

# Origins

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EXPOSICIÓN ARTISTAS INTERNACIONALES

AIRGENTUM HOJA DE RUTA

CONECTANDO  
CASTILBLANCO AL  
**COSMOS**

IMOGENE DRUMMOND

22 AGOSTO 2018 · SALA EXPOSICIONES HOGAR  
DEL PENSIONISTA

PRESENTACIÓN GUIADA 21:00 Y 22:00



## *Connecting Castileblanco with the Cosmos*

In August, artist and filmmaker Imogene Drummond had a solo show in Castilblanco, Spain, entitled “Connecting Castilblanco with the Cosmos.” It featured an interactive video installation in which people moved through the exhibit space and saw imagery of their local landscape mixed with the cosmos projected onto themselves.”

Imogene Drummond believes in the power of art to educate, empower and transform. She believes that a great cultural change can take place when humanity understands that our primary context is not political, religious, racial or gender-related, but universal: the simple fact that we are all part of a universe in evolution. “During her time as an artist-in-residence at Airgentum International Artists Residency, Imogene has explored the question: “How can art help people experience that they are part of the Universe?” This concept was expressed by the brilliant astrophysicist Carl Sagan: ‘We are all stardust: we are in the universe and the universe is in us.’

All the materials that exist today were created in the Big Bang 14 billions of years ago, in the universe everything is literally connected. Imogene’s work aims to unite art and science. Understanding the physical connection between people and the universe can help to awaken consciousness, increase knowledge, and cause a transformative shift towards positive social and personal changes.

To this end, Imogene created an interactive video installation that expresses the connection of Castilblanco de los Arroyos with the Cosmos. It is an immersive experience in which images from outer space merge with the flora and fauna of Castilblanco and projected onto the public.



The installation has mirrors that symbolize consciousness, and in which the participants will be able to see stellar images projected on themselves. Other screens will also play videos in which many neighbors of Castilblanco will be able to recognize themselves. To complete the exhibition, Imogene will exhibit a series of paintings that express her sensory experience of her stay in Castilblanco. These paintings reveal the bright light, the warmth and hospitality of their people, and the beautiful shapes and colors of the Andalusian landscape. An exhibition that shows us that Castilblanco is connected with the Cosmos.

Made possible by Airgentum  
Hoja de Ruta International  
Artists Residence program in  
Castileblanco, Spain, August, 2018.  
<http://www.airgentum.org/>



Imogene Drummond is an internationally collected painter, award-winning filmmaker, artist/educator, author of articles on cultural transformation, former psychotherapist, and world traveler. Her Divine Sparks film celebrates the creativity in the universe and in us. Her educational multimedia program, Art Sparks, facilitates individual creativity and empowerment. Due to numerous painting expeditions around the world, she was invited to join the Society of Women Geographers, an organization of women explorers of ideas as well as geography, whose membership includes, among others, Eleanor Roosevelt, Amelia Earhart, and Jane Goodall.

For more information, see her website:  
[www.imogenedrummond.com](http://www.imogenedrummond.com).

*Artist and Filmmaker Imogene Drummond.  
Photo by Jeneane Amina Dunlap.*

# Conference Encounter

## *Yvonne Fritz*

*Yvonne Fritz originally studied civil engineering with a focus on traffic, water, environment. Later she turned her love for the English language into studying translation and became a state certified translator which enabled her also to teach English at her local folk high school in Meiningen, Germany. For that she acquired an adult education qualification. She has just started to introduce Big History there through an English course. Prospectively, she would like to teach Big History in German.*

*The political upheaval in East-Germany in 1989/90 was a major impact on her life. Being 17 at that time, she quickly had to learn how to manage life in a completely different kind of society without having role-models because her parents' generation was going through the same experience at the same time.*

*Nota Bene: A German translation of this piece follows the English version*

*R*

Recently, the IBHA held their 4<sup>th</sup> conference at Villanova University in Philadelphia.

For me, who encountered big history in autumn 2016, it was the first opportunity to attend a Big History conference. I am glad I decided to go because it was an amazing experience on which I would like to reflect on in this article. May it bring back sweet memories for those who have already become accustomed to these events, and may it inspire those who have yet to decide about going to such an event. I admit that is not an easy decision to make when you are not attached to some university which pays for the expenses and on top of that you are also very committed to keeping your ecological footprint as small as possible. In the end, however, it may be justified. Attending the conference made big history more real, even if that is grammatically an awkward sentence. It connected me much more to the international big history community than any online course could ever provide, even though the two online courses on Coursera were a major step on my big history journey so far.

The internet, where I discovered big history, is a strange place. There you find all sorts of things and encounter all sorts of people trying to market something, not always with honest intentions. So, how do you know whether something is serious or just trying to brainwash you into following some guru with an irrational ideology raising expectations that reality can never match? What exactly are the criteria to distinguish serious from pseudo knowledge? - What convinced me that big history was no danger to my well-being, neither financial nor mental, was the mission statement on the IBHA's website: "Big History seeks to understand the integrated history of the Cosmos, Earth, Life, and Humanity, using the best available empirical evidence and scholarly methods." Plus the fact that Big History emerged in universities and is firmly rooted in academics, from the natural sciences to the humanities.

In the course of my life - outside academia, I have come to trust the knowledge that is sought and the methods that are used there. In fact, before I encountered big history, I had been trying to educate myself in critical/scientific thinking after having made quite a few rather regrettable decisions due to a lack of this ability. Big History makes this endeavour a lot easier and awe-inspiring at the same time.

### **Exciting**

So, I was curious to experience a gathering of people who are all passionate about big history despite their not so small differences in how they approach it. Curious enough to board a plane in central Europe and travel across the Atlantic to the US for the very first time and all by myself.

Villanova Campus is beautiful, and I enjoyed the short walks between the apartment house and the conference center. It gave me just the right amount of physical exercise to balance the mental input of the conference.

Being a non-native speaker of English, I immensely enjoyed the opportunity to hear and speak English all day long, casually conversing with native and non-native speakers of such a variety of accents. All that effort I put into learning English for so many years came to fruition. How handy it is to have a lingua franca across the globe! I also realised that for a non-native speaker, however comfortable they might be in the second language, it still takes more mental energy to follow lectures. So I very much appreciated when presenters provided hand-outs. It is great that so many presentations are now available online. I can again go through the ones I attended and at least get an idea of what I inevitably missed. Big History attracts a

diverse bunch of people, and the program reflected that. It was not so easy to make up my mind about which presentations to attend.

### Puzzling

Going to a place and an event for the first time also involves a great deal of unexpected encounters. I’m still wondering why at the receptions in Villanova room we ate from paper plates using utensils and drank from cups, all of which were thrown away afterwards. All the while we were listening to presentations about the dire state of the biosphere and how we humans really must stop depleting Earth’s natural resources. Perhaps we should find practical answers to this question at future conferences. Although I do realise that it may, logistically and hygienically, not be practical, I certainly would not have minded to help washing the dishes. Keeping up this throw-away attitude cannot be practical in the long run either.

Another thing that puzzled me was the use of air conditioning. There is no question that it is a relief in hot and humid climates. What I had not expected was the temperature they were set to. Despite the heat outside I found myself in the situation of having to carry around an extra sweater and jacket to wear *inside* the conference rooms, or be uncomfortable while the outside temperature called for light summer clothes.

I have to admit that the amount of meditation at the conference made me feel a bit uneasy. Aren’t things like that a very personal choice? It is quite clear that people need ways to balance off the sober, detached and analytical kind of thinking that academics requires. Yet, people sure are different in how they need to go about that. I, personally, prefer going for walks or doing some moderate sports. That helps me to clear my mind and take a break from focussed thinking (like writing this article). Yet, wouldn’t it be weird if I wanted everybody to do that? Besides, what I needed to balance off the rather dense mental input of the conference and being among people all day long, was simply a *quiet walk all by myself* with no pressure to talk or think or focus on anything, not even my own breath.

So, being presented with meditation as a way of knowing was also very puzzling. Especially considering my own, admittedly DIY experience with it from which I came to the conclusion that it is more like an attitude, perhaps a way of knowing oneself. But a way of knowing the world?!

I am writing about these things, because they are just as much part of my conference & USA experience as the inspiring atmosphere and the encouraging conversations. They are part of the whole! **One thing, that I could feel strongly at the conference was the desire to look at the**

1 Also, apart from the conference I’m still wondering how much intellectual input is necessary to actually make it work. When I tried to learn about Zen for instance, I soon realised that I would never ever be able to read all those books that have been written about it. Quite remarkable, I thought, that so many words are needed for something that actually or supposedly tries to go beyond thinking.

**whole, to take a more holistic approach to big history.**

### Inspiring

The conference provided an excellent opportunity of learning about big history and gave me a much better idea of who the people making it are. Reflecting on the event makes me see new possibilities and ways in which I could contribute to the IBHA, even though I am not part of the academia. That feels quite reassuring. Also as a big history hobbyist, so to speak, one can contribute to the academic endeavour at the core of big history if one is willing to play by the rules.<sup>2</sup>

Not only the event itself, but also what has followed since and is going to follow still, greatly helps me in connecting more of the dots. The big picture gets clearer but it also changes. That is likely the most interesting take-away from the conference. How are we going to continue with big history knowing that continuing research will keep changing the maps that are the foundation for the narrative and for the theory? How are we going to integrate the various ways to explain and describe things: words (language), visualisation, music? Neither one is sufficient by themselves!

*Mojgan Behmand talking about the Cynthia Stokes Brown Project was a very special presentation. Sadly, I never got to meet her myself, but when Mojgan talked about her life and how Cynthia had not only been an inspiration in life, but also in this process of leaving life, of dying, I felt deeply touched. I thought, this is how I would like to approach the end of my life too. It is a tough topic for every human being, and having such a role model in big history is incredibly comforting. This is how far you can get with a world view in which nature is enough and one does not need something above and beyond nature to live a meaningful and ethical life. For Mojgan it was amazing to see that Cynthia planned her own memorial service and wrote her own obituary, that her world view, her knowledge of science, her work put her at such ease with being part of the cycle of life. I am grateful and glad that I was there to hear about it.*

**„Knowing is not enough, we must apply. Wanting is not enough, we must do.“**

### J.W.v. Goethe

To me it seems that Cynthia lived what the German poet and thinker Goethe observed so many years ago. Even more so, she applied that knowledge in her own dying as well.

### Follow-up

Back at home I looked at the IBHA facebook site (for which fortunately you don’t have to be on facebook) and watched the wrap-up session. Although I had been there, I realised how little I could remember, and, so I took the time to make notes from that session. It summed up the whole conference and should help us move forward.<sup>3</sup>

2 Same as with every other „game“ one wants to play.

3 It is available together with the conference [presentations here](#).

Big History is an exciting endeavour. It has great potential, but there are also dangers. For example, I sensed some disregard for the materialist approach to big history, but what is wrong with matter? Nothing as it turns out when it comes in the form of delicious cookies, muffins and nut&chocolate bars accompanied by tea, coffee and water. All of which were very material and nobody seemed to mind. Perhaps because deep down in the gut we all know that truly non-material stuff would not nourish our material bodies, and certainly not energise the brain.

