication, Prehistoric Placemaking: A Designer's Search for Cultural Meaning and the Site Significance of Place. Images will include the following examples of Prehistoric Placemaking: Callanish Stones (Isle of Lewis), Stonehenge (1984 with participants), Ring of Brodgar, Stenness Stones, Skara Brae (Orkney Islands) U.K., Sacsahuaman and Machu Picchu (Peru), Kalasasaya, Tiwanaku (Bolivia), Pyramid of the Sun,Teotihuacan, and Calakmul Maya,(Mexico), Tikal and Uaxactun Maya (Guatemala), Mnajdra and Hagar Qim (Malta), Cahokia, Serpent Mound, Fort Ancient and Spiro Mound, (Moundbuilders-U.S.A.) Casa Grande-Hohokam (Arizona,U.S.A.) Hovenweep Anasazi (Utah, U.S.A.) Casa Rinconada and Fajada Butte Chaco Canyon (NewMexico, U.S.A).

Exhibition: The Sublime Metaphor

Organised by Jan White
University of Auckland, New Zealand

An introduction to the exhibition will be provided. The Sublime Metaphor exhibition has been organized to open at the Oxford University Museum in conjunction with the international interdisciplinary INSAP conference. Artists have been invited to contribute in some way from the U.S.A., New Zealand, Japan, Australia, UK, India and Korea. The Exhibition will travel on to additional locations after the Conference. The

exhibition considers a range of international artists' responses to the challenges presented by and intrinsic to "sublime" metaphors – focussing particularly on those represented by astronomical phenomena – and all that the "sublime" overtly and covertly implies through its successive association with Gothic and Surrealist critiques of social norms and the "establishment". The variations in response between positive and negative, fearful and ecstatic are also represented in the selection of works for this exhibition.

An assemblage of stylistically disparate individual artists' works revealing varied responses in the one exhibition space is an attempt on the part of the curator to underline the fundamental failure on the part of philosophy, religion, science, literature or the arts to answer any of those fundamental questions: "why are we here", "who are we" and "where are we going", questions critical to the psychic and spiritual well-being of any age. But even more especially in this present time when a loss of faith in the goodness and godliness of human and supreme beings, demands for social and political "rights" that are detached from their necessary counterpart – duty, together with diminishing integrity and basic good values, has created a vacuum quickly filled by a prevalence of greed and exploitation of all members of society - not only the working and indigenous classes, a growing absence of any semblance of work ethic or the assuming of personal responsibility for one's actions – necessary regardless whether or not one had a problematic childhood – is bringing the long, highly cultivated and uniquely self-reflexive Western tradition to its collective knees.

The artists in this exhibition have, directly and indirectly, recorded their individual responses to some of the sublimely critical issues of this time in their place as marks on paper, canvas, plastic and light. Some artists are eternal optimists with faith in a fundamental goodness beating within every human heart. Others draw back a veil of mystery to reveal the darker side of the human condition using timeless, all-pervasive cultural iconography that can be easily read by anybody capable of understanding a contemporary billboard advertisement composed of these same emblems, symbols and textual references to Western culture's philosophical, literary and artistic traditions.