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Reviewed Article:

Dug Boat Dance: Contemporary Body and Prehistoric Experience

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Prehistoric rock art in Northern Europe repeatedly shows people standing, jumping, and dancing in a boat. Especially in Finland, rock paintings and the related offerings were made specifically from a boat. In 2023, dancer Arttu Peltoniemi conducted an artistic-scientific experiment called Dug Boat Dance to explore whether it is possible to dance in a boat, and what kind of movements and bodily sensations this might generate. The three-month-long experiment was carried out in a Stone Age-style dugout canoe, using the dancer's body and

somaesthetic experiences as research tools. According to our interviews with Peltoniemi, the dugout boat affected dancing in many ways. As a moving and rocking platform, it kept the dancer's ankles, knees, and spine in constant motion, provoking undulating snake-like movements throughout the body. It responded to jumps, steps, and falls by springing down and up again, which created a sense of flying. The multi-sensory experience, which also included rhythmic body sounds, the rattling of bone pendants in the reconstructed Stone Age outfit, as well as echoes bouncing off the painted rock, brought Peltoniemi into a state of trance during the public performances. Altogether, this reimagination of prehistoric dance provides insight into the sensory world of the past, especially its little-explored bodily sensations. The unique project proves that dancing in a dugout boat is not only possible but also an impressive experience for both the dancer and the audience.

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Introduction

The boat is one of the most common motifs in Northern European rock art, often represented by a more or less curved horizontal line. Likewise, the people in the boat are mostly depicted as simple vertical lines, but in those cases where more detail is shown, their positions look very peculiar. In Swedish Bronze Age rock carvings, people jump backwards on a boat (See Figure 1a) (Almgren, 1959; Bengtsson, 1999; Milstreu, 2007; Larsen, n.d.), while in Norwegian Early Metal Period rock carvings they beat a drum and stretch out their arms and legs, as if dancing (See Figure 1b) (Helskog, 1988, pp.53, 94, 133; see also Gjerde, 2010, pp.444-445). In Finnish Neolithic rock paintings, the people associated with boats hold each other's hands, raise their arms upwards like wings (See Figure 1c), or stand on their toes (Kivikäs, 1995, pp.58-60, 150-151, 240; Lahelma, 2008, pp.213, 217). Moreover, the people depicted around a boat have their knees bent, ankles crossed, or legs writhing like snakes, suggesting some kind of dance position (e.g. Kivikäs, 1995, pp.81-82, 220; Leisiö, 2000; Miettinen and Willamo, 2007, p.77). We can surmise that boats as physical objects had a central role in the ritual activities associated with these shore-bound rock art sites, especially in Finland. The Finnish rock paintings are located on vertical cliffs rising directly from the lakes, so the paintings must have been crafted from the water, probably sitting or standing in a canoe (Jussila, 1999; Lahelma, 2008). The same applies to offerings made at the foot of the painted cliffs, such as amber pendants, arrowheads, and antlers (Grönhagen, 1994; Lahelma, 2006). The soundscape of the Finnish sites was also special, as the cliffs generated echoes that double all sounds of movement, paddling, talking, and drumming (Rainio, *et al.*, 2017; 2024).

This article reports on an artistic-scientific experiment inspired by such Northern European rock art, in which dancer Arttu Peltoniemi spent a few months working in and with a Stone

Age style dugout canoe, creating an artwork called the Dug Boat Dance (*Ruuhitanssi*). The Dug Boat Dance was performed in a reconstructed Mesolithic-Neolithic -style outfit at the rock painting site of Salmijärvi in Finland (See Figure 2). The research questions of the experiment included: 1) Is it possible to dance in a boat? 2) What kind of movements and bodily sensations does dancing in a boat, on an unstable rocking platform, produce? 3) Is it possible to gain information about the dance practices and rituals of the past through the bodily experiences of a contemporary dancer? Since the Dug Boat Dance was a unique project in concept and execution - possibly even the first of its kind worldwide - we report its results in this article based on Peltoniemi's interviews.

Experimental archaeology replicates past phenomena to generate and test archaeological hypotheses (Mathieu, 2002, p.12; see also Coles, 1979). The replicas, reconstructions, or working constructions typically involved in such efforts are usually physical objects or technical processes intended to provide analogies for interpretation. In the case of the Dug Boat Dance, the phenomenon to be replicated was dancing in a boat, as suggested by the rock art. The experiment was carried out in a watercraft, outfit, and place corresponding to the Stone Age setting as accurately as possible. However, the main element of the experiment was the living body of the dancer, whose sensory perceptions, reactions, somaesthetic experiences, and learning processes provided a source material for new information. Thus, unusually for experimental archaeology, the main research tool was the artist's body and artistic work.

During the last decade, sensory archaeology has brought out the senses and sensory experiences as important and relevant topics for archaeological research (e.g. Skeates, 2010; Hamilakis, 2013; Skeates and Day, 2019). Along with the sense of sight, this research field has also emphasized the role of hearing, smelling, tasting, and touching, as well as multisensory interplay. So far, published studies have not addressed the interoceptive, proprioceptive, or vestibular senses, which provide information about the body's internal state, position, and motion (see e.g. Ritchie and Carruthers, 2015). The likely reason for this is that such sensations related to balance, gravity, spatial orientation, movement, pain, pleasure, fatigue, and so on, are highly subjective and body-bound. However, in various dance and movement practices they are an essential means for exploring body-use (e.g. Paxton, 1975; Barkai, 2022). While acknowledging that the senses are in many ways shaped by the individual culture in which they are active, the Dug Boat Dance took as its starting point the idea that the sensory experiences of the past are nevertheless not completely beyond our reach. Physiologically similar bodies in the past and present are likely to produce experiences that have not only differences, but also similarities (e.g. Edgeworth, 2012; Marila, *et al.*, 2020). Evaluating such differences and similarities in a wide range of compared materials is standard procedure in the study of prehistory. Thus, in our view, dancing in a boat could bring about bodily sensations and somaesthetic experiences that could be useful as analogies for archaeological interpretations.

The Dancer and the Boat

Arttu Peltoniemi is a dance artist, dance teacher, and choreographer with a background in folk dance and historical martial arts.[1] In 2020-2023 he made several dance works dealing with the experience of prehistoric humans. The solo work Stone Age Dance[2] (*Kivikauden tanssi*) was inspired by Finnish and international rock art imagery, especially its many figures interpreted as dancing, from which Peltoniemi created the work's movement material. The team work From Rock to Flesh[3] (*Kalliosta lihaksi*) continued the same theme but added in the shamanistic experiences often associated with rock art, sought in the work through drumming and repetitive and animistic movements (see also Hatakka and Peltoniemi, 2021). Apart from Peltoniemi, the team also included dancer Satu Rinnetmäki and folk musician Keke Lammassaari, an initiated shaman. The next work, Spear Dancer (*Keihästanssija*), drew on Bronze Age and Iron Age imagery depicting warriors, also incorporating elements of the Norwegian *halling* dance, which contains acrobatic movements resembling those depicted in rock art (Fiskvik, 2020; Maddox, 2020). The direct predecessor of the Dug Boat Dance was the Rock Art Dance, a work based on rock art imagery, which Peltoniemi and Lammassaari performed at the rock painting site of Vaskivuori in Southern Finland (Shpinitskaya, *et al.*, 2023). Unlike the Dug Boat Dance, this work was realized in winter on lake ice; that is, on a stable platform. The Rock Art Dance was a collaboration with Riitta Rainio's research project[4] on the acoustics of Finnish rock art sites.

In the Dug Boat Dance performance, Peltoniemi wore a custom-made outfit inspired by the burial finds in the Late Mesolithic cemetery of Yuzhniy Oleniy Ostrov, Northwest Russia (Mannermaa, *et al*. 2021; Rainio, *et al*. 2021). The outfit (See Figure 3a-b) was made by artisan Hanni Airikka using Stone Age tools and leatherworking methods, such as bone scrapers, awls, and needles, sinew thread, flint blades, and fat tanning (see Haapaniemi, 2015a; 2015b). Fat tanning makes the leather soft and pliable, which is an advantage in dance costumes. The clothes consisted of a reindeer skin shirt, a reindeer skin loincloth, and legs made of white-tailed deer (*Odocoileus virginianus*) skin. White-tailed deer was only brought to Europe in the Modern Era, but its skin was accepted for the experiment because it corresponds in thickness to material made, for example, from Eurasian elk (*Alces alces*) calf. The decorations consisted of 52 animal bones and teeth, which were perforated and hung with leather straps on the front of the shirt and on a belt made of leather straps, on both the front and back of the dancer's body. The bones included 29 short pieces of reindeer leg bone, 9 Eurasian elk incisors, and 14 coyote (*Canis latrans*) canines. The coyote is not a native species to Europe, but its teeth resemble red fox (*Vulpes vulpes*) teeth in appearance. Similar tooth and bone artefacts are common in Mesolithic and Neolithic graves of Northern Europe, where they have been interpreted as ornaments attached to accessories and clothing (e.g. Zagorska and Lõugas, 2000; Larsson, 2006; Mannermaa, *et al*., 2021; 2022). Traceological studies of materials from Yuzhniy Oleniy Ostrov in Russia and Ajvide in Sweden show that when the wearer moved, such ornaments collided with each other, producing a rattling sound (Rainio

and Mannermaa, 2014; Rainio, *et al*., 2021; see also Rainio and Tamboer, 2018). As such, they worked as a kind of portable rattle.

The dugout canoe used in the Dug Boat Dance was borrowed from the Kierikki Stone Age Centre[5] in Oulu, Northern Finland. It was made by Dr. Peter Groom of the Mesolithic Resource Group[6], using a chainsaw, modern hand axes and adzes, and fire to seal the base (See Figure 4a-b). Modern tools were chosen to complete the work in just four days (Groom, 2025). The canoe hull, hollowed out of a seasoned fir tree, was 60 cm in diameter and 250 cm in length. The sides were about 4 cm thick and the bottom about 20 cm thick. Both ends had a 20-30 cm long, slightly levelled platform. When it was wet, the whole thing weighed more than 300 kg. Similar massive canoes, hollowed out of tree trunks, are known from Central and Northern Europe since the Mesolithic period, for example from the Netherlands, Germany, and Denmark (e.g. Andersen and Liversage, 1994; Malm, 1995). Many of these archaeological finds are larger than the Kierikki canoe, up to 12 m long, but the design is always the same, almost ageless. Such canoes are thought to have been suitable for small inland waters where there are no large waves. Other types of watercraft, such as skin-on-frame canoes, bark canoes, or coracles (e.g. Groom, McDermott and Kirby, 2019; Groom, Sweeney and Findley, 2019) may also have been used in prehistoric times, but these lightweight vessels seemed too unstable and risky for the dance experiment.

Practice and Performance

The experiment started with a three-month training period lasting from mid-May to until almost mid-August 2023. During that period, Arttu Peltoniemi learned to stand, move, and dance in the dugout canoe off Pukkisaari island in Helsinki, in shallow sea water. The opportunity for this training location was offered by Sommelo ry[7], the association that maintains the Pukkisaari Iron Age Trading Place. The training took about six hours a day, five days a week in May, June, and August, and two days a week in July. When not practising, Peltoniemi kept the boat sunk in shallow water to prevent it from drying out too much, and to prevent it from being stolen.

At the outset, the rock art-related movement material produced for Peltoniemi's previous works was of no use, because the training had to start by getting the nervous system and musculature used to being in the canoe. The methods used consisted of dance and movement practices influenced by somatics, where the term *soma* refers to the body as perceived from within (e.g. Hanna, 1986; Tuominen, 2020). In a practice called Contact Improvisation (CI), movement is explored through physical awareness: the sensations of weight, balance, spatial orientation, touch, inertia, and so on (e.g. Paxton, 1975; Novack, 1988). If the exercise is done solo, the practitioner stays still and allows the body to make movements that arise in that particular moment and situation. In a practice called Authentic Movement (AM), bodily movements and sounds are understood as responses to psychological processes (e.g. Wallock, 1981; Barkai, 2022). The practitioner moves free from

intellectual directives or expectations, allowing the internal impulses arising from the situation to create the dance. In addition to these exercises, Peltoniemi practised falling out of the canoe using safety equipment, such as a life jacket, helmet, and insulated overalls. A long wooden stick that could reach the sea bottom also served as an aid. In the final stages he invited dancer Taru Koski and musician Anniina Veitonmäki to rehearsals to help design the dance work. Jenni Sahramaa conducted the first 30-minute interview with Peltoniemi for the purpose of writing this article during the training.

The experiment culminated in the dance work Dug Boat Dance, which was performed for the public on the 12th, 13th, and 14th of August 2023. The venue was the prehistoric rock painting site of Salmijärvi in Vihti, Southern Finland, where Peltoniemi practised twice before the performances. The public arrived at the site in their own boats and settled approximately 20 m away from the painted cliff. The dugout boat with the dancer was anchored about 10 m from the cliff. The public was not allowed to take photos or videos during the 20-minute performance. The event was produced by *Raakaa Tradia ry*[8] and was filmed[9] by music and video producer Toni Hatakka. In addition, the last performance was attended by a journalist and cameraman from the Finnish Broadcasting Company (YLE), who made a news article and film about the project (Wallius, 2023). Sahramaa conducted the second 30-minute interview with Peltoniemi, used in this article, four weeks after the performance.

The Salmijärvi site can be considered a fairly typical Finnish rock painting site. The paintings, roughly date to the Neolithic period (5000-1500 BC), contain vague images of cervids, humans, and possibly waterfowl (See Figure 5a) (Lahelma, 2008, p.276; Luukkonen, 2021, p.402). The images are located on a flat vertical granite cliff, 1.8-2.2 m above the water, which indicates that the surface of the lake has remained more or less unchanged. The cliff is about 20 m high and 60 m wide (See Figure 5b). Horizontally, it curves into a slightly concave shape with paintings on both sides. According to recent acoustic measurements, both sides of the concave cliff effectively reflect sound, generating echoes whose audibility varies depending on the location of the sound source and the listener (Haapala, *et al.*, 2023). At a distance of 20-44 m from the cliff the echo strength values (1000 Hz) are 1.2-2.5, which means that the echoes are clearly audible to modern people during speech and music performances (see Rainio, *et al.*, 2024). At a distance of 20 m from the cliff, echoes from a sound source 10 m away arrive in 0.06 s. This means that the echoes are fast but distinguishable.

What is it like to Stand, Move, and Dance in a Dugout Boat?

Arttu Peltoniemi described the course of the experiment in interviews, which proceeded in a free-form and conversational manner. According to him, weather affected the practice period right from the start, with cold spring temperatures and rain making staying in the boat miserable. Standing and moving around in the boat felt scary, as it involved thoughts of tipping over, hitting one's head, and falling into the water. However, by experimenting with

deliberate attempts to overturn the boat, Peltoniemi found the dugout boat to be heavy and stable compared to modern boats and canoes:

> *This is, actually a very sturdy platform for dancing, because it's so heavy. If compared to a modern boat, which is often made as light as possible, such a boat does not slow down movement as much as this kind of mass. This [boat] was really nasty to lift onto the trailer, but it's much more comfortable to stand on than a lightweight kayak.*[10]

On paddle rounds near Pukkisaari Island, Peltoniemi learned that the dugout boat would not sink to the bottom even when it was filled by large waves and submerged; he could just continue paddling in waist-deep water. Under normal conditions there was always a little water in the bottom of the untreated boat. This made moving slippery, but Peltoniemi solved the problem by placing reindeer (*Rangifer tarandus*) hides and reeds in the belly of the boat:

> *What's nice now [...] is that it's incredibly safe here, because it's not slippery, and with that, the surface also softened. The fact that I have reeds and furs on the bottom makes it pretty nice to fall on, which increases the potential for the floor-use related movement of contemporary dance. So, I can finish the jump by coming all the way down and letting myself slump. I get to use my whole body.*

The focus of the practice was at first very much on finding out what was possible to do, rather than evaluating what it looked like. The key observation was that staying and standing in the dugout boat requires constant movement of the ankles, knees, and spine, adapting to the constant movement of the boat:

> *Well, this [boat] causes quite a lot of movement, because it kind of rocks on its own. Here, I very quickly get the feeling that it's nice to focus solely on standing or being. And, when I'm physically doing something all the time, I can actually easily stand for two hours. That's an awfully long time to stand. Normally I can't stand for two hours.*

As the boat rocks and slides in the water, it provokes a certain type of movement in the person on board, most notably sending wave-like movements through the whole body (See Video - Take 1):

> *In the process of finding a way to move, I probe what it feels like to be here, what this causes in me. And I go to different environments with this. Like when there aren't that many waves where I am now, I sometimes paddle to the other side of the bridge, where there are a lot of waves, which then changes my movement, and changes my relationship with this platform, and makes me move in a different way. When there are more waves, it inspires a very distinct snake-like spinal movement that must be maintained almost the entire time, or I actually start to feel sick.*

Possible and comfortable movements included stepping, turning, jumping, and falling to one's knees on the padded bottom (See Figure 6a-l). The descent of each movement caused the boat to spring downward, which felt as if the floor was slipping away from under the dancer (See Video - Take 2):

> *Every time I step, the "ground" moves beneath me, so that there is flexibility all the time, with every step throughout my entire body. There's a lot of it in the ankle and knee, which are kind of good at doing that and softening this, but the back has to do it too.*

In the case of jumping, the absence of a hard floor evoked a sense of being in the air, or flying. On the other hand, the rocking of the boat back up helped to initiate new jumps. Yet Peltoniemi was also cautious:

> *I am not making any really big jumps here. Or, I can jump lengthwise, from one end of the dugout boat to the other* (See Video - Take 3)*, but I don't want to go too high, because that will increase how deep this dives. But, then again, I can do this kind of little jumping, where I turn my head or my body. I can do that a lot. Or, the movement can be sliding, like this. Furthermore, walking is possible, and stepping. All folk dance-like, walking-based dance movements are very feasible as small steps.*

With practice, Peltoniemi became accustomed to the boat and was also able to apply the movement material adopted from rock art imagery. Learning enabled a sense of flow, as complete concentration and immersion in the moment enabled forgetting oneself. However, after longer breaks, such as over a weekend, Peltoniemi found that his nervous system needed retraining before moving on the boat was comfortable again.

VIDEO OF THE PERFORMANCE.
TAKE 1. STANDING IN THE DUGOUT BOAT REQUIRED CONSTANT MOVEMENT OF THE LEGS AND BACK. VIDEO BY HATAKKA MUSIC.
TAKE 2. SLOW MOTION JUMP. VIDEO BY FÝR ROMU.
TAKE 3. LENGTHWISE JUMP IN SLOW MOTION. VIDEO BY HATAKKA MUSIC.
TAKE 4. SOUNDSCAPE OF THE DUG BOAT DANCE PERFORMANCE: ANIMAL-LIKE CALLS, CLAPS, RATTLES, WATER, AND ECHOES. VIDEO BY HATAKKA MUSIC.
TAKE 5. TREMBLING AT THE END OF THE PERFORMANCE. VIDEO BY HATAKKA MUSIC.

What is it like to Perform at a Rock Art Site?

In his performances of prehistoric dance, working without musicians, Arttu Peltoniemi usually gives sonic support to his movements with simple, animal-like calls and sounds, as well as slaps and taps he makes himself. In the Dug Boat Dance, new sound elements were included:

> *Water itself is a really fun sound-producing environment. This device itself rings. When I put my head at the bottom of the dugout boat, there's an internal echo. Then, water is reverberant, and even this kind of natural environment dominated by trees, with a little bit of rock and stones, reverberates a bit.*

The Salmijärvi rock art site added further layers to the auditory experience. Sound reflections participated in the action, with echoes from the cliff amplifying the quiet sounds and the rattles of the costume (See Video - Take 4):

> *There is a really curved vertical cliff that rises out of the water. And it is extremely powerful acoustically. There were comments in the audience feedback about how people could hear my breathing really clearly, and how impressive that was in itself,*

breathing in that acoustic space. I use a lot of finger snapping and breathing to create my own rhythm, in addition to having a sound-producing outfit. None of these sounds are powerful enough for a normal black box theatre, which would require amplification through microphones. But that space did it itself.

Moreover, the echoes doubled all sounds, giving rhythm to the performance:

If we think about the experience of dancing to the rhythm of music, the advantage here is that all of my movements are always in rhythm, because when I move I produce sound. But, beyond that, there is the echo that plays back this sound. Therefore, I always have a soundscape caused by my own movement, emerging from this [costume], but it always comes back doubled. And that sound impulse comes with a delay, suggesting the place for the next step. So, as a result, I'm always in a state where music is playing for me from somewhere.

According to Peltoniemi, the soundscape of the site created a feeling of not being alone, as the echoes felt the same as having accompanying musicians:

It's really easy to get mesmerized by it, by how that space sounds. It really makes it easier to achieve that flow state, where the process of losing yourself starts and where it is good to be. Dancing alone feels like dancing with a musician.

The audience travelled to the site by boats, mostly on a "church boat"[11], and some on private canoes. Peltoniemi planned the dance performance to follow a ritualistic formula, where rowing or paddling to the site served as a travel experience from one mindset to another:

[...]I feel that the thing about these rock paintings is that you have to get to them and you have to get away from them, and this was not an easy process for people in the Stone Age or Bronze Age. The boat needs to be launched, and you have to paddle there first. It's not super difficult, it's mundane, but still a travel experience.

With the audience on vessels, Peltoniemi could also provoke movement in them by jumping on his boat and sending waves towards the audience. Without solid ground under their feet, the audience could also feel more body empathy towards the dancer while he stood and jumped on his boat:

I still think that it would be important for the audience of this show to experience body-empathetically, what it feels like to be on a boat. So, when I get the audience close to me in the boat, when I jump into the air and land back in my boat, it sends out a wave that hopefully rocks the audience's boat. Then, audience members might start to get nervous about standing in the boat. And a very simple movement, which may not be terribly

impressive in a dance hall, but is quite difficult on a boat, gives them a sense of what kind of challenges I'm working with.

The audience reacted positively to the performance, to the point that Peltoniemi wished he had also been given some constructive critique:

I had an audience meeting after both performances, we stayed on the beach to chat. Maybe only people who were already specifically interested in this came to see it, so the audience was self-selected. But the feedback was hugely positive. Yes, someone could have said something critical.

Already during the practice period Peltoniemi had been able to reach a state of trance through repeated movements on the boat. The trance was achieved in a good way during Peltoniemi's first performance at the Salmijärvi site, as a flow experience during the dance show with movements following each other without much interference from the conscious mind:

In the performance, it starts with me focusing very systematically on the movement of the boat, how it rocks and sways me. And through that, I get into a process or flow state, which then takes me forward through automation and not through the control of my conscious mind.