We need to be clear what we mean, when we talk about science, religion, spirituality. Just one example: for me as a German native speaker the term science is not limited to the natural sciences. The German equivalent „Wissenschaft“ actually means all of academics. „Wissen“ means knowledge, and what „Wissenschaft“ does is „making“ knowledge. That is how I have understood the word so far. Then, there is the German word „Erkenntnis“ for which there are several English translations: knowledge recognition, insight, discovery, understanding, realisation. Carefully defining the terms we use as shorthands for rather complex concepts should greatly help us communicating in just one language, English, across the many different languages of the members of the IBHA. We might even realise (German: erkennen) that all these different ways of knowing are complementary rather than mutually exclusive.

Hence, I started a discussion in the forum on the IBHA website about it hoping to engage those who would like to see „other ways of knowing“ to be integrated into big history.

For, if we are to have a meaningful conversation between different ways of knowing, these need to be named, their respective assumptions made explicit, and then evaluated. For that, again, we need scholarly methods at the core of big history. The mission statement is important as it is, and as it has been carefully crafted at the time.

### Conclusion

Without my heart being engaged, my head (or mind) would not be able to take in any presentation and my hands are now very busy typing in these reflections. All my adult life, I have been trying to see the whole, and only when I took scientific thinking more seriously, I actually made perceivable and traceable progress. It may seem daunting at first, and it is difficult indeed, but that is what we humans have academics for.

Ever since the first states or civilisations humans have lived with **division of labour**, where people specialised. Academics is one such specialisation just as building and teaching and art and so many other occupations are. While all of them are important to make a functioning society, individuals have to choose their speciality. Some work more with their head, others more with their hands. As humans, however, we *always* engage heads, hands and hearts, no matter what our speciality.

Big History is something that was last tried in the 19<sup>th</sup> century, when it was still possible to learn

about all the scientific discoveries of the time. It can be done again today, because we have the necessary data to tell the history of everything after the beginning of time and space. We gained that data through scholarly methods. They are what we call empirical evidence, and yet we also know that our empirical-evidence-data-informed picture of the world and of history (our maps of time) is rather sketchy, there are many unknowns.

It is tempting to fill these unknowns with mysticism just because it makes for a richer story.<sup>4</sup> Yet, vaguely defined terms that leave *too much* scope for personal interpretation and fantasy, would turn big history into fiction, and it could no longer serve as the maps of time as which it has been conceived. We have to keep working towards the unknown, keep learning and teaching and clearly distinguish that from preaching and oversimplifying complex relationships.<sup>5</sup> Above all, we have to apply the knowledge and understanding we gained from creating big history. Knowledge and understanding (German: Erkenntnisse) that all those scholars on whose work big history is built and who no longer live did not have available back in their time. So, while we are building big history on their findings, it should also be clear that some of their views inevitably are outdated, and we have to distinguish one from the other using scholarly methods.

I hope that my article will inspire other conference attendees to also offer an account of how they experienced the event, so that by sharing our reflections we get a clearer picture of where big history and the IBHA are at this moment and in which direction we are heading. In writing this article it became quite clear to me that we will likely never all be on the same page, just for the simple reason that we have been involved with big history for different periods of time and to different extents.<sup>6</sup> Yet, it is important to make sure that we are all still in the same book.

Finally, I'd like to thank all the people involved in making the conference happen.

4 I think it is fair to assume that most people will go for the story rather than for the theory of big history.

5 BHP for example tries hard to make sure that students learn above all critical thinking skills - so they can evaluate new claims, and these will be coming in all throughout their adult life.

6 That is for example whether we only know the story or have also dared to explore the theory.



# Conference Encounter | Konferenz-Erlebnis

*Yvonne Fritz studierte ursprünglich Bauingenieurwesen mit Vertiefung in Verkehr, Wasser Umwelt. Später brachte ihre Liebe zur englischen Sprache sie dazu sich zur staatlich geprüften Übersetzerin zu qualifizieren, was ihr ermöglichte Englisch an der örtlichen Volkshochschule in Meiningen zu unterrichten. Dafür erwarb sie eine erwachsenenpädagogische Qualifikation. Sie hat gerade erst begonnen Big History über einen Englischkurs bekannt zu machen. Zukünftig würde sie gerne auch Kurse auf Deutsch darüber geben.*

*Ihr Leben wurde sehr geprägt von dem politischen Umsturz in Ostdeutschland 1989/90, wo sie, gerade 17 Jahre alt, sehr schnell lernen musste, sich in einem völlig anderen gesellschaftlichen System zurechtzufinden, ohne Vorbilder dafür zu haben, denn die Generation ihrer Eltern stand zur gleichen Zeit vor derselben Herausforderung.*

Vor kurzem hielt die Internationale Big History Vereinigung (IBHA) ihre vierte Konferenz ab an der Villanova Universität in Philadelphia, USA. Für mich, die ich Big History im Herbst 2016 entdeckte, war es die erste Möglichkeit an einer Konferenz teilzunehmen. Ich bin froh über meine Entscheidung daran teilzunehmen, weil es eine wunderbare Erfahrung war, über die ich hier in diesem Artikel nachdenken möchte. Möge es diejenigen, die sich schon an diese Ereignisse gewöhnt haben, an frühere Zeiten erinnern und diejenigen inspirieren, denen die Entscheidung an einer Konferenz teilzunehmen noch bevorsteht. Ich gebe zu, dass es keine leichte Entscheidung ist, wenn man nicht einer Universität angehört, die für die Ausgaben aufkommt und zudem noch sehr darum bemüht, seinen ökologischen Fußabdruck so gering wie möglich zu halten. Letzen Endes jedoch ist es vielleicht gerechtfertigt. Big History wurde auf der Konferenz noch wirklicher für mich, auch wenn das grammatikalisch ein wenig unbeholfen klingt. Es hat mich noch viel mehr mit der internationalen Big History Gemeinschaft verbunden als dies ein Online Kurs je ermöglichen könnte, auch wenn die beiden Kurse auf der Coursera-Plattform ein wesentlicher Schritt auf meiner bisherigen Big History Reise waren.

Das Internet, wo ich auf Big History gestoßen bin, ist ein seltsamer Ort. Man findet dort alles Mögliche, begegnet Leuten aller Art, die versuchen etwas zu vermarkten, und nicht immer mit ehrlichen Absichten. Woher weiß man also, ob etwas seriös ist oder jemand versucht einen auf grob manipulative Weise dahingehend zu beeinflussen, einem Guru mit einer irrationalen Ideologie auf den Leim zu gehen, und Erwartungen weckt, die niemals der Wirklichkeit entsprechen. Was genau sind die Kriterien, die ernsthaftes von Pseudo-Wissen unterscheidet? - Was mich davon überzeugt hat, dass Big History keine Gefahr für mein Wohlergehen darstellt, weder geistig, noch finanziell, war das Leitbild der Organisation auf der Webseite der IBHA: „Big History versucht die ganzheitlich zusammenhängende Geschichte des Kosmos, der Erde, des Lebens und der Menschheit zu verstehen, indem die besten verfügbaren empirischen Beweise und wissenschaftliche Methoden genutzt werden.“ Dazu noch die Tatsache, dass Big History aus Universitäten kommt und fest im Wissenschaftsbetrieb verwurzelt ist, von den Natur- bis zu den Geisteswissenschaften.

Im Verlauf meines Lebens - außerhalb des Wissenschaftsbetriebes, habe ich Vertrauen gewonnen in das Wissen, das dort gesucht, und die Methoden, die dort verwendet werden. Tatsächlich war ich, bevor ich Big History begegnete, dabei mich selbst in kritischen/wissenschaftlichen Denken zu bilden, nachdem ich ein paar sehr bedauerliche Entscheidungen getroffen hatte, die auf einem Mangel an ebensolchem beruhten. Big History macht dieses Unterfangen sehr viel leichter und gleichzeitig auch Ehrfurcht gebietend.

## **Aufregend**

Daher war ich neugierig darauf eine Versammlung von Menschen zu erleben, die alle eine Leidenschaft für Big History haben trotz der nicht so kleinen Unterschiede darin, wie sie an die Sache herangehen. Neugierig genug, mich in Mitteleuropa in ein Flugzeug zu setzen und zum allerersten Mal und ganz allein über den Atlantik in die USA zu fliegen.

Der Campus von Villanova ist wunderschön und ich genoß die kurzen Spaziergänge zwischen dem Apartmenthaus und dem Konferenzzentrum. Damit hatte ich genau die richtige Menge an körperlicher Bewegung, um den geistigen Input der Konferenz auszugleichen.

Englisch ist nicht meine Muttersprache und so genoß ich ungemein die Gelegenheit den ganzen Tag lang Englisch zu sprechen und zu hören, zwanglos mit Muttersprachlern und Nichtmuttersprachlern mit ganz verschiedenen Akzenten zu reden. All die Anstrengungen, die ich über so lange Jahre unternommen habe, Englisch zu lernen, zahlten sich aus. Wie praktisch es doch ist so eine Verkehrssprache für den ganzen Globus zu haben! Mir wurde auch klar, dass es einen Nichtmuttersprachler mehr geistige Kraft kostet, Vorträgen zu folgen, egal wie wohl man sich in der zweiten Sprache fühlen mag. Daher habe ich es sehr geschätzt, wenn die Vortragenden Handouts dabei hatten. Es ist auch großartig, dass so viele Präsentationen jetzt online verfügbar sind. Ich kann diejenigen, die ich besuchte, nochmal durchgehen und mir zumindest einen Überblick über diejenigen verschaffen, die ich eben nicht besuchen konnte. Big History zieht eine Menge verschiedener Menschen an, und das spiegelte sich im Programm wider. Es war nicht einfach, mir darüber klar zu werden, welche Vorträge ich mir anhören wollte.

### Rätselhaft

Wenn man zum ersten Mal an einen Ort fährt und an einem Ereignis teilnimmt, stößt man unweigerlich auf Dinge, die man so nicht erwartet hat. So rätele ich noch immer darüber, warum wir zu den Empfängen im Villanova Saal von Papptellern mit Einwegbesteck aßen und aus Einwegbechern tranken, was anschließend alles zusammen in großen Abfalleimern verschwand. Während wir die ganze Zeit über Vorträge darüber anhörten, wie schlimm es um die Biosphäre bestellt ist und wie dringend wir Menschen aufhören müssen, die natürlichen Ressourcen der Erde zu erschöpfen. Vielleicht sollten wir auf künftigen Konferenzen praktische Antworten auf diese Fragen finden. Obgleich ich mir darüber im Klaren bin, dass es aus logistischen und hygienischen Gründen vermutlich nicht praktikabel wäre, hätte ich gewiss nichts dagegen gehabt, beim Abwasch des Geschirrs zu helfen. Diese Wegwerfmentalität aufrecht zu erhalten kann auf lange Sicht eben auch nicht praktikabel sein.

Ein weiteres Rätsel für mich war der Gebrauch von Klimaanlage. Keine Frage, dass diese ein Segen sind in Gebieten mit heißem und feuchtem Klima. Was ich nicht erwartet hatte, war die Temperatur, auf die sie eingestellt waren. Trotz der Hitze draußen, musste ich einen extra Pullover und eine Jacke mit mir herumtragen, die ich *drinnen* in den Konferenzräumen anzog, damit mir nicht zu kalt war, während die Außentemperaturen lediglich leichte Sommerkleidung erforderten.

Ich muss zugeben, dass mich die Menge an Meditationsangeboten auf der Konferenz doch etwas irritierte. Sind solche Dinge nicht eine sehr persönliche Entscheidung? Es ist völlig klar, dass Menschen einen Ausgleich brauchen zum nüchternen, distanzierten und analytischen Denken, das Wissenschaft erfordert. Nun sind die Menschen aber sehr verschieden darin, wie sie diesen Ausgleich für sich herstellen. Ich persönlich ziehe es vor, spazieren zu gehen oder moderaten

Sport zu treiben. Das hilft mir den Kopf frei zu kriegen und eine Pause vom konzentriertem Denken (wie diesen Artikel zu schreiben) einzulegen. Aber wäre es nicht etwas seltsam, wenn ich wollte, das dies alle tun? Außerdem, was *ich* brauchte, um einen Ausgleich zu schaffen zum doch sehr dichten geistigen Input der Konferenz und damit verbunden, den ganzen Tag unter Menschen zu sein, war einfach ein *ruhiger* Spaziergang *ganz allein* ohne den Druck reden oder mich auf irgendetwas, auch nicht den eigenen Atem, konzentrieren zu müssen.

Daher war es sehr rätselhaft, dass mir Meditation als Wissensart präsentiert wurde. Besonders, wenn ich meine eigenen, zugegebenermaßen nicht sehr professionellen, Erfahrungen damit in Betracht ziehe, wobei ich zu dem Schluss gelangte, dass es mehr eine Haltung, vielleicht ein Weg zur Selbsterkenntnis sein kann. Aber ein Weg zur Welterkenntnis?<sup>1</sup>

Ich schreibe über alle diese Dinge, weil sie ebenso sehr Teil des Konferenz & USA Erlebnisses sind wie die inspirierende Atmosphäre und die ermutigenden Gespräche. Sie sind Teil des Ganzen! **Eine Sache, die ich sehr stark gespürt habe auf der Konferenz, war das Bestreben nach einem Blick auf das Ganze, nach einem ganzheitlicheren Herangehen an Big History.**

### Inspirierend

Die Konferenz war eine ausgezeichnete Gelegenheit, etwas über Big History zu lernen und eine viel bessere Vorstellung davon zu gewinnen, wer die Menschen dahinter sind. Während ich das Ereignis Revue passieren lasse und darüber nachdenke, sehe ich neue Möglichkeiten und Wege, meinen Beitrag zur IBHA zu leisten, auch wenn ich selbst keine Wissenschaftlerin bin. Das fühlt sich sehr beruhigend an. Auch als Big History Laie sozusagen, kann man zu den wissenschaftlichen Bemühungen im Kern von Big History beitragen, wenn man bereit ist, sich an die Regeln zu halten.<sup>2</sup>

Nicht nur das Ereignis selbst, sondern auch was dem folgte und noch folgen wird, hilft mir sehr dabei mehr und mehr Zusammenhänge herzustellen. Das große Bild wird klarer, aber es verändert sich auch. Das ist wahrscheinlich das interessanteste Mitbringsel von der Konferenz. Wie werden wir mit Big History fortfahren in dem Wissen, dass sich durch die weitergehende Forschung die Karten, welche die Grundlage für die Erzählung und die Theorie bilden, immer wieder ändern werden? Wie werden wir die verschiedenen Arten, etwas zu beschreiben und zu erklären: Wörter (Sprache), Visualisierung, Musik miteinander zu einem Ganzen kombinieren? Keines davon ist für sich genommen ausreichend!

Mojgan Behmands Vortrag über das Cynthia Stokes Brown Projekt war etwas ganz Besonderes. Traurigerweise war es mir nicht vergönnt, sie persönlich kennenzulernen. Aber als Mojgan von Cynthias Leben erzählte und darüber, wie sie nicht nur im Leben eine Quelle der Inspiration

<sup>1</sup> Abgesehen von der Konferenz, rätele ich auch noch immer darüber, wieviel intellektueller Input eigentlich nötig ist, damit Meditation gelingt. Als ich beispielsweise versuchte, etwas über Zen zu lernen, erkannte ich sehr bald, dass es mir niemals gelänge, all die Bücher zu lesen, die darüber geschrieben wurden. Ziemlich bemerkenswert, dachte ich, dass es so viele Worte braucht, für etwas, was doch eigentlich oder angeblich über das Denken hinauszugehen versucht.

<sup>2</sup> Wie das für alle anderen „Spiele“, die man spielen will, auch gilt.

gewesen sei, sondern auch in dem Prozess des Aus-dem-Leben-Scheidens, des Sterbens, berührte mich das zutiefst. So möchte ich auch ans Ende meines Lebens herangehen, dachte ich. Es ist für jeden Menschen ein schwieriges Thema, und ein solches Vorbild in Big History zu haben ist unglaublich tröstlich. Soweit trägt einen also ein Weltbild, indem Natur genügt, und man nicht noch etwas über die Natur hinausgehendes benötigt, um ein sinnerfülltes und ethisches Leben zu leben. Mojgan brachte ihr Erstaunen darüber zum Ausdruck, dass Cynthia ihre eigene Gedenkfeier plante, ihren eigenen Nachruf verfasste, dass ihr Weltbild, ihr wissenschaftliches Wissen, ihre Arbeit dazu beitrugen, dass sie sich so ruhig und entspannt als Teil des Lebenszyklus sah. Ich bin froh und dankbar dafür, dort gewesen zu sein und das gehört zu haben.

**„Es ist nicht genug zu wissen, man muss auch anwenden. Es ist nicht genug zu wollen, man muss auch tun.“ J.W.v. Goethe**

Mir scheint, das Cynthia lebte, was der deutsche Dichter und Denker Goethe vor so vielen Jahren so treffend bemerkte. Mehr noch, sie setzte dieses Wissen auch in ihrem eigenen Sterben um.

#### **Daran anschließend**

Zurück zu Hause schaute ich auf die Facebook-Seite der IBHA (für die man glücklicherweise nicht selbst Mitglied bei Facebook sein muss) und schaute mir die Aufzeichnung der Abschlussversammlung an. Obwohl ich anwesend gewesen war, merkte ich doch, dass ich mich an Vieles nicht erinnern konnte, und so nahm ich mir die Zeit, um das Gesagte so gut wie möglich zu notieren. Diese Veranstaltung fasste die gesamte Konferenz zusammen und die Notizen sollten uns auf dem weiteren Weg helfen.<sup>3</sup>

Big History ist ein aufregendes Unterfangen. Es hat großes Potenzial, aber es gibt auch Gefahren. So zum Beispiel spürte ich etwas Geringschätzung gegenüber dem materialistischen Ansatz, was aber ist falsch an Materie? Gar nichts, wie sich herausstellt, wenn sie in Form von köstlichen Keksen, Muffins und Riegeln aus Nüssen und Schokolade daherkommt zusammen mit Tee, Kaffee und Wasser. All diese Dinge sind doch sehr materiell und niemanden schien das zu stören. Vielleicht weil wir tief in unserem Bauch alle sehr genau wissen, dass Nicht-Materielles keine Nahrung für unsere Körper wäre und gewiss auch unser Gehirn nicht mit Energie versorgen würde.

Wir müssen uns Klarheit darüber verschaffen, was genau wir meinen, wenn wir über Wissenschaft, Religion, Spiritualität reden. Nur ein Beispiel: für mich als Deutsch-Muttersprachler ist der Begriff „science“ nicht begrenzt auf die Naturwissenschaften. Die deutsche Entsprechung Wissenschaft meint eigentlich Wissenschaft im allgemeinen. „knowledge“ entspricht Wissen, und was Wissenschaft tut ist Wissen schaffen. So habe ich dieses Wort bislang verstanden. Dann gibt es noch das deutsche Wort Erkenntnis für das es

<sup>3</sup> [Diese sind zusammen mit den anderen Vorträgen verfügbar.](#)

mehrere englische Entsprechungen gibt „knowledge recognition“ - Wissenserkennung, „insight“ - Einsicht, „discovery“ - Entdeckung, „understanding“ - Verstehen, „realisation“ - Feststellung. Sorgfältig die Begriffe zu definieren, die wir als Abkürzung für ziemlich komplexe Ideen verwenden, sollte uns in großem Maße dabei helfen in nur einer Sprache zu kommunizieren durch all die verschiedenen Sprachen der Mitglieder der IBHA hindurch. Wir könnten dabei vielleicht sogar erkennen (realise), dass all diese verschiedenen Arten etwas zu wissen (ways of knowing) einander ergänzen als sich gegenseitig auszuschließen.

Daher habe ich eine Diskussion im Forum auf der IBHA Webseite darüber initiiert in der Hoffnung, dass sich diejenigen zu Wort melden, die „andere Arten etwas zu wissen“ in Big History integriert sehen möchten. Denn wenn wir sinnvoll über verschiedene Arten etwas zu wissen ins Gespräch kommen wollen, dann müssen diese konkret benannt, die Annahmen dahinter deutlich gemacht und bewertet werden. Dafür brauchen wir dann wieder die wissenschaftlichen Methoden im Kern von Big History. Das Leitbild ist wichtig so wie es ist und wie es zu jener Zeit mit großer Sorgfalt formuliert wurde.

#### **Schlussfolgerung**

Ohne das mein Herz dabei ist, wäre mein Kopf (oder Geist) nicht in der Lage irgendeinem Vortrag zu folgen und meine Hände sind gerade sehr fleißig dabei diese Reflexionen in lesbare Form zu bringen. Mein gesamtes Erwachsenenleben lang habe ich versucht das Ganze zu sehen, aber erst als ich wissenschaftliches Denken ernster genommen habe, konnte ich wahrnehmbare und zurückverfolgbare Fortschritte verzeichnen. Es mag zu Anfangs etwas einschüchternd wirken, und es ist in der Tat nicht einfach, aber dafür haben wir Menschen ja die Wissenschaft.

Seit den ersten Staaten oder Zivilisationen haben Menschen mit **Arbeitsteilung** gelebt, wo sich einige spezialisiert haben. Wissenschaft ist eine solche Spezialisierung, so wie Bauen und Unterrichten und Kunst und so viele andere Berufe das sind. Alle sind wichtig für das Funktionieren einer Gesellschaft, aber der Einzelne muss seine Spezialisierung wählen. Einige arbeiten mehr mit dem Kopf, andere mehr mit den Händen. Im Menschen sind *stets* alle drei, Kopf, Hand und Herz beteiligt, egal was für eine Spezialisierung wir uns ausgesucht haben.

