

International Big History Association

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Members' Newsletter

December 2012

The Excitement of Big History

Neal Wolfe

Dominican University of California

Greetings, fellow Big History enthusiasts! I am very excited to be a part of this most significant emerging discipline; it is a dynamic undertaking, with endless possibilities for deepening our awareness of who and what we are personally, as a species, and as a world community. Speaking of community, this summer's first IBHA conference was a wonderful event. Big History is definitely an idea whose time has arrived, and it is great to see such a coming together of enthusiasts from a diversity of disciplines and approaches to develop and share its remarkable narrative.

The naturalist John Muir observed: "When we try to pick out anything by itself, we find it hitched to everything else in the universe." Ancients understood this, as illustrated by the Buddhist metaphor of Indra's net, which holds that all phenomena are intimately connected. Every phenomenon is seen as a jewel residing at each of the net's vertices; each jewel reflecting all the other jewels and connected to them by virtue of the net's strands. Now, we have enough evidence to attempt to explain scientifically how this is so, not just as a metaphysical concept, but in material terms. With new discoveries about the nature of the material world being made rapidly, this understanding will continue to be refined as we go.

By placing ourselves within Big History's comprehensive, trans-disciplinary narrative, we are better able to understand our connection with each other, with Earth, and with the entirety of the universe itself, past, present, and future. This awareness contradicts our habitual sense of isolation and fragmentation, as individuals, cultures, as well as disciplines, which results in so much dysfunction, personally and societally. The insights of interconnection in Big History, then, can surely help us in addressing the daunting challenges we face in the twenty-first century.

In this issue of the **Members' Newsletter** of the International Big History Association, we highlight:

IBHA member, **Neal Wolfe**, who teaches Big History at Dominican University of California (pp 1 - 3).

Constance van Hall and the Big History program at Roland Holst School in Hilversum in the Netherlands (pp 3 - 6).

The IBHA Board appreciates your participation and asks for your continued support. (p. 7)

Announcement of conference on Big History and Global Evolution in Moscow, October 15–18, 2013, sponsored by Eurasian Center for Big History & System Forecasting and the Faculty of Global Studies, Lomonosov Moscow State University. (pp 8 - 9)

After many years as a practicing artist, I came to Big History through teaching. Since early adulthood, I have been preoccupied with the “big picture.” Ten years ago, I began teaching in the first-year program at Dominican University of California. The art history-based course, Art and Society, provided an opportunity to engage freshmen students in the big questions of what it means to be human; through art and architecture, we can see the human search for meaning throughout the ages and all cultures. When Big History was chosen to replace that first-year program, I had the good fortune of being asked to be part of the faculty taking on the considerable challenge of teaching it. I didn’t have to be asked twice! I knew this was an opportunity to delve into the “big picture” even further. What bigger picture could there be than the story of the universe?

I find that, in addition to Big History’s profoundly significant emphasis on the interconnectedness of not only all history, but really all phenomena, the focus on the pre-human, and particularly, the cosmological and astronomical aspects of the narrative are very important in helping to see ourselves and our worldly situation in the fullest context. These features of the story certainly take us beyond our daily concerns—indeed, we can live our entire lives without considering the formation of the universe, stars and galaxies, our solar system—our place in space!—and many of us, it appears, do so. But whether or not we need to consider our place in space, the fact of the matter is we are in space. We are orbiting a star, from whose formation our planet emerged as a member of a system of planets, which is part of a vast, spectacular galaxy, and so on. So, why wouldn’t we want to view our lives and our world in the fullest context of what and where we truly are? As the late Thomas Berry, priest, cultural historian, ecotheologian, and cosmologist so simply and elegantly observed, the universe is “the only self-referential reality in the phenomenal world. It is the only text without context. Everything else has to be seen in the context of the universe.” Including us.

I feel privileged to explore with my students the scientific understanding of the development of the universe, stars, and solar system. Most, if not all, of these students would never be exposed to this

very significant information in any other classes. I find that a good many of the students particularly appreciate this part of the course—especially, learning about stars. Even the least intellectually curious among us have no doubt at some point in our lives been fascinated with the night sky. Most of my students report they have “wished upon a star.” It is gratifying to witness the enthusiasm with which they respond to learning about stars. Now when they look at the night sky knowing about stars—how they are formed, what they are doing, what happens when they die (and that many they see died a long time ago!), how far away they are, and how crucial they are in providing the elements which make our existence possible—a whole new level of appreciation is reached. Many report they now look at the night sky from a fresh, heightened perspective.

Of course, there is no substitute for taking what we learn in the classroom, or in books or from other sources, and actually go out and observe the night



Neal Wolfe,
picture taken by Chase Clow

sky, pondering its depths and marvels and our place among them. From any other vantage point in space, we are out there, too. It is important for the students—and us!—to engage this awareness experientially, not just mentally. At Dominican we recently held our second annual Big History stargazing event, courtesy of the San Francisco Amateur Astronomers, which turned on a lot of students, let alone professors. But pondering the night sky—indeed becoming familiar with that major part of our environment, now subdued by our city lights—is worthy of our regular attention, year round. It reminds us of where (and who?) we are.

Naturally, the human part of the story is just as important, even if we are generally more familiar with it already. The Big History narrative illuminates our fundamental unity as a species—indeed helps us to realize it—as well as our inherent connection with the natural world in which we live. It aids our understanding of our role, as a species, in the creation of our problems, locally and globally. It places us in the larger context of all life on the planet, and shows us that we don't just live on Earth, but are products of it. We need to act from that awareness in addressing our challenges, collaboratively and intelligently. Our Earth is a beautiful, life-producing planet orbiting a star. Let's take care of it! The insights of Big History cultivate the necessary awareness.





Teaching Big History in The Netherlands:

by Constance van Hall

Did you know that since September this year the Big History Project has reached continental Europe? In The Netherlands, we started teaching this exciting course with a 'Big Bang': David Christian was there to watch and participate in the 'Big Kick-off' we organized for our 200 students.

First, let me introduce myself. My name is Constance van Hall, I'm a Philosophy teacher and studied Philosophy and History at the University of Amsterdam. One day, I was watching some TED-talks - I really love to watch those inspiring videos - and saw David Christian's lecture about Big History. Immediately, I was very excited about the project. At that time, we were exploring ways to integrate a new course, Science Orientation, into our curriculum. Seeing David's talk, I knew we found the perfect course to do just that.

Now, the first 'threshold' was of course to get my colleagues and the school management exited as well. That actually went very well, and after writing a few documents explaining how Big History would fit in I got permission to contact America and kindly ask if we could participate as a pilot school. Andy Cook and his team were very kind and willing to open the course content to us, but I never would have dreamed what happened next: I received an email from David Christian telling us he was very happy the project would be taught in Holland and suggesting us he could come and visit our school!

So David was there to launch Big History at our school:

The students were very excited and now we faced the huge challenge to fulfill their expectations. Which brings us to our second big threshold: actually teaching Big History at our school. I'll briefly explain how the course is taught to our students.

First, some information about our students: they are around 16 years old and are in the highest level of education - generally they are smart and after graduating will attend university. So it is really important to challenge them, and Big History does just that. Furthermore, they are having a hard time deciding what to study after they graduate - there are so many sciences and disciplines to choose from! Big History offers them a great orientation on many disciplines. And last but not least, it is really important for them to getting used to reading a lot of English, since most of the books and papers they will read at university are in English. Again, Big History stimulates that as well. The course website they have access to is in English and we expect them to read many articles and watch a lot of videos to get used to the scientific lexicon they will encounter at university.



David Christian gave an exciting lecture.



Our 200 students who will follow Big History.



David and me after the Big Kick-off.





Some slides from our lecture about Einstein



A copy of a page from our syllabus.

Les. 1


Wat is Big History eigenlijk?

BELANGRIJKSTE PUNTEN

1. Wat is Big History?
2. Drempels van toenemende complexiteit
3. De 5 ANW vragen
4. Big History & WON

ANW leesstof: Scala §10.4

"The scientist does not study nature because it is useful; he studies it because he delights in it, and he delights in it because it is beautiful. If nature were not beautiful, it would not be worth knowing, and if nature were not worth knowing, life would not be worth living."
- Jules-Henri Poincare (1854 - 1912)



BIG HISTORY A modern scientific odyssey

Introductie

Tijdens de les krijg je een uitleg van wat dit project inhoudt, en hoe het samenhangt met WO en ANW. Hopelijk ben je hierdoor enthousiast geworden! Deze syllabus helpt je om de fascinerende zaken die komen kijken bij Big History verder uit te diepen. Hierin vind je opdrachten en precies wat je wordt geacht te lezen uit het boek Scala voor elke week. Wij zullen veel gebruik maken van de website die tot jullie beschikking staat: bighistoryproject.org en je dan ook vragen, daar elke week een aantal Units van te bekijken.

Wat is Big History?