During the second performance, however, the trance experience came to Peltoniemi as trembling, and he needed to deliberately snap out of it before it took control of his body altogether (See Video - Take 5). Peltoniemi describes the latter as a scary experience, with the fear of falling off the boat and hitting his head. With a third day spent on documenting the performance, the whole experience was very stressful for Peltoniemi, as the days included not only 20 minutes of dance itself, but lots of organizing, and especially rowing several vessels to the place.

Reimagining the Past

Sensory research in archaeology and anthropology has shown how bodily experiences are culturally tied and perceived differently in different times and places (Day, 2013, p.3). Although it is impossible to have full access to the prehistoric sensorium, our shared corporeality with our ancestors provides possible analogies for interpretation. From his prehistoric dance performances, especially the Dug Boat Dance, Arttu Peltoniemi has gained embodied experience that few people in our time have. This experience can be used to test theories and interpretations of rock art and prehistoric culture, including the meanings of some of the painted motifs, or the contents and characteristics of the rituals, practices, and experiences associated with the sites. When comparing the experiences of the prehistoric and modern body, however, it must still be remembered, in Peltoniemi's words, that:

> *[...] Just because it was difficult for me, doesn't mean it was difficult for a Stone Age person. If you've spent your whole life fishing in a boat like that, or hunting seals, then you've really hung out a lot in boats. I probably can't achieve the same level of skill in one summer as someone who has spent their entire life on a boat like that. I'm nowhere near the level of expertise that comes naturally to a device used like that. So, [their dance] may have been very rich in movements.*

In the terminological sense, Peltoniemi's dance performance could be described as *reimagination* rather than *reconstruction*, although the latter term has also been used in connection to prehistoric dance performances (Turčin, 2018). The term reimagination was proposed by dance historian Hanna Järvinen and choreographer Liisa Pentti (2017) in connection to Vaslav Nijinsky's choreography *Jeux,* originally performed eight times by Ballets Russes in 1913. Nijinsky's choreography was preserved only in archival sources such as notes, contemporary drawings, and reviews, as well as a music piece composed by Claude Debussy. In 2015, Järvinen and Pentti used these archival sources, together with three dancers, to create a reimagined version of *Jeux*. The modern dancers assumed the poses depicted in the publicity photographs of the 1913 production and studied the potential movements in and out of those poses (Järvinen and Pentti, 2017, pp.323-324). This practice is remarkably similar to the method Peltoniemi has used with rock art imagery in his prehistoric dance projects (compare also Turčin, 2018).

In regard to movement, the imagery of Finnish Stone Age rock art is quite limited, but images possibly related to dancing include bird-like humans with winged arms and humans with snake-like legs, bent knees, and crossed ankles (Kivikäs, 1995, pp.46-47, 58-60, 81-82, 146-147, 150-151, 220, 240-241; Leisiö, 2000; Miettinen-Willamo, 2007, p.77; Lahelma, 2008, pp.213, 217, 224; Luukkonen, 2021, pp.128-129). Interestingly, Peltoniemi's experiment highlighted that the rocking and springing of the dugout boat specifically creates undulating, snake-like movements and experiences of being in the air or flying. The constant movement of the knees and ankles also seemed like an inevitable adaptation to the movements of the boat. However, it should be noted that themes of imitating animals are common in different traditional folk dance styles, especially in cultures where hunting is important, so such movements cannot be claimed to be specifically linked to boat dancing. Peltoniemi found depictions of characters jumping on a boat in Swedish Bronze Age rock art, and specifically jumping backwards from the boat (Almgren, 1959; Bengtsson, 1999; Milstreu, 2007; Larsen, n.d.). He also recognised a similar movement from the Norwegian folk dance *halling,* and as the *makaku* jump in capoeira. In the experiment these high-reaching jumps pushed the dugout boat deep below the surface, suggesting that a considerably larger dugout boat or other vessel would be required to perform them properly. When using ethnographic material on different folk dances, Peltoniemi tried to recognise universal elements common to several cultures and dance styles, to avoid clear cultural appropriation. With the movement material

developed already during the earlier prehistoric dance performances transferred to the dugout boat, he proved that it is indeed possible to dance and perform on it.

Finnish rock art scenes with falling humans and human-animal mergers or metamorphoses, as well as groups of figures in rising motions, are often interpreted as shamanistic scenes (Lahelma, 2005, pp.34-36; Miettinen and Willamo, 2007). Dancing is one of the main ways for shamans to enter a state of trance, as dancing has a physiological effect on the brain of the performer (Garfinkel, 2018, p.290). In the Dug Boat Dance, the multisensory effect of the boat as a moving platform, the rhythmic sounds from the body movements and the bone ornaments of the costume, amplified by the rock cliff, controlled breathing, and repeated movements resulted in an altered state of mind for Peltoniemi. He described the state as a flow of movement without much conscious control, and was convinced that the boat itself - its rocking, springing, and all its responsiveness - contributed significantly to this experience. Moreover, Peltoniemi felt kinship to the rock art figures depicted in rising motions over boats, believing he knew what kind of feeling was depicted in those scenes:

> *[...] When I was browsing Instagram one day to make a promotional post about this, to advertise that I was doing something like this, I tried to make it somehow interesting, and looked for rock paintings that would tell about this. Then there was one where there was an empty boat and a stick-figure human floating on top of it, and an elk next to it.*[12] *The boat, stick figure, elk. Like that. I saw it and then I was like: "That's what I feel like." I can't say why I feel like a stick-figure human floating next to an elk. I can't answer that question. But that picture just slapped me in the face. It depicted how I felt.*

Although such experiences are naturally highly subjective, they testify to and strengthen the interpretation of the painted scenes as depicting shamanistic experiences.