So etwas wie Big History wurde zuletzt im 19. Jh. versucht, als es noch möglich war, sich über alle wissenschaftlichen Entdeckungen der Zeit zu informieren. Es kann heute wieder versucht werden, weil wir die nötigen Daten haben, um die Geschichte von allem nach dem Anfang von Zeit und Raum zu erzählen. Diese Daten haben wir mit wissenschaftlichen Methoden gewonnen. Sie sind das, was wir empirische Beweise nennen, und dennoch wissen wir auch, dass unser Bild von der Welt und der Geschichte, das auf diesen empirischen Beweisen beruht, unsere „maps of time“ - Karten der Zeit, ziemlich skizzenhaft ist, dass es viele Unbekannte gibt. Es ist verlockend diese Unbekannten mit Mystik zu füllen, nur weil es eine reichhaltigere Geschichte ergibt.<sup>4</sup> Doch vage definierte Begriffe, die *zu viel* Raum für persönliche Interpretation und Fantasie lassen, würden Big History in Dichtung verwandeln, und dann

<sup>4</sup> Ich denke es ist gerechtfertigt anzunehmen, dass die meisten Menschen sich mehr mit der Erzählung als der Theorie befassen werden.

könnte es nicht mehr als die Karten der Zeit fungieren, als die es einst gedacht war. Wir müssen weiterhin das Unbekannte erforschen, weiter lernen und lehren und das ganz klar von predigen und zu starken Vereinfachungen unterscheiden.<sup>5</sup> Vor allem aber müssen wir das Wissen und das Verständnis, das wir uns durch Big History erarbeitet haben, anwenden. Das Wissen und das Verständnis (im Deutschen auch die Erkenntnisse), die all jene Gelehrten auf deren Arbeit Big History aufbaut und die nicht mehr am Leben sind, in ihrer Zeit nicht zur Verfügung hatten. Während wir also Big History auf ihren Erkenntnissen aufbauen, sollte doch auch klar sein, dass einige ihrer Ansichten unvermeidlicherweise veraltet sind, und wir müssen das eine vom anderen unterscheiden und dafür wissenschaftliche Methoden benutzen.

Ich hoffe, dass mein Artikel andere Konferenzteilnehmer dazu anregt auch einen Bericht darüber zu verfassen, wie sie die Konferenz erlebt haben. Wenn wir unsere Gedanken miteinander teilen, erhalten wir mehr Klarheit darüber, wo Big History und die IBHA zurzeit gerade sind und in welche Richtung wir gehen. Beim Schreiben dieses Artikels wurde mir sehr deutlich bewusst, dass wir wahrscheinlich niemals alle auf der selben Seite sind, aus dem einfachen Grund, dass wir uns über verschieden lange Zeiträume und in unterschiedlichem Ausmaß mit Big History befasst haben.<sup>6</sup> Dennoch ist es wichtig, sicherzustellen, dass wir immer noch im selben Buch<sup>7</sup> sind.

Schließlich möchte ich allen danken, die am Zustandekommen der Konferenz beteiligt waren.

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<sup>5</sup> Das Big History Projekt z.B. arbeitet hart daran, den Schülern vor allem Fähigkeiten zu kritischem Denken zu vermitteln - damit sie neue Behauptungen bewerten können, und mit neuen Behauptungen werden sie ihr gesamtes Erwachsenenleben lang konfrontiert sein.

<sup>6</sup> Ob wir z. B. nur die Erzählung kennen oder uns auch mit der Theorie befasst haben.

<sup>7</sup> *Anmerkung d. Übers.* Im Englischen gibt es den Ausdruck „to be on the same page“ wörtl. auf derselben Seite sein, dafür, dass man gleichermaßen über eine Sache im Bilde ist. Dies habe ich im Original kontrastiert mit „to be in the same book“ wörtl. im selben Buch sein. Im Grunde ist es eben kaum möglich, dass bei Big History alle auf derselben Seite sind, jedoch sehr wohl nötig, dass alle im selben Buch, eben Big History, sind.

# THE “EMERGENT UNIVERSE ORATORIO” SOARS

Steven Gorosh

A highlight of the recent Big History Conference in Villanova, PA was a performance of the “Emergent Universe Oratorio” on July 28, 2018. Composer Sam Guarnaccia’s innovative and inspiring composition, ably performed by the Main Line Symphony Orchestra and Choir conducted by Don Liuzzi, and delivered in the beautiful St. Thomas of Villanova Church, combined to provide a memorable evening!

## A PERSPECTIVE

All societies, ancient through contemporary, have a defining “Origin Story” — a set of basic assumptions regarding when and where they came from, and their role on this planet.

One of Big History’s most exciting contributions is that it provides a modern “Origin Story” which for the first time applies equally to include all of Earth’s inhabitants. At the recent Big History Conference in Villanova, as in past conferences, there were numerous references to the power of this potential unifying principle.

For almost the entirety of the time since we appeared some 250,000 years ago, our species hunted and gathered in nomadic bands of a few dozen people. Not surprisingly, the Origin Stories of these self-contained nomadic bands, with limited and not always friendly interactions with other local bands, feature “band-centered” myths. The stories often explained that their band were the first, “real” humans created on earth, and detailing their place in the local natural environment so central to their lives.

With the appearance of agriculture some 10,000 years ago, as emphasized by Big History, the human condition began to change dramatically. Crops demanded year-long attention and allowed for surplus food that could be stored. Clans settled down in the first villages, began having bigger families, and an increased food supply supporting growing populations. Over the past 10,000 years, as

farming spread, villages increased into small towns and cities, and the first great “Civilizations” came about, with great cities, writing, and empires. Not surprisingly, the Origin Stories for these growing towns and cities and empires grew and changed accordingly. Large groups of previously unaffiliated clans and peoples were bound together in huge new political affiliations under a single ruler, and these states, with the support of new priestly classes, developed new Origin Stories to explain why. The new stories explained how a king or pharaoh was placed on the throne by a Heavenly Creator to govern the realm, providing inhabitants with a justification for the new political structure, and a powerful reason to offer their allegiance.

Big History highlights how conditions began to change dramatically with the exploitation of fossil fuels driving the Industrial Revolution and the more recent information revolution, with new technologies that enabled us to increase our population from around one billion to more than seven



billion people in just the last two hundred years. We live at a time in which the recent technological and information revolutions have transformed our planet and our societies so radically that in many respects a villager or serf in 14th Century France or China would be as out of place today in Paris or Beijing as an ancient hunter/gatherer would have been in the 14th Century.

Unfortunately, our origin stories have not kept pace with our changing societies. Today’s origin stories still essentially feature the stories introduced hundreds or thousands of years ago, with only minor differences to allow for our allegiance to our current nation-states in place of vanished pharaohs and emperors. The stories still orient us to look at different nations and religions as the “other” - mysterious and different at best, threatening at worst. At a time when environmental catastrophes and the increasing availability of weapons of mass destruction threaten our very existence, the “Big Lens” of Big History reveals that the similarities of our common origins, physiology and humanity dwarf our contingent, national and ideological differences. We are intent on presenting our new origin story to the world.

Thus, a fundamental question for followers of Big History (and the many allied efforts that go by different names) becomes how can we best communicate this unifying message out to the world? As an organization founded on the scholarship of academics, it is no surprise and entirely appropriate that Big History has been communicated primarily through somewhat traditional academic forms. We began with a series of books, stunning in their message, but conventional in their form, and have continued, with classroom initiatives. These include the development of college courses in Big History increasingly scattered across the globe, and the Bill Gates supported Big History content and courses now used by more than 3,000 high schools around the world.

Wow! An incredible trail has been ably blazed by the founders of Big History and other early-adopters.

However, it goes without saying that the number of people reached by Big History via books and courses, to-date and even in the next decade, is still a proverbial “drop in the bucket.” If, as we say in Big History, ‘the world will have to make critical choices over the next 50 years in order to survive’, it is incumbent on all of us attracted to an evidence-based story stressing our common humanity and relatedness to the environment, to carry the message into new areas. We must endeavor to do so in a comprehensive approach that ensures that the positive lessons of Big History enter our respective cultural and political dialog quickly enough to make a difference.

It is with these thoughts that I attended my fourth Big History Conference at Villanova, and once again, in no small part due to the Emergent Universe Oratorio, I again came away inspired!

The Oratorio provides a welcome new medium which can only enhance the more conventional Big History books and documents drafted to date. Music reaches billions of people who do not read non-fiction. Until a few decades ago, literacy was growing world-wide and the primacy of the written word seemed unassailable. Today, (as we are told constantly) we spend increasing time surfing on our phones and computers, and numerous studies confirm a decreasing attention span

to read more than a few pages. Many Big Historians are already involved in presenting the Big History story in new video and audio media with the pictorial and audio components on which increasing numbers of the world’s citizens rely for information.

In addition, music complements the Big History books and content by triggering our emotions in a unique and powerful fashion. Thomas Berry described music as “a primary vehicle for generating emotional experience, a change of consciousness that opens us to new understanding.” Berry’s quote was one of Mr. Guarnaccia’s specific inspirations to compose the oratorio. Music’s unique capabilities were clearly demonstrated in the recent Emergent Universe Oratorio concert, which appeared to move and inspire almost all the audience in a way that even our best books cannot duplicate.

And for Mr. Guarnaccia to pull it all off was no simple accomplishment!

#### THE EMERGENT UNIVERSE ORATORIO

Art linked to an any educational purpose often becomes forgettably pedantic, as the “message” overwhelms the art. How can a composer communicate a message as complex and unfamiliar as Big History without falling into that all-to-common trap?

Mr. Guarnaccia was moved by 9/11 to become involved in organizing a Peace Summit in Burlington, VT. Soon after, inspired by the “[Earth Charter](#)”, he and his wife came to embrace a fuller understanding of peace as “the wholeness created by right relationship with oneself, other persons, other cultures, Earth, and the greater whole of which we are part.” They realized “the Earth should always be the focus” of their efforts and looked to find their “place” in “the unfolding matrix described by philosophers such as Pierre Teilhard de Chardin and Thomas Berry. He was further inspired by [environmentalist Bill McKibben who asked him](#) “In these unprecedented times, where is the artistic and cultural response for the crisis? Where are the . . . operas?”

As he considered what to compose, Mr. Guarnaccia decided that “the only thing that can shift and transform 10,000 years of catastrophic and violent exploitation of each other and Earth by our species, would be a new story, an expanded concept of who, where, and what we are.” He decided to mirror and support the “Big History” in the film, “*Journey of the Universe*” by Brian Swimme and Mary Ellen Tucker, a film presented by them to a previous Big History Conference. When Mr. Guarnaccia later decided that the universe is all about “emergence,” - the appearance of totally new dynamics or structures and new levels of complexity,” - he had found his theme.

For the structure of the composition, Mr. Guarnaccia turned to Oratorio. Since the 18th Century, Oratorio has been an important vehicle for telling stories set to music, without the action characteristic of opera. Introduced for telling spiritual stories in music, Oratorios became a favorite vehicle for George Fredrick Handel, whose great “*Messiah*” Oratorio of 1741, became one of the most beloved works in Western classical music. Inspired by Handel, Frans Joseph Hayden used Oratorio for his 1798 Origin Story entitled “*Creation*” and, as noted by Mr. Guarnaccia, at

least ten oratorios inspired by creation stories and environmental issues have been composed in our 21st Century.

