

CITY AND SCIENCE BIENNIAL

PAULA BRUNA *EMBOLISM POR SOLEÁ*

21.02 - 26.03.2023

When a tree begins to suffer from drought stress, long before the effects become visible to us, it emits a dull sound; a flamenco rhythm that begins with a *soleá* and ends with *bulerías*, just like at flamenco fiestas.

When a tree begins to suffer from drought stress, air bubbles form in its water and nutrient transport tissue (xylem). These bubbles block this tissue and stop water from rising from the roots to the leaves, potentially causing the tree to die. This phenomenon is known as an embolism and is in many respects analogous to the formation of embolias in the human blood circulatory system. The embolism cannot be seen but it can be heard. Scientists use this sound to study the mortality of trees, the state of forests and how climate change is affecting them.

When a tree begins to suffer the effects of drought, it sings *soleá*, an ancient and solemn form of flamenco music. The embolism, as recorded by scientists' equipment, sounds like dull clapping that demands to be answered. In *Embolism por soleá*, a transdisciplinary group of environmentalists, flamenco artists and visual artists have listened to what trees have to say about the climate conditions that we subject them and ourselves to. Through dance, singing, guitar-playing, *zapateado* (stamping) and clapping, they have established a series of interspecies dialogues of companionship between humans and trees in this state of global change, with flamenco as a common language. Because embolism is flamenco and flamenco is a tree.

Embolism por soleá is a project by Paula Bruna curated by Lluís Nacenta. Participants: Jordi Martínez-Vilalta, Ana Lorente and Acciones Flamenco Empírico (Carmen Muñoz, Juan Carlos Lérica, Salvador S. Sánchez, Karen Mora and Bernat Jiménez de Cisneros). With the support of the Laboratorio de Investigación desde el Flamenco (Institut del Teatre).

Acknowledgements: Stefan Mayr (Botanical Institute, University of Innsbruck), Barbara Beikircher (Botanical Institute, University of Innsbruck), Sabine Rosner (University of Natural Resources and Life Sciences [BOKU], Vienna) and Peter Hietz (University of Natural Resources and Life Sciences [BOKU], Vienna) for providing the embolism sounds; and Ivette Serral and Romà Ogaya (CREAF), Jardí Botànic – Museu de Ciència Naturals de Barcelona

The City and Science Biennial is a project run by Barcelona City Council through Barcelona Ciència i Universitats that is supported by the Spanish Ministry of Culture and Sport and organised as one of the events to mark Barcelona's status as Cultural and Science Capital. In this year's edition, the City and Science Biennial invites us to reflect on life in a time full of challenges of every kind and on every level, and on how we can, through science, address the crises we face every day.

ACTIVITIES

EMBOLISM POR SOLEÁ. PERFORMATIVE DIALOGUE

Friday 24 February, 7.30 pm to 9 pm

In order to understand how climate change affects forests, ecologists study the sounds associated with tree embolism. These recordings show syncopated rhythms reminiscent of flamenco.

Paula Bruna, Jordi Martínez-Vilalta, members of Laboratorio de Investigación desde el Flamenco (Institut del Teatre) and Ana Lorente collaborate to establish communication between humans and trees through flamenco, focused on listening and accompaniment between species in a context of global change. This dialogue is a presentation of the project, of the correspondences between forest ecology and flamenco, and especially a debate on the challenges posed by global change.

THE NIGHT. EMBOLISM POR SOLEÁ. INSTALLATION

Saturday 25 February, 8.30 pm to 11 pm

During the Night of Science, some art installations will be open to the public at night. One of these is *Embolism por soleá*.