The three performances of the Dug Boat Dance did not follow a strict choreography; rather, Peltoniemi performed a flow of movements with room to improvise. Such a process would have also been credible in the past. The performance does not create a stable interpretation of the dance rituals performed at rock art sites but serves as a powerful reimagination of what the rituals, related to image-making and offering could have looked, sounded, and felt like. The Dug Boat Dance was a single person performance, and it opened several interesting new questions to explore through the collaboration of artistic research and experimental archaeology in the future. Other possibilities worth investigating, based on rock art imagery and Peltoniemi's experiences, could include adding other people to the boat, adding musicians to the boat, or adding other boats to the same ritual to further study the shared multisensory experience and the effect of acoustics and waves on several individuals at the same time.

Conclusion

Dancer Arttu Peltoniemi proved in his Dug Boat Dance that dancing on a single-log dugout boat is both possible and an impressive multisensory experience for the dancer and the audience. In the experiment, he discovered that the boat affected dancing in many ways. As a moving and rocking platform, it kept the dancer's ankles, knees, and spine in constant motion, provoking wave-like movements throughout the body. It responded to jumps, steps, and falls by springing down and up again, which created a sense of flying. The Stone Age outfit with hanging pendants served as a portable rattle, and the painted rock cliff of Salmijärvi amplified and repeated the sounds, providing rhythm and musical accompaniment to the dance. Moreover, the repeated movements and multisensory experience of dancing on a boat produced a state of trance in Peltoniemi during the performance. Altogether, this reimagination of prehistoric dance offers insights into the sensory world of the past, particularly bodily sensations, which have been little studied. The unique experiment strengthens the interpretation that rituals performed in Nordic rock art sites could have included dancing on a boat, and some of the paintings and carvings with standing and jumping figures on boats could be depicting such rituals.

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1 https://arttupeltoniemi.blogspot.com/

2 https://www.munoulu.fi/artikkeli/-/id/muinaistulien-ilta-kierikissa-tanssija-arttu-peltoniemikalliomaalausten-nahoissa

3 https://www.munoulu.fi/kulttuuri/muinaistulien-y%C3%B6t%C3%A4-vietet%C3%A4%C3%A4n-j%C3%A4lleen-kierikin-kivikauden-kyl%C3%A4ss%C3%A4/

4 https://www.helsinki.fi/en/researchgroups/acoustics-of-sacred-sites

5 https://kierikki.fi/

6 https://www.mesolithic.org.uk/

7 https://sommelo.fi/

8 https://www.raakaatradia.com/

9 The film *Dugboat Dance* premiered at the Central Library Oodi in Helsinki on March 24, 2024. In the fall of 2024 it reached the finals of the Sweden Film Awards competition.

10 All translations of the Finnish interview were made by the authors.

11 A “church boat” is a traditional long rowing boat that can accommodate up to several dozen people, so named because lake or coastal communities would use them as communal transport to church services.

12 The rock painting that Peltoniemi is talking about is panel B of the Astuvansalmi rock art site in eastern Finland.

Keywords dance
canoe

Country Finland

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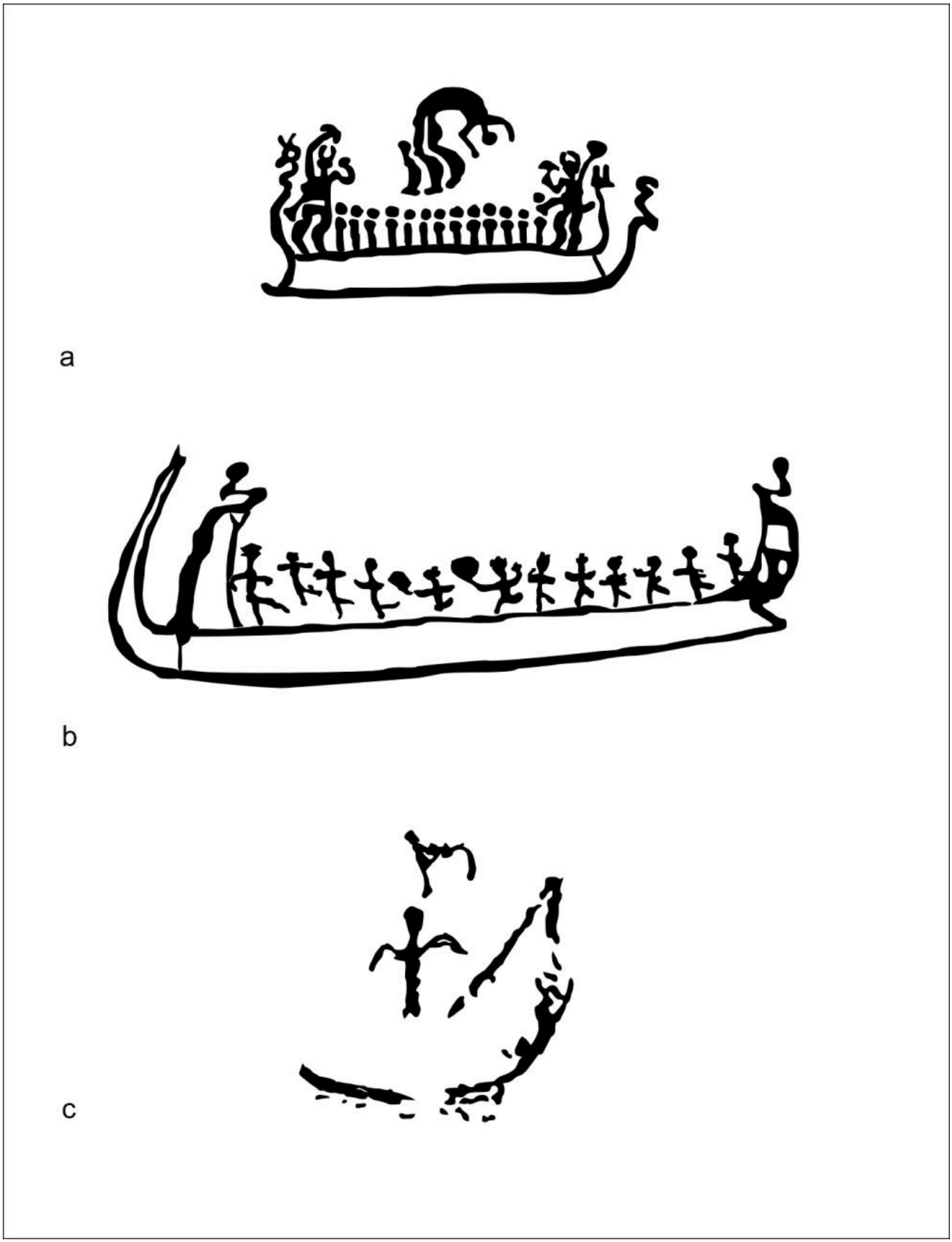

