Abstract

The output is a creative project co-authored with volcanologist Jill Shipman and funded by SciArt Center. The project was one of four proposals selected by peer review for this international, cross-disciplinary, collaborative residency. Chalmers’ contribution comprises the visual design of the creatures and environments.

Research process

The SciArt Centre provided a virtual space to record and showcase the process and products of the collaboration. The work was facilitated by bi-weekly Skype calls and documented in weekly blog posts. The approach was based on speculative biology, for example by asking how echolocation would work in terrestrial creatures and how can these adaptations be made external to create a more visually interesting creature design while still remaining believable? These were explored through playing with the idea of setting the narrative around planetary exploration and therefore a speculative world and its flora and
fauna will need to be visualised through concept art. Chalmers researched other Creature Designers that have created believable worlds, including Terryl Whitlatch and Brynn Metheney.

**Research insights**

Through testing ways to synthesize volcanic phenomena and creatures it was discovered that there were four approaches for incorporating volcanic features into creature design: volcanic phenomena can be directly applied to a part of the creature's body, volcanic phenomena patterns can be overlaid on the creature creating unexpected forms on the surface, volcanic phenomena can provide inspiration for heat resistant adaptations from real-world animals and, finally, more imaginative and surreal methods can be used to personify the volcanic phenomena.

Research insights were also developed into the cyclical process of collaboration; the art-science interface as a method to stimulate the mind, stir the emotions, and promote action in geoscience stewardship; and the experience of an artistic approach to science communication in order to create immersive and interactive worlds to engage wider audiences.

**Dissemination**

The project was developed through ‘The Bridge’ four-month virtual residency with SciArt Center from September to December 2017 and was disseminated via a peer reviewed conference poster and a blog. A selection of the work produced was exhibited within ‘Creature Design: ex femina’, 29 August – 10 October 2019, at Leeds Arts University.

**Keywords**

SciArt, collaborative, international, cross-disciplinary, virtual residency, Volcanology, Creature Design, Environment Design, science communication, geoscience, storytelling, believability, worldbuilding

**Creators**

- Rosemary Chalmers, Creature Designer
- Jill Shipman, Volcanologist
Selected Work Produced

The Bridge: Experiments in Science and Art (2017)
SciArt Center Collaborative Residency: The Bridge

**SciArt Creature Design formula**
The process used to develop a fantasy creature that was believable and intrinsically inspired by volcanic phenomena.

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Base animal</th>
<th>Influences &amp; inspiration</th>
<th>Real-world reference</th>
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<tbody>
<tr>
<td>Mammoth Hot Springs</td>
<td>Elk</td>
<td>Lava flow feature</td>
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<td>Lava fields texture</td>
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<td>Vulcanoentopus</td>
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<td>Heat adaptations of terrestrial animals</td>
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<td>Camels</td>
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<td>Turkey wattles</td>
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</tbody>
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Rosemary Chalmers // Jill Shipman
https://www.sciartcenter.org/group-1-rosemary-jill
Valley of Ten Thousand Smokes -- fantasy re-imagining -- thumbnail development

Figure 1

Figure 2

Figure 3

Rosemary Chalmers
Minerva Terraces -- fantasy re-imagining -- thumbnail development

Figure 1

Figure 2

Figure 3

Rosemary Chalmers
The cyclical process of our collaboration...

Jill - iterations inspired by drawings
Jill - storytelling
Jill - volcanic phenomena
Rose - animal adaptations
Rose - creature development
Rose - creature design
Rose - iterations inspired by writing

Methods of synthesising volcanic phenomena and creature designs.

- Control application to create distinct forms.
- Personification of volcanic phenomena to create a mythological creature.
- Real-world heat-resistant animal adaptations applied in new ways.
- Applied as an overlay to create skin textures.

For example, Traverline applied as bodily growths.
For example, lava flow formations transformed into antlers.