Zoals gezegd is Big History eigenlijk een moderne ontstaansgeschiedenis, dat ons inzicht geeft in wie we zijn en waar we vandaan komen. Het is een groot verhaal dat helpt uit te leggen hoe alles is zoals het is, hoe wij daarin passen, en waar het toe kan leiden. David Christian is de 'vader' van Big History. Hij bedacht de 8 drempels om zo 13.7 miljard jaar geschiedenis te bestuderen.

Opdracht 1

Bekijk zijn lezing op <http://course.bighistoryproject.com> - Unit 1: 'What is Big History?' Maak hiervan aantekeningen in je schrift.

Opdracht 2

Maak je eigen 'timeline' met drempels die bepalend voor je zijn geweest, net zoals David Christian doet in zijn lezing (3:15-4:04). Wees zo creatief mogelijk!

All right, now you know something about our audience, I'll tell you a bit about the lessons we gave so far. Actually, we give lectures, very college-like, in which we also explain a lot by showing videos and there is a lot of room for students to ask questions. I have two colleagues with whom I give lectures to about 60 students at a time. We had three lectures as an introduction to Big History, in which we taught about entropy, complexity, goldilocks conditions, scales (powers of ten) and of course the use of thresholds. After that, we began teaching the first threshold, the Big Bang. We have 4 lectures about this threshold, the first lecture was about the development of the Big Bang Theory itself, the second about Einstein and the next two lessons will be about Higgs bosons, quantum theory, string theory and Brian Greene's TED talk about the possibility of a multiverse. It is absolutely not our goal they know about those theories in great detail, nor do they need to know the math behind it. We hope that after these lectures, students will have some basic knowledge about these concepts they encounter when they read the scientific section of a newspaper, appreciate CERN, or can laugh about Sheldon's remarks in the terrific sitcom Big Bang Theory. I guess that's what Big History is all about: to get students excited about science and to challenge them to investigate further.

Unfortunately we only have one hour a week to teach Big History, so we encourage our students to do things at home as well. This summer I wrote a syllabus. This reader consists of:

- a) assignments - to require our students to visit the course website and watch all the great videos David and his team made;
- b) texts I wrote - to explain the thresholds and concepts in plain Dutch;
- c) selected texts from different writers - to stimulate students to read a lot of English. Texts I used are from Bill Bryson, Stephen Hawking, Richard Dawkins, Brian Cox, Carl Sagan, David Myers and many more.

Entropy & complexity

Een vreemde tegenstelling in ons universum is de volgende: terwijl wij om ons heen steeds complexere levensvormen waarnemen, is er in ons universum juist sprake van een verval van alles, 'entropie' genoemd. Wat is entropie nu precies?

De Tweede Wet van de Thermodynamica beschrijft mathematisch de neiging van alle fysieke systemen om met de tijd naar thermodynamisch evenwicht te streven. Verschillen in temperatuur, druk en energie zullen altijd (zonder invloed van externe factoren) van meer geconcentreerde naar meer diffuse staat bewegen. Dit klinkt ingewikkeld, maar is goed uit te leggen met het voorbeeld van een warm kopje koffie: wanneer niemand daar iets mee doet zal deze altijd afkoelen tot de kamertemperatuur. De hitte blijft bestaan, maar is helemaal verspreid door de kamer. De onvermijdelijke verspreiding van materie en energie van een meer-geordende staat (hete koffie) naar een minder-geordende toestand (de kamer) wordt entropie genoemd.

Brian Cox legt in zijn boek en in zijn bijbehorende prachtige BBC-serie *Wonders of the Universe* het fenomeen van entropie uit met het voorbeeld van een zandkasteel:

"A sandcastle is made of lots of little grains of sand, arranged into a distinctive shape – a castle. Let's say there are a million sand grains in our little castle. We could take those million grains and, instead of carefully ordering them into a castle,



we could just drop them onto the ground. They would then form a pile of sand. We would be surprised, to say the least, if we dropped our sand grains onto the floor and they assembled themselves into a castle, but why does this not happen? What is the difference between a pile of sand and a sandcastle? They both have the same number of sand grains, and both shapes are obviously possible arrangements of the grains. Boltzmann's definition of entropy is essentially a mathematical description of the difference between a sandcastle and a sand pile. It says that the entropy of something is the number of ways in which you can rearrange its constituent parts and not notice that you've done so. For a sandcastle, the number of ways in which you can arrange the grains and still keep the highly-ordered shape of the castle is quite low, so it therefore has low entropy. For a sand pile, on the other hand, pretty much anything you do to it will still result in there being a pile of sand in the desert, indistinguishable from any other pile of sand. The sand pile therefore has a higher