FIG 1. HUMAN FIGURES JUMPING, DRUMMING, AND MOVING IN A BOAT IN PREHISTORIC ROCK ART: A) TANUM, SWEDEN, REDRAWN FROM ALMGREN, 1959; B) ALTA, NORWAY, REDRAWN FROM THE AUTHOR'S FIELD PHOTO; C)

MERTAKALLIO, FINLAND, REDRAWN FROM OJONEN, 1973.

FIG 2. LOCATION OF THE SALMIJÄRVI ROCK ART SITE IN FINLAND.

FIG 3A. DANCER ARTTU PELTONIEMI IN THE KIERIKKI DUGOUT CANOE, DRESSED IN STONE AGE STYLE: FRONT. PHOTO BY JUUSO VATTULAINEN.

FIG 3B. DANCER ARTTU PELTONIEMI IN THE KIERIKKI DUGOUT CANOE, DRESSED IN STONE AGE STYLE: SIDE. PHOTO BY JUUSO VATTULAINEN.

FIG 4A. THE DUGOUT CANOE USED IN THE EXPERIMENT, BUILT BY THE MESOLITHIC RESOURCE GROUP AT THE KIERIKKI STONE AGE CENTRE: SHAPING THE LOG WITH A CHAINSAW. PHOTO BY PETER GROOM.

FIG 4B. THE DUGOUT CANOE USED IN THE EXPERIMENT, BUILT BY THE MESOLITHIC RESOURCE GROUP AT THE KIERIKKI STONE AGE CENTRE: FINISHED CANOE. PHOTO BY PETER GROOM.

FIG 5A. ROCK ART SITE OF SALMIJÄRVI, FINLAND: PREHISTORIC RED OCHRE PAINTINGS ON THE ROCK WALL (RED COLOUR ENHANCED WITH ADOBE LIGHTROOM). PHOTO BY JULIA SHPINITSKAYA.

FIG 5B. ROCK ART SITE OF SALMIJÄRVI, FINLAND: PAINTED ROCK FROM A DISTANCE FROM THE LAKE. PHOTO BY JULIA SHPINITSKAYA.

FIG 6A. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: STANDING POSITION WITH ARMS OUTSTRETCHED, PHOTO BY FÝR ROMU.

FIG 6B. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: SQUAT WITH ARMS OUTSTRETCHED, PHOTO BY FÝR ROMU.

FIG 6C. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: SNAKE-LIKE POSITION, PHOTO BY FÝR ROMU.

FIG 6D. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: BIRD-LIKE POSITION, PHOTO BY LAURI KARO/YLE.