Oratorios commonly use a spoken or sung “recitative” which advances the story line, followed by an operatic “aria,” designed for emphasis. Mr. Guarnaccia inventively drafted a libretto featuring a number of recitatives, read dramatically by a very capable “Orator”, all drafted in a poetic prose account of the various thresholds of Big History. These recitatives were each followed by a number of choral pieces based on beautiful poems by Rainer Maria Rilke, Gerard Manley Hopkins, and William Blake. As described by Mr. Guarnaccia, the purpose of his libretto “is to implant a new creation story in human consciousness”, one which replaces the current concept of “dominion” over nature with an “ecstatic environmentalism,” which “enlists the heart” in a new message that we are “embedded” within “the biosphere and the journey of the universe.” The libretto provides a creative version of the Journey of the Universe narrative, emphasizing the beauty and interconnectedness of the Universe and its various parts, an emphasis beginning to emerge in the Big History approach to telling the Cosmic story.” The narrative is seamlessly integrated with the poems which provide complementary messages set to beautiful music.

The beauty of Mr. Guarnaccia’s music cannot be overstated. The oratorio could not tell a fresh tale by simply mimicking the familiar sounds that Handel and Hayden used so convincingly over two hundred years ago. But the use of contemporary music also presented obstacles. The score does not heavily rely on atonal and non-lyrical music, which continues to be somewhat inaccessible to many modern audiences. At times the alternately ethereal, dissonant and grand music of the score seemed to recall the familiar sounds of space and science fiction soundtracks near and dear to our ears, but it consistently took a new direction that increased the integrity of the piece. Mr. Guarnaccia seemed to find a reflective and satisfying middle ground between these challenges, keeping our interest with a varying palette of new and old. Mr. Guarnaccia, whose background is in classical guitar and flamenco music, cites his important decision to decrease his reliance on familiar “dominant” chords by utilizing less familiar “Phrygian” chords, a prominent musical influence during his years in Spain and exposure to flamenco. Some describe the Phrygian, which does not feature the full sense of resolution achieved by use of dominant chords, as sinister or arabesque. I found it inviting in a new and mysterious sense, especially useful for the rich music underlying the recitatives spoken by the Orator. It also allowed for a contrast, so when Mr. Guarnaccia employed dominant chords to lift up some of the choruses in the poem-arias, the effects magnified the beauty of the music, which reminded me fondly of some of Haydn and Handel’s finest passages.

#### CONCLUSION

Although there are some ongoing debates about the proper subject areas for Big History, especially with regard to spirituality and wonder, Big History can also be seen as a “platform” for which others can, and should, add their own perspectives. The platform can be further expanded by the use of various media, to provide options in books, articles, music and video for all. Only by utilizing a variety of perspectives and media which maximize our ability to communicate complementary visions of our unifying principles can we expect to make the difference we all

seek. Mr. Guarnaccia found Big History through his interest in the writings of spiritually inclined thinkers such as Teilhard de Chardin and Brian Swimme, and in his environmental interests, in both books and film.

I can only thank Mr. Guarnaccia and congratulate him for finding a way to use his musical talents to retell the Big History story in manner inspiring to Big Historians and potential newcomers to Big History. I, for one, eagerly await new books, music and movies to spread our important message, especially any as thoughtful and satisfying as the Emergent Universe Oratorio.

Recordings of the entire Oratorio, as well as each individual piece along with the text of the libretto, are available [here](#).

Steven Gorosh grew up in the Detroit suburbs, and graduated with two honors degrees from the University of Michigan, a B.A. in History and a J.D. from the Law School.

He moved to Washington D.C., where he spent four years with a top law firm, and another four years in the Federal Communications Commission with a high-level role in opening the nation’s communication system to competition and the provision of internet services.

In 1991, Steve moved to San Francisco, CA to become the first in-house attorney at one of the first telecommunications start-ups in the country. In 1996, he was one of five co-founders of NorthPoint Communications, one of the first DSL (Digital Subscriber Line) start-ups in the country. As a founder, an Executive Vice President, General Counsel, and Secretary, Steve played instrumental roles in all aspects of the company, securing ground-breaking regulatory approvals, helping to raise over \$2 Billion dollars, including a successful IPO, overseeing all the company’s real estate, employee, and commercial contracts, and litigation. Steve was a key player in merger and strategic partner negotiations, Board meetings, and led Human Resources in the first two years of the company, when the Company grew from five to more than 1,500 employees.

An avid reader all his life, and a history major in college, Steve was able to retire in 2003 to pursue full-time his life-long interest in reading the books of the finest minds over time and thinking about how life could best be lived and society be improved. He has spent the majority of the past 15 years reading everything from science and social science to philosophy, religion and literature, an interest which led him to discover Big History, which he has followed closely.

He has begun to write a book which aims to explain how some of the thought processes and ideas characteristic of the Hunter/Gatherer and Agricultural eras of our past have produced levels of confusion and crisis in responding to the new conditions of the dawning Anthropocene Era. The book will then identify how key current world-views, which are spiraling into increasing levels of conflict, could be “aligned” for the majority of the world’s inhabitants in a manner that could increase our ability to chart our way through an increasingly interdependent and changing world.

Just over four years ago, Steve and his partner of 37 years, Scott moved to Palm Springs.





David Christian

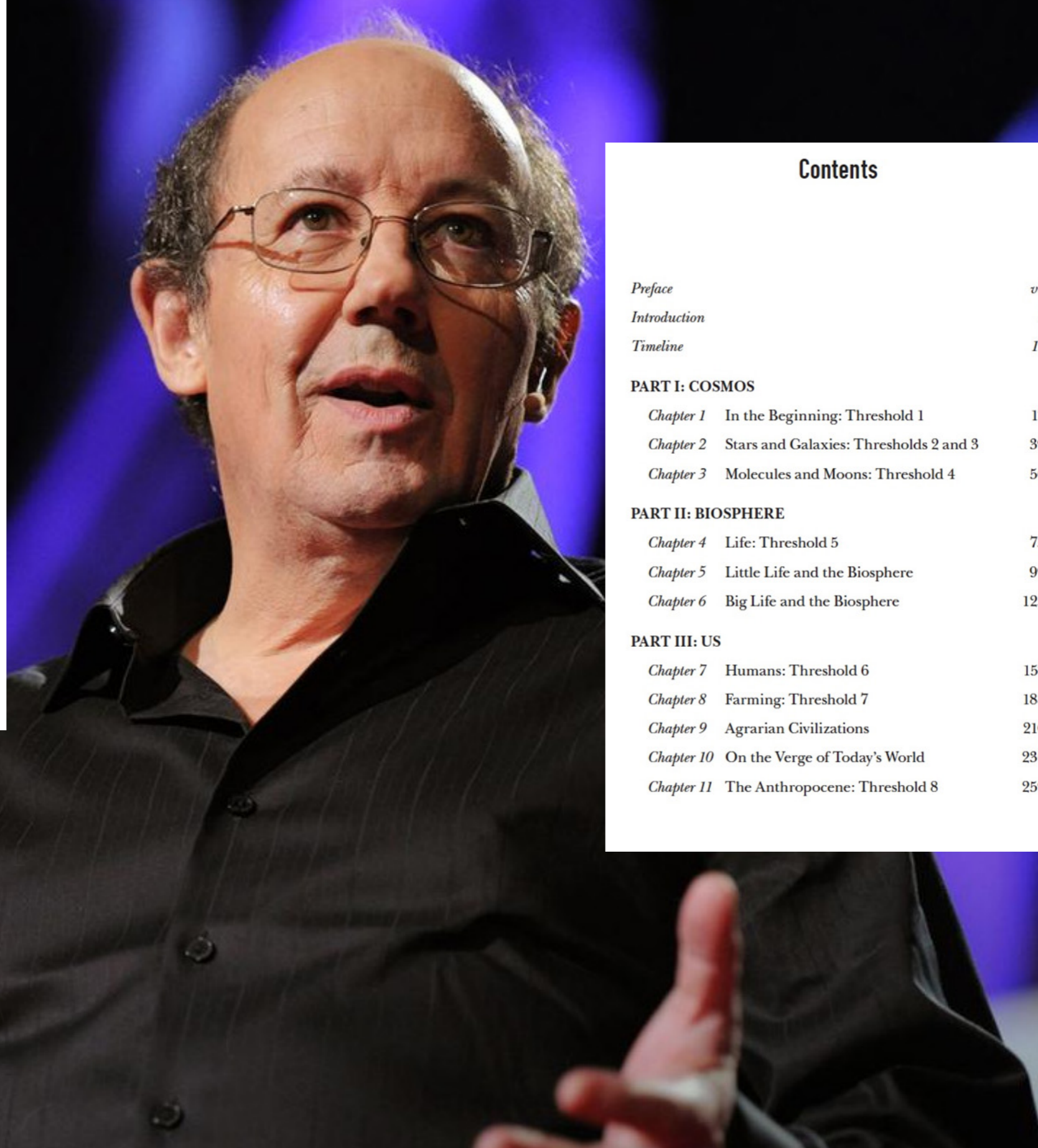
CO-FOUNDER OF THE BIG HISTORY PROJECT

# Origin Story



## A Big History of Everything

From the Big Bang to the first stars, to our solar system, life on Earth, dinosaurs, homo sapiens, agriculture, an ice age, empires, fossil fuels, a Moon landing, and mass globalization. **And what happens next.**



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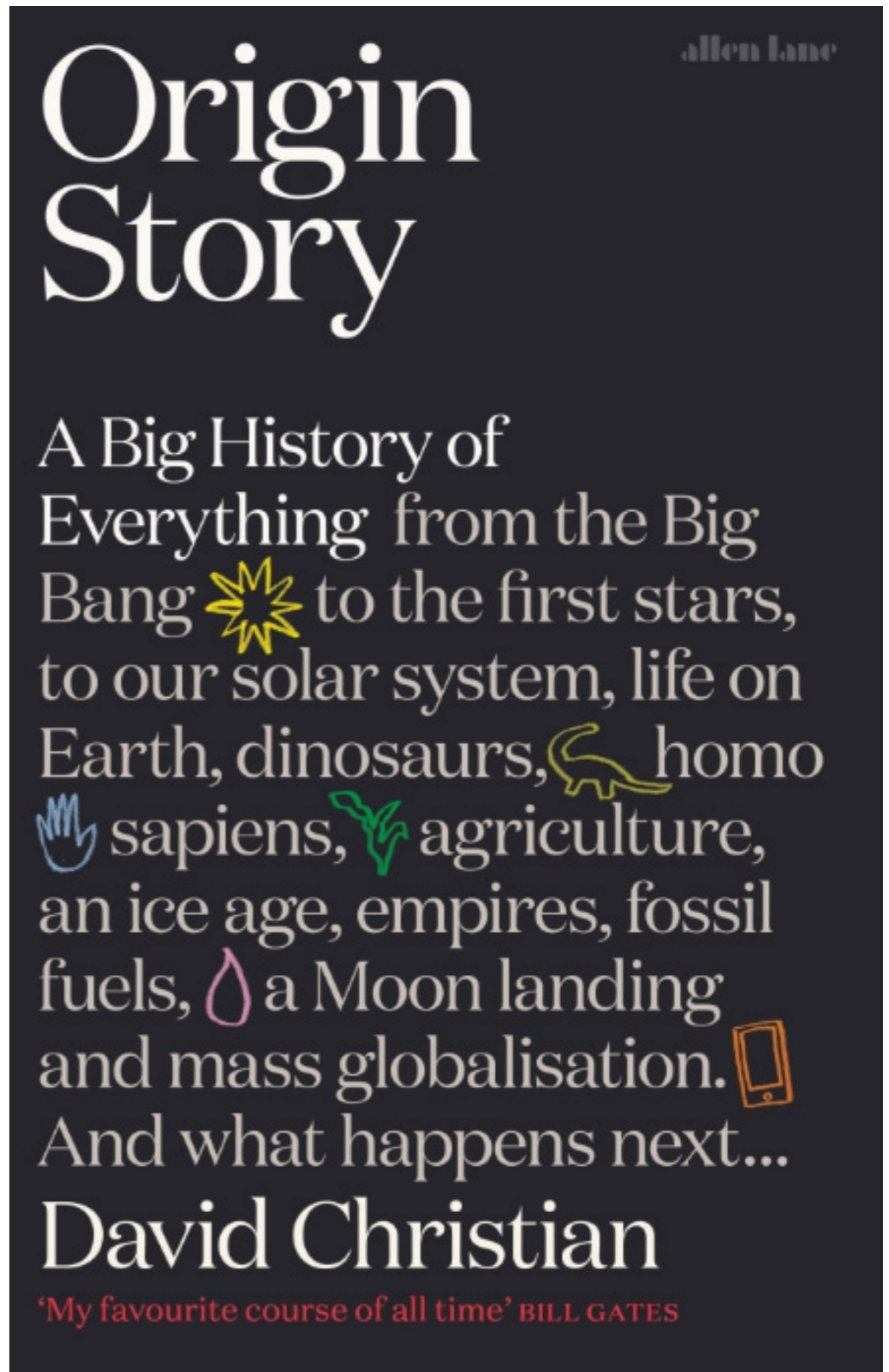
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David Christian is a distinguished professor in history at Macquarie University in Australia and the co-founder, with Bill Gates, of The Big History Project, which has built a free online syllabus on the history of the universe and is taught in schools all over the world. He is also co-creator of Macquarie University Big History School, which provides online courses in big history for primary and high school students. He received his Ph.D. from the University of Oxford. He has delivered keynotes at conferences around the world including at the Davos World Economic Forum, and his TED Talk on the history of the Universe has been viewed over 7 million times.

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WILLIAM GRASSIE

*Applied Big History: A Guide for Entrepreneurs, Investors, and Other Living Things* by William Grassie is now available on Amazon Books. <https://amzn.to/2QLHIGS>

*Applied Big History* is a guidebook to doing good and well in a fast-changing world. With the help of numerous experts, author William Grassie builds a lattice work of diverse disciplines—physics, chemistry, geology, cell biology, energetics, informatics, evolution, anthropology, psychology, economics, and more. Grassie explores the significance of chaos and complexity, and the dynamics of discovery and innovation, in evolution and economics. He does so with a practical eye to how these new sciences can help better understand and better practice economics, business, and finance in the face of uncertainties. *Applied Big History* weaves many specializations together in a useful framework that you can use every day in your work and in your life.

The book includes a foreword by Mitch Julis, co-founder of Canyon Partners, a hedge fund with \$25 billion under management. Julis writes:

*Applied Big History* does macro and micro. It zooms elegantly in and out, between the two throughout this engaging book by applying the general principles of acquired scientific and historical knowledge available to us today. As a result, we learn that value and wealth represent not just the flow and accumulation of money, but also stand for the fundamentals of energy, matter, and ingenuity that flow in and out of the economy and the financial system... Grassie's exposition is careful, concise, informative, and engaging in telling and applying this origin story to the investment world.

Who should read this book? Pretty much everybody. Big History is our common story—an origins story that transcends ethnic, political, religious, and linguistic differences. It provides a framework for understanding, debating, and solving the great challenges of our time. It provides an ennobling perspective on our lives, generating wonder, awe, amazement, and gratitude. The applied part of Big History impacts how we conceive every career and industry, every academic discipline and vocation, every problem and opportunity. Grassie's book is unique in the field for exploring Big History as to its relevance to decision-making in business and finance.

William Grassie received his doctorate in religion from Temple University and his bachelor degree in political science from Middlebury College. Grassie's books include *The New Sciences of Religion: Exploring Spirituality from the Outside In and Bottom Up*; *Politics by Other Means: Science and Religion in the Twenty-First Century*; and *Transhumanism and Its Critics* (edited).

*Applied Big History* is available in paperback for \$12.99 and Kindle for \$4.99. <https://amzn.to/2QLHIGSkx>.

[For more information](#), interviews, and speaking engagements, contact [xgrassie \[at\] metanexus \[dot\] net](mailto:xgrassie@metanexus.net)

# Changing the World: Community, Engagement and Big History

Fifth International IBHA Conference, June 2020

Symbiosis International University

Pune, Maharashtra, India



The IBHA's fifth international conference will be held in early June 2020 at Symbiosis International University, India's largest private institution of higher learning: <<https://www.siu.edu.in/>>.

The conference will be co-sponsored with the Symbiosis School for Liberal Arts, <<https://www.ssla.edu.in/>>, one of the many innovative institutes in the Symbiosis federation. SSLA was the first university liberal arts school in India and is home to the India Association for Big History <<https://www.ssla.edu.in/researchcell>>.

The conference title and theme is: Changing the World: Community, Engagement and Big History. The IBHA has held conferences on meaning, teaching and research, so we now address community and change - how is big history useful in its applications. This was a member request from the 2018 IBHA conference.

Appropriately, the university motto is वसुधैव कुटुम्बकम् (Vasudhaiva Kutumbakam - The World is One Family), which comes from the Maha Upanishad. In the latest *Big History Journal* (III 1) is an article by SSLA graduate, Isha Mathur, that is an example of how big history is an activist model for improving our world.

We look forward to seeing you at the 2020 IBHA conference in Maharashtra!

Warm wishes, - Barry  
Dr. Barry H. Rodrigue, PhD  
Convener / Organizer of 2020 IBHA  
Congress  
Professor, Anthropology  
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# Big History Meets the Montessori Method

Lucy Laffitte  
Vice-President, IBHA

Reprinted from the North American Montessori  
Teachers Association Fall 2018 Journal.

From April 20<sup>th</sup> through the 22<sup>nd</sup>, NAMTA hosted a conference in Cleveland, Ohio called **Montessori History: Searching for Evolutionary Scientific Truth**. Midway through the conference was a presentation called *Big History*. It proved to be a fruitful event as much post-presentation interaction between audience and presenter ensued. Here, then, is a distillation of what was presented: What is it; who is involved; where is it taught; how to get involved; and what my college students think about it.

**What is it?** Big History is everything we see in the night sky. It's the greatest show on earth. It's our past and our future. Every human that has ever lived has pondered it. It is in us and we are in it. Big History is science. It's based upon empirical evidence, wrested from the universe by huge telescopes, particle accelerators, satellites, and the Manhattan project that cracked open the atom. The theory of radioactive decay gives us the ability to locate events on a real timeline—the age of the Earth, the age of the great oxygenation event, the age of rocks, the first animal, the meteor, primates, and fire stick farming. It is also history, based upon material culture artefacts and written records. Big History is world history, social history, African, Chinese, Indian, Persian, and Mesoamerican histories. It is women's history, queer history, and postmodern history. Big History is also a narrative, with a beginning, middle, and end. As a grand narrative rich with metaphors, it encodes the wisdom of our species. As an origin story, Big History generates purpose and meaning for humanity.

Examples of such lessons include the that the universe is unfolding, and that humanity is as much a part of the story as super novae and baby elephants. We learn stars have a life span, blinking on, aging, and dying, enriching the universe in death. Big History reveals an Earth so biophilic that it would be a miracle if life had not developed, which underscores our yearning to search for other intelligent

life. Big History replaces the selfish gene with a cooperative ontology among and between species. Big History allows us to see ourselves as a life form that has been able to erase the boundaries of our niche, allowing us to expand across the globe.

And Big History tells us that the Anthropocene has arrived.

**Transdisciplinarity.** As an emergent discipline that fuses everything from the Big Bang to the future into a single academic field, Big History does not fit neatly into the siloed boundaries of academia. Because it transcends all the siloes, however, it allows us to glimpse a bird's eye view of the way the disciplines are nested within each other.

Thinking like a Montessorian, imagine trying to order a set of twelve nested boxes containing the evidence for all of the disciplines. How would you order them? Big Historians would arrange them in the direction of increasing complexity and by scale from largest to smallest. Let's conduct this thought experiment.

In the biggest box, we would place the oldest, largest, and most widespread evidence that exists in the universe. As far as we know today, this box would hold the Big Bang. The first hundred thousand years of the universe is opaque to our senses. But we have hypothesized the existence of the Plank Era, cosmic inflation, and a fluid exchange between energy and matter. Which of the disciplines can comprehend such abstract ephemera? The one that lives solely in our imagination, communicated through the language of logic. We need mathematics as a way of knowing to understand earliest years of the universe.

In the second largest box, we would place the evidence that flashed through

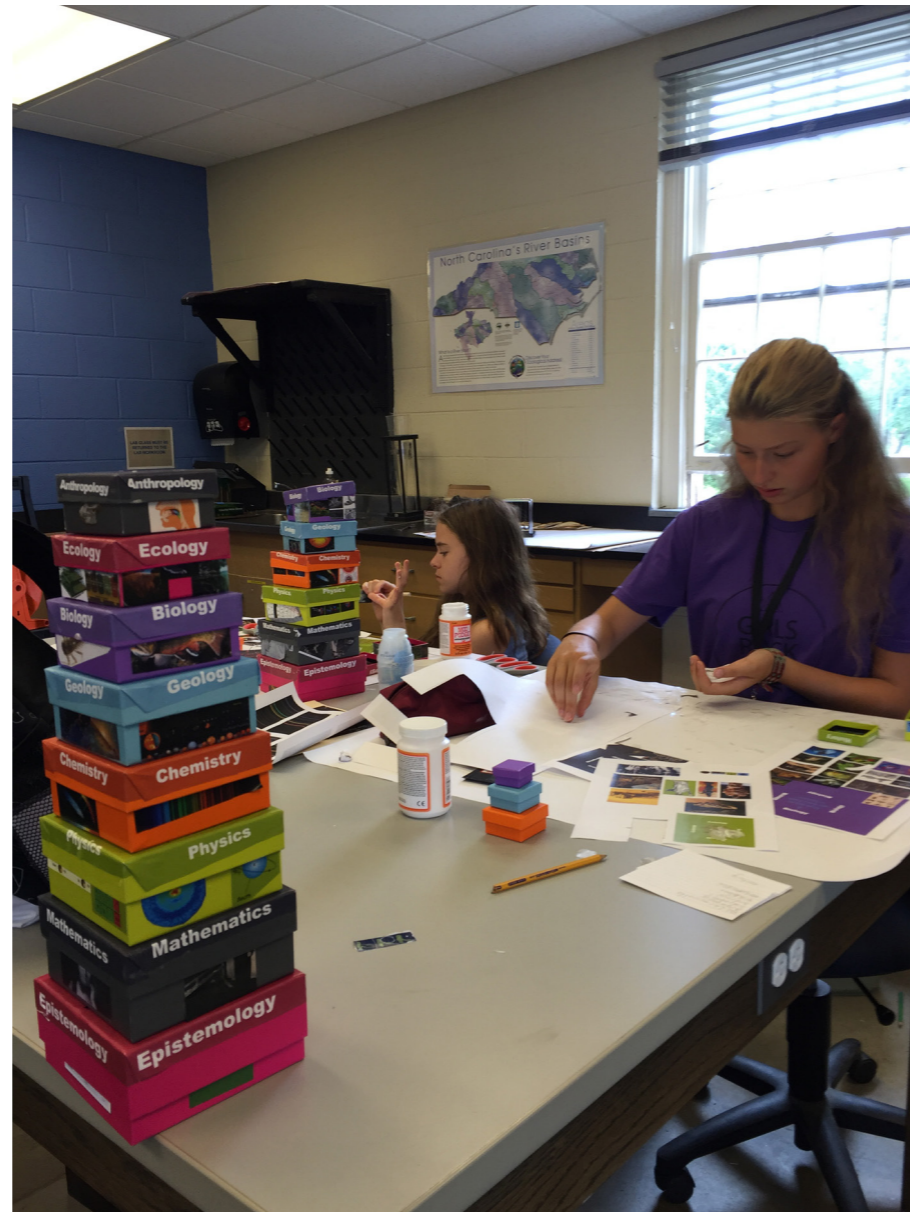
the universe 380,000 years after the Big Bang—the ubiquitous hum of microwave background radiation, detectable from every direction of the universe. Which of the disciplines can penetrate the information in the electromagnetic spectrum? We