*A copy of
another
page of our
syllabus.*

So this is what we are doing at the moment in The Netherlands. There's one big question you might have after reading this article: do your students like it? Well, I'll try to answer this by describing what I noticed so far: Most students pay great attention during our lectures. They talk about Big History at home. We already received some excited emails from parents. Some stay in class after a lesson to tell us they enjoyed it. And they ask a lot of great questions during class. Some really investigate further about some topics and post their findings on our Facebook page. Of course, there are also some students who have to get used to reading and hearing a lot of English or need some more convincing how exciting all of this is. My claim is that most students really do like it. Using the claim testers Bob Bain described in this great video on the course website I'd have to say

this claim is based on my gut feeling, since we do not yet have real evidence (for example surveys) to support it. We will however try our best to evaluate and survey often!

My personal goal is to get Big History taught in many more high schools here in Holland, fortunately I get the chance to spread the word: I was on national radio, there will be a documentary about the course, and I'm invited to speak at three teacher conferences in November. So far, so good!

'Trailer' Big History in the Netherlands: <http://youtu.be/qExi6S1wbx0> - Email: BigHistoryNL@gmail.com

Facebook: www.facebook.com/BigHistoryNL - Twitter: <http://twitter.com/BigHistoryNL>



Amsterdam, North Holland, NL

The IBHA Board Appreciates Your Continued Support

Dear IBHA Members,

With the end of the year approaching, we would like to thank all members of the IBHA for your membership. As we continue to grow, your loyalty is essential to our success as an organization. From humble beginnings, the IBHA has expanded to approximately 250+ members; but the true value of our association is not in the numbers, it is in the loyalty of members like you who share the vision of Big History and recommend the IBHA to friends and colleagues. You are the biggest advocates for the IBHA, and to glean the most value from our partnership, we need to provide value to you too. Please let us know what we can do to keep the dynamics of this organization strong. We value your opinion and recommendations.

We would also like to give a special thanks to all of the founding members of the IBHA, those who participated in the 2012 inaugural conference and contributed to its outstanding success, the new

members who have recently joined, and those who have made the commitment as a lifetime member. We share your interest in Big History and look forward to our long association with you as we develop this exciting new field together.

As 2013 approaches, we want to emphasize that your ongoing support is essential to our continued growth and ability to develop Big History. Please remember that the IBHA is a 501(c)3 non-profit organization and any payment or donation you care to make by the end of the year is tax deductible. Any level of contribution, should you so choose, is greatly appreciated.

Again, we thank you for your interest and continued support and look forward to the future of Big History and our ongoing initiatives within the International Big History Association.

Very truly yours,
The IBHA Board



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**EURASIAN CENTER FOR
BIG HISTORY & SYSTEM FORECASTING**

The Center was founded on May 25, 2011 by the
Academic Council of The Institute of Oriental
Studies of the Russian Academy of Sciences



**FACULTY OF GLOBAL STUDIES OF THE
MOSCOW STATE UNIVERSITY**

International Symposium

Big History and Global Evolution

Moscow, October 15–18, 2013

Co-organizers:

Faculty of Global Studies, Lomonosov Moscow State University

Eurasian Center for Big History & System Forecasting in the Institute of Oriental Studies, Russian Academy of Sciences

The Symposium will be held in the framework of the World Congress “Globalistics-2013” organized by the Moscow State University.

We would ask all those who do not exclude the possibility of their taking part in our symposium to fill in the participation form below and to email it to the Symposium conveners by December 15, 2012 to the following addresses:

Prof. Akop Nazaretyan (anazaret@yandex.ru)

Prof. Leonid Grinin (leonid.grinin@gmail.com)

Prof. Andrey Korotayev (akorotayev@gmail.com)

PARTICIPATION FORM:
International Symposium

Big History and Global Evolution

(Moscow, October 15–18, 2013)

PLEASE, FILL IN THE FORM AND EMAIL IT TO THE SYMPOSIUM CONVENORS:
 PROF. AKOP NAZARETYAN (ANazaret@yandex.ru), PROF. LEONID GRININ (Leonid.Grinin@gmail.com)
 and PROF. ANDREY KOROTAYEV (AKorotayev@gmail.com) by the 15th of December, 2012

Family name, first name _____

Title of the presentation _____

Abstract _____
(within 300 words)

Institution/organization _____

Position _____

Office address _____

Tel/fax

E-mail _____

The Symposium will be held in the framework of the World Congress “Globalistics-2013” organized by the Moscow State University.

Please plan on participating in the 2014 IBHA conference from August 6 - 10 at Dominican University of California.