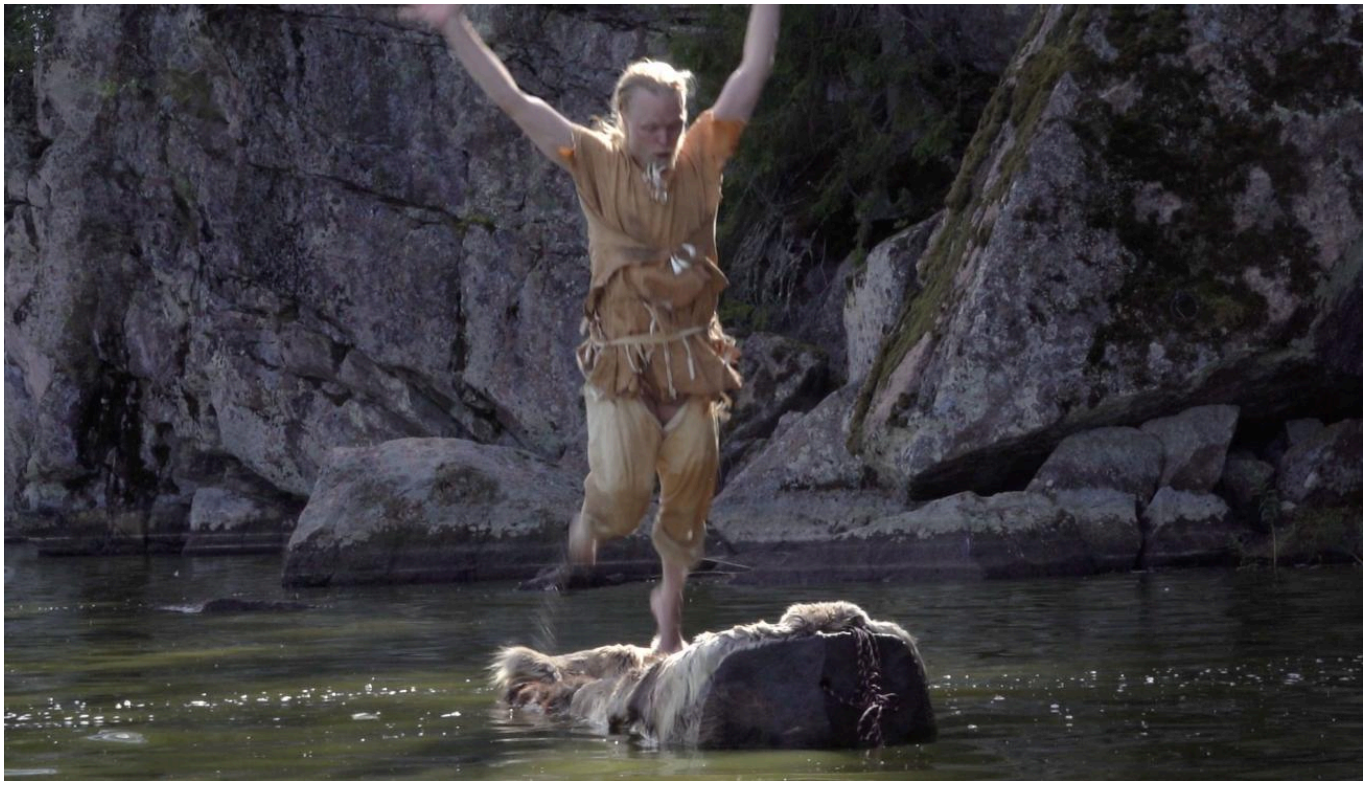

FIG 6E. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: JUMP UP, PHOTO BY FÝR ROMU.

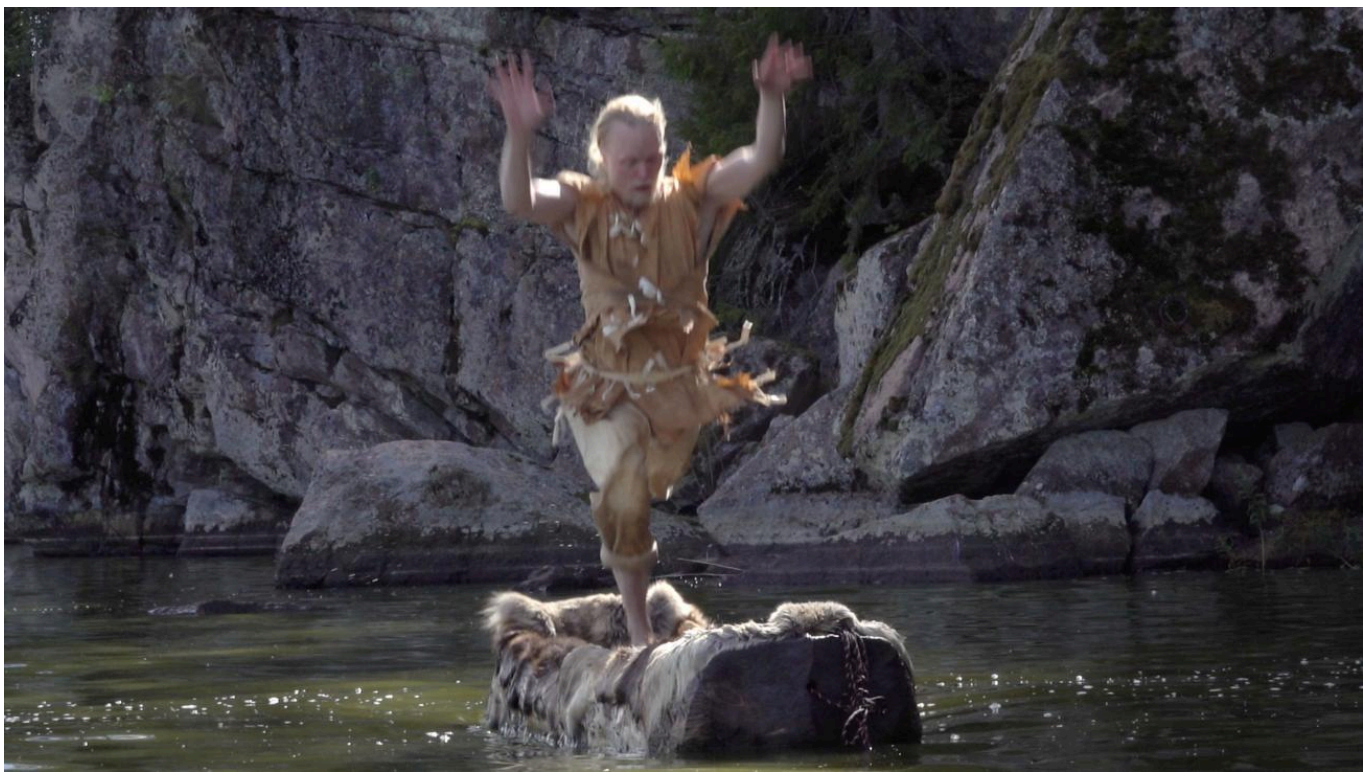

FIG 6F. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: FALLING DOWN, PHOTO BY FÝR ROMU.

FIG 6G. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: HANDSTAND, PHOTO BY FÝR ROMU.

FIG 6H. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: NEAR THE WATER, PHOTO BY KATRI KROHN LASSILA.

FIG 6I. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: DANCING WITH WATER, PHOTO BY LAURI KARO/YLE.

FIG 6J. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: GETTING READY TO JUMP, PHOTO BY SINI SIIPOLA.

FIG 6K. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: IN THE AIR, PHOTO BY MAIJA HUITU.

FIG 6L. SNAPSHOTS FROM THE DUG BOAT DANCE PERFORMANCE: RESTING, PHOTO BY MAIJA HUITU.