use physics to measure temperatures, brightness, and motion encoded in the wavelengths of the spectra. And physicists tell us about star types, stellar evolution, galaxy structure, and super clusters of galaxies like Laniakea.<sup>1</sup>

In the third box, we would place all the elements from simple hydrogen and stable helium to hungry oxygen to heavy lead. We would also collect the long chains of simple space molecules ranging in size from two to seventy atoms. Which of the disciplines can penetrate the structure of the elements and simple molecules and the rules that regulate them? We use chemistry as a way of knowing about valence, reactivity, bonding, binding energies, and thermodynamics of the matter.

The fourth box would be overflowing with planets and moons, asteroids, and comets—the complex molecular accretions found in solar systems. Planetary science is the discipline that unlocks the reasons for boiling hot planets, planetary rings, molten moons, as well as the nature of the atmospheres, hydrospheres, geospheres, and cryospheres on these other worlds.

The fifth box would be chock-a-block filled with rocks and minerals—chunks of native elements and the complex molecular cookie doughs of silicates, oxides, halides, carbonates, phosphates, and sulfides. Geology would be the discipline to unravel the life histories of these minerals and track them back to their origin in the plate tectonics of a molten planet.



<sup>1</sup> [Laniakea](#), Nature. 2014.

The sixth box would contain the elegantly complex “working molecules” of life—the carbohydrates, the proteins, fats, and nucleic acids, as well as the most multifaceted molecule in the universe: deoxyribose nucleic acid. Molecular biology is the discipline that works inside this box, bringing us insight about how the molecular machines accomplish the work of homeostasis, metabolism, development, and reproduction inside of a cell.

Continuing this thought experiment, we would see boxes filled with increasingly complex artifacts in a variety of laboratories. The seventh box would contain the fossilized tissues of past life would be found in a paleontologist’s lab, where the changing morphologies could be tracked to changes in their environment. The eighth box of biome data would fall to the ecologists to measure and model sustainable complex systems. The ninth box would contain primate bones and be found in anthropology labs where skeletons are analyzed for changes in brain, hand, and thumb size. The tenth box of arrowheads, stone tools, baskets, pottery, and artwork would fall to the archeologists to decode, tracking an increasing mastery over the environment. The eleventh box would contain hieroglyphic-etched stones, goatskin parchments, and papyrus scrolls in addition to illuminated manuscripts, archives, and records which would sit upon the shelf beside miles of books in an historian’s library.

With the specialization of humanity, the history box could be compartmentalized to include boxes for literature, art, music, theater, architecture, technology, languages, philosophies, religions, governance, cultures, and sociology but a big historian would keep those in the history box to emphasize the newness and smallness of the human endeavor in light of its vast and ancient past.

So, what should be placed in the twelfth box in the very center of the nest? Big History would put the evidence of what has come to be called the *Anthropocene* in the box. The Anthropocene is the geologic epoch named “the age of man.” Whether we like it or not, humanity is now in control of managing the biogeochemistry of the planet. It is not easy to sum up the potentialities of such a threshold. The images in Figure 1 were juxtaposed to each other for a reason. Which of the disciplines can help us penetrate the nature of this place on the timeline?

What follows is a description of the Anthropocene by Big Historian David

Christian, from the 2018 book entitled *Origin Story*.

**Who is involved?** The field of Big History was started by the publication of three seminal books. *The Structure of Big History* was published by Professor of Anthropology Fred Spier at University of Amsterdam in 2002. The next year, *Maps of Time* was published by historian Professor of History David Christian at Macquarie University in Sydney, Australia. Four years later, *Big History: from the big Bang to the Present* was published by Professor of Education Cynthia Stokes Brown at Dominican University in San Rafael, California in 2007. In 2010, these three authors were joined by Grand Valley State University’s world historian Craig Benjamin, UC Berkeley University’s planetary scientist Walter Alvarez, University of Southern Maine’s anthropologist Barry Rodrigue, and Villanova University’s political scientist Lowell Gustafson. And so, it was that two historians, two anthropologists, a political scientist, a planetary scientist and an educator coined the term Big History and launched an academic association to promote it. The International Big History Association (IBHA) publishes a monthly bulletin, an annual journal, and has convened four international conferences for members from 16 countries across 6 continents.<sup>2</sup>

As a professional organization, the IBHA edifies a group of people who are engaged in a wide variety of research. Some of us strive to discern themes that cross all of time: increasing complexity, increasing information, harnessing energy flows, emergence, and punctuated equilibrium.<sup>3</sup> Others of us look for patterns among these themes to make predictions about the future. We also write Little Big Histories: looking, for instance, at how plankton blooms during the Cretaceous helped Obama win the 2008 election.<sup>4</sup> We look at the narrative through different lenses—by asking how Big History informs a variety of disciplines as diverse as economics, or English, or engineering. We recognize thinkers who think the same synthetic way, like Teilhard de Chardin, Thomas Berry, David Attenborough, Carl Sagan, Lynn Margulis, Rachel Carson, Eric Chaisson, Walter Alvarez, Fritjof Capra, and Peter Turchin. And we can ask questions about the Anthropocene—the geological

2 (The 2020 conference will be held in India and the IBHA would love to have Montessorians present on Maria’s formative years for Cosmic Education in India.)

3 [https://bighistory.org/Origins/Origins\\_II\\_02.pdf](https://bighistory.org/Origins/Origins_II_02.pdf)

4 <https://www.npr.org/sections/krulwich/2012/10/02/162163801/obama-s-secret-weapon-in-the-south-small-dead-but-still-kickin>



period during which human activity is the dominant influence on climate and the environment. Is it rare for a dominant life form to change the biogeochemistry of the planet? Are all dominant life forms destined to change the climate of their planet? Is it possible for a dominant life form to change a fundamental nature of its behavior? Considering questions like these is uncommon outside of the field of future studies and science fiction, and yet they are vital if we are to adapt to a changing planet.<sup>5</sup>

**Are there resources for teaching?** There is a free, online curriculum for high school, middle school, and home school students. Software mogul Bill Gates is funding it. He was introduced to David Christian's Big History course in a televised Great Course while pedaling his exercise bike every morning. "I think this is the best course ever" he says about this substantial and constantly improving course website: *The Big History Project*. The course is divided into 9 chapters. Each chapter has videos, worksheets, and activities beautifully designed and well tested. The Big History Project also a vibrant teacher community that talks to each other every day. The course materials are continually updated with new scientific findings as well as ways to tweak and improve the pedagogy in the materials provided. The *Big History Project* course has been laid out for all teaching modalities: 5 days a week for a year, 3 days a week for a semester, a science course version, a social studies version, and a world history version. Gates has even paid for a free grading service for the substantial papers. He is collecting the data on the improvement in public versus private schools, in free and reduced lunch schools, and elite prep schools. The hidden agenda for the course is the improvement of reading, writing, and critical thinking. Clearly this is an echo of Montessori's Cosmic Education.

There are a handful of universities and colleges that teach courses in Big History. Macquarie University in Sydney, Australia hosts the Big History Institute and has two faculty in the history department teaching and researching Big History. They

<sup>5</sup> (see *Microcosmos: Four Billion Years of Microbial Evolution*, Chapter 6 The Oxygen Holocaust by Lynn Margulis); also (see *How Do Aliens Solve Climate Change?*)

are about to cut the ribbon on the Big History School, with free online materials for primary and secondary schools. Dominican University in San Rafael, California uses Big History as a first-year experience for *all* freshmen. Similar institutes exist in Japan, Korea, Russia, and India. The content of Big History is taught in a score of universities in the U.S. in a variety of disciplines: geography, anthropology, history, literature, design, and sustainability.

I have been teaching Big History to art college students, homeschool families, and middle school summer camps since 2012. I will be teaching it for the fourth time at NC State University in Spring 2019 through the history department, but it is only available to honors students. One of the most powerful parts of my early years of teaching it was when, organically and without prodding, a hunger for discussing the future erupted in the class. Teaching Big History demands teaching about the future. It is quite telling that the only course at this Research I University with the word "future" in the title is about commodity futures market. I now reserve time at the end of the course to teach the future, using the term Anthropocene to frame the discussion. At the end of the semester, I ask the students to reflect on the benefits and costs of the course. I would like to share some of the quotes:

- It allows you to see things invisible to the lens of any single discipline.
- It makes it easier to incorporate discoveries in various fields into one's idea of the world because there is already background knowledge and is easier to make relevant connections.
- It streamlines the process of the exchange and mating of ideas across disciplinary fields, not possible from a singular disciplinary view.
- In order for an individual to recognize fully the importance of each and every component in our universe, you must acknowledge all of the energy and matter processed to create that component.
- It is wholesome for an intellectual society to construct a timeline that respectfully outlines the amount of construction put into the engenderment of literally everything.
- Learning about the innovation and discovery of our current knowledge is important for generating future knowledge.
- Considering a larger perspective demonstrates that the facts and effects about a specific subject are actually beautiful.
- Many fundamental discoveries have come from combining concepts.



- Every calculus integral, or computer circuit, or English paper that I write carries a different weight when you truly understand the greater context it fits into. At first, it may seem like studying the entire universe makes all these little assignments seem trivial, but I have noticed the exact opposite effect: I experience a powerful sense of purpose and gratefulness that makes the little things seem more meaningful.

Echoing among these statements is appreciation of both the grandeur of the world and firm understanding of the context for the human endeavor. We are not alien to the universe. We are a part of it and we have great work to accomplish.