For example, filamentous bacteria from Teal Crabs transplanted onto Sandhill Crane’s beaks.
For example, stromatolite patterns overlayed to form skin folds.
Collaborative Blog

The Bridge (2017), Group 1

Available at: http://www.sciartinitiative.org/group-1-rosemary--jill

Post-residency
1/25/2018  0 Comments

Rosemary

My preconception of working across disciplines on entering the residency was that Science would help legitimise my Art. For example, the creatures that I design would be more believable if they were based on principles of Science. The residency has enlightened me to the fact that this is just one method of Science and Art collaboration.

The route we took was more of an explorative approach. The creatures were less speculative biology and more speculative fiction. We let the narrative play an important role in the development of our project. Jill’s specialism of Volcanology was a starting point and the ‘what if’ creatures explored the possibilities of where Science can take the imagination.

The most valuable aspect of the residency was the fact that there was not a required output. The fact that we could let the project develop organically and not be focused on producing a final product was beneficial because it allowed us to take our time and really discover what it was Jill and I wanted to communicate.

With the luxury of time, this meant that Jill and I developed a process that was cyclical. I have illustrated this feedback loop below. This allowed for us to build on each others’ work in an iterative way producing work that was very novel to me.

Weekly blog posts to facilitate the collaborative process. There were 14 entries plus a post-residency update with concluding remarks.
Conference Poster

American Geophysical Union (AGU) Fall Meeting, Ernest N. Morial Convention Center, New Orleans, Louisiana (2017)

ABSTRACT

PA43C-08: The Bridge: Experiments in Science and Art, Experiences from the 2017 SciArt Center Cross-Disciplinary Residency Program

Thursday, 14 December 2017 14:01 - 14:04 New Orleans Ernest N. Morial Convention Center - eLightning Area

Cross-disciplinary programs create the opportunity to explore new realms for scientists and artists alike. Through the collaborative process, artistic insights enable innovative approaches to emotionally connect to and visualize the world around us. Likewise, engagement across the art-science spectrum can lead to shifts in scientific thinking that create new connections in data and drive discoveries in research.

The SciArt Center “The Bridge Residency Program” is a four-month long virtual residency open internationally for professionals in the arts and sciences to facilitate cross-disciplinary work and to bring together like-minded participants. The SciArt Center provides a virtual space to record and showcase the process and products of each collaboration. The work is facilitated with biweekly Skype calls and documented with weekly blog posts. Residents create either digital or physical products and share via video, images, or direct mailing with their collaborators. Past projects have produced call and response discussion, websites, skills and conference presentations, science-art studies, virtual exhibits, art shows, dance performances, and research exchange.

Here we present the creative process and outcomes of one of the four collaborative teams selected for the 2017 residency. Jill Shipman, a Ph.D. Candidate in Volcanology who is also active in filmmaking and theatrical productions and Rosemary Chalmers, a UK-based lecturer, concept artist, and illustrator with a specialty in creature design. They were paired together for their shared interest in storytelling, illustration, and unique geological and environmental habitats and the life that occupies them. We will discuss the collaborative
project developed by this team during their recent residency and illustrate how a virtual program can bridge the distance between geographical location to foster science and art collaboration.

To follow the progress of the residency please visit: http://www.sciartcenter.org/the-bridge.html

POSTER

Presented by Jill Shipman, Thursday, 14 December 2017 14:01 - 14:04, New Orleans Ernest N. Morial Convention Center - eLightning Area

Panoramic photo of the introductions set up. Photo by Peter Webley.

Interactive touchscreen presentation stations. Photo by Peter Webley.
Introductions to the “Immersive and Engaging Experiences in Geosciences” session. 360 photo by Peter Webley. Available at: https://theta360.com/s/gZ1blRi2R6blBw4S4hhh5RtCa

**Art & Science events brochure, AGU Fall Meeting (2017)**

**Sunday**
- 8:00am-10:00am – Communicating Science with Any Audience. Workshop, Riverside Complex, Stedman Hall
- 1:00-5:00pm – Science Storytelling in Madisonville. Workshop, Riverside Complex, Stedman Hall

