

# Introduction and final words to the session USA History, culture, art and religion in the geosciences at EGU 2010.

## Introduction

Good Afternoon Ladies and Gentlemen...

...and welcome to USA History, culture, art and religion in the geosciences, which is sponsored by Epsilon Energy Ltd.

Welcome to something a little different from the other 14,000 papers in this congress: It is certainly something that the EGU has never done before.

I hope you enjoy it.

When I came into the Congress this morning I passed the EGU stand - they tried to sell me a T-shirt.

At the JGU stand they tried to talk to me about earthquakes,  
and at the AOGS they tried to get me to go to India.

But at the AGU they said "Please come and colour our poster!!" - And there were more people there than at all the other stands.

This is perhaps an indication of the power that art has over us.

That power begins early.

While preparing this talk I showed this image to my six year old daughter and explained that the man who did it died a long time ago. She said "Did he invent aerobics, Dad?". Now that I think is a breakthrough in our

understanding of the work of Leonardo da Vinci, artist, scientist, inventor and aerobics instructor!!

I think that all parents recognise that children are natural scientists and adore drawing. For them, making things is an end in itself.

It is not "art" or "architecture".

It is not "structural mechanics" or "science".

It is pure creation: creation for the joy of it!!

But it is not carried out in a cultural vacuum as the aerobics comment indicates: The cultural milieu informs everything we do, in art or science.

Since before Leonardo da Vinci science and art and religion have travelled hand in hand

- sometimes not peacefully but always interdependently.

I ask myself, when did it start?

I can just imagine Mr. or Mrs. Caveman saying

"I must get this wheel thing invented so I can go and paint bison  
on the children's bedroom wall."

To which she probably got the reply

"You need to be careful of wheel things - you'll end up destroying the  
climate!!!".

"The neanderthals next door had a fire installed the other day - there'll be  
deforestation, mark my words!!"

It has been about 1280 generations since the earliest dated cave paintings  
32,000 years ago at the Chauvet cave in France. This is one of those

paintings – the lions are extremely realistic with particular care given to their real physical features.

16,000 years later cavemen were still painting. This time at Lascaux, France. Here is one of the Lascaux horses. It is recognisable as a horse although somewhat more abstract than the drawings at Lascaux.

It is interesting to note that the time that divides the Chauvet and Lascaux paintings (16,000 years) is the same period that that divides the Lascaux paintings from us. Here is a modern rendition of a horse by Picasso – sometimes I wonder whether we have, actually, made any progress at all.

These days, the fact is that almost every scientist commits the 'sin' of art every day, whether it be painting or playing the saxophone.

Einstein even played the violin – but not as well as he could solve differential equations.

I know a scientist that plays the Shakuhachi, while another has choreographed a national ballet troupe.

I only wish that more professional artists would show as much interest in the sciences as scientists practice the arts.

Since we are in Vienna, I would like to show you one of the most important reasons for coming here. She is die Madonna im Grünen by Raphael at the Kunsthistorisches museum, and she personifies the synergy between art, science, culture and religion.

She was painted in the High Renaissance (1500-1520).

Then, for the first time, painters put their religious subjects in a real geological landscape (instead of against a gilded background), and started to use mathematics, geometry and perspective to create a clean

composition (the three triangles here). The pigments are derived from minerals:

The blue of Mary's cloak is ultramarine (lapis lazuli) or azurite.

The traditional orangy red of Mary's dress is vermilion, which is a pigment used since antiquity, that is derived from cinnabar (mercuric sulphide).

The greens are verdigris (verte de Grèce) and the powdered mineral diopside. Verdigris is a complex mixture of the copper salts of acetate, carbonate, chloride, formate, hydroxide and sulphate.

Now I would like to introduce you to the first speaker Martina Kölbl-Ebert who will speak on the subject of "Geology and religion - historical perspective and current problems".

But before I do, I will leave you with a quotation from William Blake's *Auguries of Innocence* that should speak to poets, artists, earth scientists, biologists and physicists as well as the faithful:

To see a world in a grain of sand,  
And a heaven in a wild flower,  
Hold infinity in the palm of your hand,  
And eternity in an hour.

We have an hour and a half - I just hope that it does not feel like an eternity!!

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## Final Words

Many thanks for coming to this session, and please let me know what you thought about it, and whether you think that we should do something similar next year.

In closing I would like to remind you of the associated splinter group meeting SPM1.57 - which is a public panel and audience discussion on History, culture, art and religion in Room 6 between 18:00 and 19:00 today.

And to end with a quotation from the poet and scientist Piet Hein, which uses poetry to comment upon our human desire for knowledge and the concept of omniscience:

Knowing what  
Thou knowest not  
Is in a sense  
Omniscience.

Thank you.