*Maria Montessori 1913, Rome with children*

# Do Humans Have a Purpose on Earth?

*James Tierney MSW  
Brunswick, ME*



Certainly not one most of us would agree on. On the other hand, most of us wouldn't even agree on how we want our leaders to treat us. A decade ago I would have said no to the question of a purpose for humanity. During the last decade, however, numerous scholars have observed that human culture drives a process through which our species is emerging as well as the habitat wherein we reside. Kevin Laland, Joseph Henrich, and Michael Tomasello call the process cumulative culture, Edward Wilson calls it eusociality and David Christian calls it collective learning. In his book "Origin Story", David goes on to suggest that there have been eight thresholds through which a process has guided history from a beginning, 13 billion years ago, to where we are today. He calls this Big History and I have had the good fortune to study it since I discovered it at the University of Southern Maine Lewiston Auburn campus while I was looking for some purpose to the work I had done for many years prior to retirement. I like Big History because it gives me a context for history that I was not able to find in academia. I was never happy with the series of males blowing their own horn about this or that accomplishment when I was recently retired from a career in Child Welfare where I knew we were flailing around doing the best we could without having a clear idea about what we hoped to accomplish-our PURPOSE. All of the above would agree that human culture has been the major driver of this process for a million years or more, that the process is accelerating and is becoming increasingly more complex. Clearly it is our capacity to transfer culture, i.e. what we learn, to the next generation that gives us a different place in the continuum from any other life form on Earth. Many other animals pass their learning on, but none quite like we do. Should we not call that purpose? Once we learned how to ignite and control fire, we not only expanded our range into winter, we, more importantly, took a giant leap toward our culture becoming the dominant culture This gave us the level of confidence needed to feel secure in our nest, which is one of the characteristics of eusociality, an advanced form of sociality that some biologists argue is fundamental to our conquest of Earth. I like to think of that more as a partnership with Earth rather than a conquest but it does seem that Earth cannot maintain the sustainability for life without some help and we appear to be the only species that can take on that job. And, in fact, we have the job by default, like it or not. The rabbits can't do it.

At some point, prior to a million years ago, when genes were the primary driver of who we were becoming as a species, a niche opened for culture to partner with genes and human culture stepped up to the challenge. We don't know exactly how that works and we don't know whether there is some limit to complexity, especially in terms of organizational functionality. The human body and brain are prime examples of how complexity does not limit how complex an organization can be and still be functional. We don't know how complexity impacts change but we are sure that it does. For example child rearing, a fundamental function of who we are becoming, has changed dramatically in the last hundred years and we do not know how that change enables or inhibits our hopes for future

generations. Clearly, we want them to be able to move collective learning forward efficiently and functionally but we don't know how that happens in practice, and we don't know how much time we have to get it right before getting a negative backlash. It seems our body/brain is emerging as a product of genes and memes with genes leading the way while our culture is a product of genes and memes with memes leading the way. I take the prerogative to use the term meme here in the broad sense to mean any structure besides genes that contributes to the growth or change in culture.

Kevin Laland and colleagues have shown how this process of sharing with the future is exponentially dependent on the length of time the behavior remains in the culture. They used dance steps as an example, but it applies to all sorts of cultural structures, some simple and some extremely complex, some critical and some incidental.

Culture is a product of all of us. We drive the process of change as a result of what we do together not what we do as individuals. Unfortunately most of how we measure what we accomplish through culture is measured in individuals. That's what grading is about in academia and cost is about in Capitalism. It doesn't tell us anything about the eventual impact on the culture. Aside from the work that Laland and a few others have done to measure the gestalt, we have no easy way to even define the outcomes of cultural change never mind the quality of those changes.

Fortunately, it is accepted that we are a single family. We no longer have numerous ethnic groups or even interest groups insisting that their view of the world is the only correct view. There is a single human culture driving the process of change. Unfortunately, or maybe fortunately, the process of change is slow, especially when some groups feel they are more deserving than others. With seven billions of us on the planet it is a wonder that we can manage cultural change as well as we do. I am impressed with how well some cultural structures limp along with what appear to be enormous structural flaws yet still perform their function and get the job done. Child welfare is such a structure.

At times I wonder if structural flaws are simply too overwhelming for human culture in partnership with Mother Nature to guide human life, and thereby all life, forward. It certainly is a reasonable question to ask as did Enrico Fermi back in the 1950's. He courageously shared with his colleagues the observation that life is abundant on earth and therefore probably elsewhere in the universe. Parts of the universe are much older than our solar system, so one would think advanced cultures exist all over the place. But where are they, he asked? Maybe Mother Nature hasn't yet figured out how sociality can become advanced for the bigger creatures of the biosphere. After all, it took Her millions of years to figure it out for the ants and the wasps and there are only 19 species of mammals that meet the criteria of the classification eusociality, so She may still have some options in mind.

Social behaviors build the culture that drives the change we see around us. As Laland, Magnus Enquist and Hannah Lewis illustrate in, “Darwin's Unfinished Symphony”, this change increments biological fitness when done efficiently and creates the ratcheting or cumulative culture that Tomasello suggests enables our capacity to transmit knowledge with a higher fidelity than observed in other animals. In other words, humans as a group drive the change out of which we are emerging as a species, and it appears that we are the only species able to do this efficiently

enough to determine what we will become as a species and what habitat we will need to sustain us. It would seem that it would be in our best interest to get it right. And in order to get it right, we, at the very least, have to define “right” and then clarify what kind of behaviors move us in that direction and which do not. This is a complicated process and we are only beginning to know how it works. It seems to me that this provides humanity with an enormous opportunity or maybe it should be seen as a responsibility.

There are lots of examples of cultural structures which seem to nudge culture in a positive direction. My favorite is the internal combustion engine. It is simple yet precise in its functioning and nearly anyone can use it to do all kinds of work. It integrates the characteristics of just four components: fuel, spark, compression and air and it is the precision of the mix which enables the work to be done. It is also easily copied and the fidelity of the copy is immediately evident. There is no one standing in line with a suitable alternative. So, structures that move humans toward where we would like to be as social beings and what we would prefer as our habitat should probably be simple and functional. In addition they should be easy to copy and thereby passed to next generations. In a world that is so committed to competition it is difficult to appreciate the kind of things that are in the best interest of all but I would put the internal combustion engine at the top of the list entitled BENEFITS. At the same time it is important to note that burning fossil fuels is a bad idea, so it also needs to be near the top of the list entitled ALTERNATIVE NECESSARY.

Health care financing is an example of a cultural structure that seems to nudge culture in a negative direction therefore I would put it near the top of a list entitled DEFICITS. However, I would also put it near the top of a list entitled FIXABLE.

Child welfare is an example of a cultural structure where we simply don't know whether it is going in the right direction or not. This is primarily because there is no agreement among folks as to what we want it to do. It is like a company making broom handles where the board of directors does not agree as to what a broom handle is. We do, however, know child rearing is critical to the essence of the process by which culture drives change, and therefore would also go near the top of a list entitled CRITICAL. We would also have to add early education to that list.

The Federalist Papers are an example of how challenging it can be for mortal beings to grapple with cultural structures that need to accommodate the varying wishes of people competing with each other for resources through commerce, and for security through community. They were written soon after the Revolutionary War and addressed to the people of New York. They argued for a single union with a single constitution rather than a confederacy of sovereign states. The authors seem to me to have risen above their own personal needs to speak to the needs of the broader good. It is the most comprehensive articulation of the objects of government I know of and an excellent historical record of how well different approaches to governing have worked. Although we all have issues with government as it exists today, we owe a debt to Hamilton, Jay and Madison for being able to give the citizens of our country at the time an outline to guide an experiment that all thinking people knew was incredibly important but difficult to achieve. They led the way and, in spite of some limits, showed us a way to proceed when many had given up on self-government. Should we wish to be proactive in managing the change being driven by growth in human culture, we will need individuals and small groups to step up on

numerous cultural fronts to articulate the broad picture needed to nudge culture in the right direction now. The Federalist Papers represent a category of cultural structures that might best be a sub category of CRITICAL entitled MAX-COMPLEXITY. Not to say that the other categories are not complex because as culture ratchets forward, each step is more complex than the previous. The CULTURALISTS will, however, have no models to guide them as did Hamilton, Jay and Madison. No one has guessed that this responsibility would fall to us. So the Culturalists will have to be more curious and more comprehensive in their observations. First, however, they will have to be encouraged to see this new role we have with our nest mates and accept the challenge just like the original stinging wasps found in eusociality. Above are a few examples of categories of cultural change that should be seen only as examples. The point is that human culture is defining our species and our habitat and we can either let that happen by chance or try to guide it by design. A first step might be creating categories to organize the work.

So, the purpose of humanity, like it or not, is to build the culture that drives the change out of which we are emerging as a species. In the process, it drives the change out of which our habitat is emerging as well. This is not a purpose we have chosen, we have it by default. Or possibly some other entity has chosen it for us. Maybe a God wants life to persist and has been grooming our species to do what has to be done to see that that happens. Maybe the universe itself is an entity and understands that it needs some help in perpetuating its existence and has been grooming life to play a part that it is unable to perform. Sort of like the bacteria in our gut that we now know ensures our continuation as a species. Maybe Mother Nature has known for billions of years that her work of Creation is a lot more complicated than she had intended and this entity she calls Life can't do what she had hoped unless she can get it to collaborate in the interest of its own survival. Whatever the reality, we cannot know if other such entities exist. All we can know is that humans have a critical role in the process and that role has emerged relatively recently and is different than the role that any other life form can perform. It is also different than the roles we have traditionally taken on. When we invented a digging tool to supplement our diets with roots, we had no idea and no reason to believe that one day we would have to invent and integrate all social behaviors in order to supplement our continuation.

Should we now acknowledge this new role, we have a choice to make. We either stumble ahead as we have stumbled before or we rethink how we wish to impact the future. Undoubtedly we will have a substantial impact especially on habitat. The degree to which we can manage that impact is unknown but with human culture as the driver of the process one would think the opportunity I mention above is substantial, but clearly it is now. We can't put our role on the back burner and expect the future to take care of itself.

What would it take for humanity to step up and choose to participate rather than just accept our role by default? On the one hand it wouldn't take much because to do nothing will have greater and greater consequences. On the other hand it would require a monumental change in our thinking.

Prior to 20,000 years ago we lived in a sharing environment. Everyone benefited from both individual behaviors and social behaviors. For example, if someone discovered a warm spring near a comfortable cave everyone in the group would enjoy the benefits. This was the case for thousands of generations. We don't know exactly when we began behaving essentially as we do

now in terms of language and symbols but it was likely 100,000 years ago and during 80,000 of those years we lived in small groups, a hundred at most, and every group member shared the benefits and behaved more or less like every other group member. Male dominance did not prevail which suggests females were seen with some status or even honor. Children were probably seen as miracles and those that survived beyond eight became the fonts of wisdom. The ones that would ratchet culture forward. The key difference between then and now in terms of social behaviors is that each member of the community was valued equally and shared equally the available resources. Maybe some got a better cut of meat or a ripe plum in honor of some quality they had but none would get the whole harvest of the plum tree. This sharing will be the behavior most difficult to recreate in our current culture and probably the most necessary to nudge culture forward in a positive direction.

It is not likely that people will all of a sudden see the light and transition to seeing culture as the powerful force that it is. On the other hand, if we begin to talk about it, and think about cultural change as something to be managed for the benefit of all, we might just discover a warm spring and comfortable cave to be eusocial in.

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