**Monday**
- 8:00am-8:40pm – (EDC1E) Sympathy for the Data: Novel Approaches and Advances in the Art of Data Visualization. Convention Center, Poster Hall E-F
- 1:40-3:00pm – The Lip-Gear Fire Challenge. Convention Center, Room 404
- 1:40-4:00pm – (FA110) Explore and Communicate Through Data-Driven Collaborations: Across Art, Design, and Communication. Convention Center, Poster Hall E-F
- 2:30-3:00pm – Blogging and Social Media. Forum 801, Convention Center, First Floor, Sharing Science Room / Riverside Hall

**Tuesday**
- 12:30-1:30pm – Keynote: Why We Are Still In. Convention Center, Appalachia, Presser Hall, opening the event
- 2:30-4:30pm – What’s your science message? Workshop and individual consultations. Mural Convention Center, First Floor, Sharing Science Room / Riverside Hall
- 2:30-3:00pm – Art & Science Community Meet and Greet #1. Mural Convention Center, First Floor, Sharing Science Room / Riverside Hall
- 3:00-4:00am – Open Mic Night. Mural Convention Center, First Floor, Sharing Science Room / Riverside Hall
- 2:30-3:00pm – Blogging and Social Media. Forum 801, Convention Center, First Floor, Sharing Science Room / Riverside Hall

**Wednesday**
- 10:30-10:50am – Communicating your Science: Ask the Experts. Convention Center, First Floor, Sharing Science Room / Riverside Hall
- 1:40-3:00pm – (EDC1A) The Role of the Arts in Geoscience Teaching and Learning. Convention Center, Presser Hall 0-F

**Thursday**
- 8:00am-10:00am – (EDC1A) Session. “Earthly Issues: Mural Convention Center, First Floor, Riverside Hall, opening the event
- 2:30-4:30pm – Digital Storytelling: The Arts as an Ally in Understanding Earth and Hearing Change. Convention Center, Poster Hall E-F
- 1:40-3:00pm – Art & Science: Community Meet and Greet #1. Mural Convention Center, First Floor, Sharing Science Room / Riverside Hall
- 2:30-3:00pm – Blogging and Social Media. Forum 801, Convention Center, First Floor, Sharing Science Room / Riverside Hall
- 1:40-3:00pm – (EDC1B) Session. “Earthly Issues: Mural Convention Center, First Floor, Riverside Hall, opening the event

**Friday**
- 1:40-3:00pm – (EDC1B) Session. “Earthly Issues: Mural Convention Center, First Floor, Riverside Hall, opening the event
- 1:40-3:00pm – (EDC1B) Session. “Earthly Issues: Mural Convention Center, First Floor, Riverside Hall, opening the event
- 2:30-3:00pm – Blogging and Social Media. Forum 801, Convention Center, First Floor, Sharing Science Room / Riverside Hall

Pick up a ribbon at the registration area.

**Art & Science Community**

**JOIN OUR ONLINE COMMUNITY**

Visit connect.agu.org

Available in the Sharing Science area.
Exhibition

Creature Design: ex femina [exhibition], Blenheim Walk Gallery (2019)

‘Creature Design: ex femina’ exhibition opening, Leeds Arts University, photos Hamish Irvine
‘Creature Design: ex femina’ exhibition opening, Leeds Arts University, photos Hamish Irvine
Links

SciArt Center // SciArt Initiative:

- The Bridge Residency Programme: [http://www.sciartinitiative.org/the-bridge.html](http://www.sciartinitiative.org/the-bridge.html)
- Group 1 blog: [http://www.sciartinitiative.org/group-1-rosemary--jill](http://www.sciartinitiative.org/group-1-rosemary--jill)

AGU Fall Meeting (2017):

- Session Proposal: Immersive and Engaging Experiences in the Geosciences: [https://agu.confex.com/agu/fm17/meetingapp.cgi/Session/26564](https://agu.confex.com/agu/fm17/meetingapp.cgi/Session/26564)
- Conference paper abstract: [https://agu.confex.com/agu/fm17/meetingapp.cgi/Paper/264862](https://agu.confex.com/agu/fm17/meetingapp.cgi/Paper/264862)

Rosemary Chalmers:

- [https://www.rosemaryartist.com/](https://www.rosemaryartist.com/)

Jill Shipman: