

Ad★Astra

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Between Life and Death in Sardinia S'accabadora • The Legality of Targeted Killings: Analysing the Interplay between Three Legal regimes in the Soleimani Case • Ancient Greek Child Heroes: Tombs, Cults and Chthonic Rituals • Women in the Chicano Movement: Community and Memory • COVID-19 in Zeeland • Question of Octopus Intelligence

Ad Astra

Colophon

Ad Astra Issue 15, June 2021

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Foreword

In 2005, UCR faculty and students created this journal to showcase exceptionally brilliant work from UCR students. Here we are, 15 years later with the 15th edition of Ad Astra! The 2020-2021 board is extremely excited to give you this special edition. Although there have been many changes with the journal in the past year, we are confident that we have incorporated these transitions well and have brought you an edition that you will enjoy.

While some things have changed, the level of the content published has not. We have received an array of impressive submissions making it very difficult to choose only two per discipline to share with you. However, the essays you are about to read represent the breath and strive for perfection that students of UCR strive for. They exhibit relevant and interesting topics, and it has been our pleasure working with all the authors on perfecting their academic texts. We hope you enjoy reading them as much as we have.

With the ongoing confusion of COVID-19, this issue demanded more flexibility and planning, which would not have been possible without the tireless help of many people.

With the ongoing confusion of COVID,

this issue demanded more flexibility and planning, which would not have been possible without the tireless help of many people.

Special thanks are definitely in order! Firstly, I would like to thank my beautiful board, who were a pleasure to work with. They gave their all to making this journal a success. Thank you to all of the sub-editors who gave their time to improve the papers in this journal. Thank you to the authors and their faculty supervisors for sharing your work with us. And thank you to the UCR community, for allowing us to have this space and for taking an interest in the work students are undertaking. Thank you for reading and continuing to support each other throughout the UCR journey. The UCR community feeling has never been more important to preserve in these trying times.

I hope these papers inspire you and remind you of what UCR represents.

With love,
Alisa Adams
Editor-in-Chief

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*“Ancient Greek Child Heroes: Tombs,
Cults, and Chthonic Rituals”*

Lúa Valino de Jong is a 4th semester student at University College Roosevelt. She is majoring in Antiquity and Art History. Her interests include Greek religion and myth, as well as Greek art and archaeology. In this paper, she writes about children in ancient Greece, since they have often been neglected in classical studies.

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Lucia Bertoldini (from Premana, Italy) was born in 1999, and in high school she studied Classical Humanities. At UCR, she is majoring in History, Sociology and Political Science, with an interest in Anthropology."

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My name is **Ruben Riemens** and I am from Middelburg. At UCR, I majored in law and microeconomics and, after being treasurer of RASA in 2019-2020, graduated in Spring 2020. From September onwards, I will start a master in legal research at Utrecht University.

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“The Question of Octopus Intelligence”

Anna Sherlock is in her sixth semester, majoring in Environmental Science, Cognitive Science, and Life Science. She hopes that more research on animal behaviour will increase the respect humans have for animals. With this essay, she highlights the capacities of one animal in particular: the octopus.

SOPHIE TER BRAAK

“COVID-19 in Zeeland”

This publication has been written by **Sophie ter Braak**, a student in her sixth and final semester at UCR. During the years she has been majoring in pre-medical sciences, in which she developed a more extensive interest in Global Health. The international spread of COVID-19 immediately caught her attention and made her enthusiastic to dive deeper into the risk factors of COVID-19, which led to this publication.

Contents

- 09 **Ancient Greek Child Heroes:
Tombs, Cults, and *Chthonic* Rituals**
- 25 **Women in the Chicano Movement:
Community and Memory**
- 37 **The Legality of Targeted Killings:
Analyzing the Interplay between Three
Legal Regimes in the Soleimani Case**
- 48 **Between Life and Death in Sardinia:
*S'accabadora***
- 58 **COVID-19 in Zeeland**
- 70 **The Question of Octopus Intelligence**



Ancient Greek Child Heroes: Tombs, Cults, and *Chthonic* Rituals

Abstract

Child hero cults during the Greek archaic period (c. 800–480 BC) consisted of children and babies venerated as heroes after their premature death, honoured with rituals, athletic games, and worship sites. Through remaining textual and archaeological evidence, this paper examines the child hero cults of Medea's children, Melikertes-Palaimon, and Opheltes-Arkhemoros. Accordingly, this paper argues that these deceased child heroes were worshipped as chthonic figures (in between life and death) because of the chthonic elements recurrent to their myths, rituals, and shrines and their special status of liminality between the living and the dead.

Introduction

Besides worshipping heroes like Herakles and Perseus, ancient Greeks also venerated child heroes. Child heroes were mythical babies or infants who after their deaths became recipients of cult, like Pelops, Erigone, and others discussed below.¹ They were honoured through rituals, athletic games, and/or *heroa* (ancient Greek or Roman sanctuaries devoted to the worship of a hero, often located at the hero's burial site).² Unlike the adult version, child heroes were not honoured for their achievements, such as founding cities, waging wars, or performing other significant deeds.³ What then, was the purpose of child hero cults during the Greek archaic period? Looking at the common characteristics between the cults of Medea's children, Melikertes-Palaimon, and Opheltes-Arkhemoros, this paper argues that deceased child heroes were once worshipped as purely liminal figures between the living and the dead, as suggested by the *chthonic*

elements recurrent in the myths, rituals, and archaeological sites related to them.

Despite the prominence of ancient Greek child heroes throughout time and place, scholarship addressing child hero cults is scarce, as opposed to the thorough research on their adult counterparts.⁴ In *Baby and Child Heroes in Ancient Greece*, Pache acknowledges this lack of research on child heroes by offering a systematic survey of most ancient Greek child hero cults.⁵ Following Pache's study, this paper aims to further reduce the gap in research. Throughout three case studies, it focuses on simply identifying the similarities and differences implicit in child hero cults and thus sheds light on their functionality.

Methodology

In order to explore the function of child heroes in Greek society, this paper employs ancient text sources, focused on the myths and rituals of the child heroes, and

¹ For more about Pelops, see Paus. 2.29.6-8; for more about Erigone, see Hyg. *Fab.* 130.

² Pache 2004a, 1-2.

³ *Ibid.*

⁴ *Id.*, 2-3.

⁵ Pache 2004a; Pache 2004b. Farnell 1921 has also briefly tackled this gap in research.

archaeological evidence, consisting of the remains and votives found in the main cult sites. In the case of literary accounts, it should be noted that some authors (e.g. Pausanias) are of a later date than the archaic period and, thus, they are critically checked through the extant archaeological evidence.⁶ By analysing the textual and material evidence of three case studies, this paper hopes to build on Pache's collection, to offer new evidence and a new interpretation on child hero cults.⁷ Accordingly, the following pages consider the role of child hero cults in ancient Greek culture by exploring their myths and rituals, as well as their cultic sites.

The three child hero cults chosen as case studies are Medea's children, Melikertes-Palaimon, and Opheltes-Arkhemoros. These child heroes have been identified according to Pache's definition, by which they are considered child heroes if they are referred to by ancient authors as *pais*, *paidion*, *brephos*, *paidarion*, *paidiskos*, *nēpios*, or *teknon*.⁸ Moreover, they have been selected from a geographical frame spanning no more than 50km, with sites at Corinth, Nemea, and Isthmia in Peloponnese. Even though this might help prevent any cultic differences caused by geographical variations, it will also be less feasible to extrapolate the conclusions of this paper to the overall area of Greece. Furthermore, some of the child cults extend over multiple centuries; however, here the evidence is limited to that of the archaic period.

Hero cult of Medea's children

Medea's offspring were most likely venerated in ancient Corinth from the mid-eight century BC onwards, as suggested by the date of their potential worship temple.⁹ Although probably not completely true to the original myth, Euripides' *Medea* offers a helpful account of the aetiology of the cult. In Euripides' play, Medea learns that her husband Jason plans on casting her aside to instead marry princess Glauke.¹⁰ Out for revenge, Medea murders the two children she has with Jason, besides the bride-to-be.¹¹ Afterwards, Medea proclaims that her kids will be solemnly buried and that the Corinthians will perform rituals in their honour, as she announces, "I shall bury them with my own hands, taking them to the sanctuary of Hera Akraia, so that none of my enemies may outrage them by tearing up their graves. And I shall enjoin on this land of Sisyphus a solemn festival and holy rites for all time to come in payment for the unholy murder."¹² Thus, Euripides hints at the existence of a *heroon* and rituals dedicated to Medea's progeny.

In an alternative version of the myth, Parmeniscus elaborates on the nature of the rites performed for Medea's children. In his account, the women of Corinth refuse to be ruled by the foreign witch Medea.¹³ As a result of their discontent, they slaughter Medea's seven sons and seven daughters in the sanctuary of Hera Akraia.¹⁴ This sacrilegious

⁶ In this paper, we mostly follow the standard, latinized forms of names; except for nouns in Greek and fairly unknown names that are rarely latinized (e.g. Arkhemoros).

⁷ Pache 2004a, 2.

⁸ Id., 5.

⁹ Johnston 1997, 46.

¹⁰ Eur. *Med.* 1-145.

¹¹ Alike Euripides, most versions (schol. Lycophron 175; Paus. 2.3.6; Hyg. *Fab.* 25; Apollod. 1.9.28) allude to two children, called Mermoros and Pheres. However, others (Diod. 4.54.7) mention two twin brothers, Thessalos and Alkimenes, and a much younger brother, Tisandros.

¹² Eur. *Med.* 1379-83.

¹³ Scho. Eur. *Med.* 264.

¹⁴ Ibid.

act incurs the wrath of the gods, bringing about *miasma* (an Ancient Greek concept, defined as sacrilegious pollution that needs to be atoned for, usually through purification rituals).¹⁵ To mitigate the *miasma*, each year seven boys and seven girls from the most distinguished Corinthian families have to spend a year in the precinct of Hera.¹⁶ This can be identified as an initiation ritual like the ones found, for example, in the *Arkteia* at Brauron or the *Arrephoria* in Athens.¹⁷ Moreover, Pausanias mentions hair-cutting and dark clothing as worship elements for Medea's offspring, which are recurrent elements in initiatory and mourning rituals.¹⁸ For example, hair-cutting is featured in the cult of Hippolytos at Trozen and of the Hyperborean maidens at Delos.¹⁹ Moreover, special clothes (specific to the ritual) can be seen in the ritual of *Arkteia* at Brauron, where young girls wear saffron robes.²⁰ Yearly *chthonic* sacrifices (*henagismata*) were probably used to propitiate Medea's children.²¹ Thus, the main ritual activity in honour of Medea's dead children consisted of initiatory and mourning rituals with some *chthonic* significance.

Literary sources suggest that Medea's progeny was worshipped at a *heroon* (a sepulchral shrine dedicated to a certain

hero), but the location of such a site is not completely clear. Pausanias claims that the monument commemorating the death of Medea's children is within the city of Corinth.²² Earlier scholars, such as Scranton and several after him, have argued that the main cultic site was situated next to the fountain of Glauke in the Corinthian agora (inside the city), where later, a Roman temple was located.²³ This building has traces of an earlier structure incorporated in it, which have been interpreted as part of an earlier temple of Hera Akraia.²⁴ However, no ancient author (not even Pausanias) explicitly mentions a sanctuary of Hera Akraia within Corinth and no archaeological evidence (i.e. inscriptions) clearly signifies the building as a ritual center for Medea's offspring.²⁵ Thus, scholars like Johnston and Pache alternatively propose that the location for the cult of Medea's children is at the recently excavated temple of Hera Akraia at Perachora, outside of, but close to, the city Corinth.²⁶

At Perachora, archaeologists have uncovered a temple dedicated to the goddess Hera, dating back to 525 BC, and a smaller apsidal structure, dated 800 to 700 BC.²⁷ Located in an upper terrace (see Fig. 1), this apsidal building might be the *heroon* built in memory of Medea's offspring, as

15 Ibid.

16 Ibid.

17 Aristoph. *Lys.* 641-67 and scholia. For a critique of the interpretation of the Hera Akraia rituals as initiatory rituals, see Johnston 1997, 50-1, who claims that the focus might instead have also been more on the mothers.

18 Paus. 2.3.7; Johnston 1997, 50; Pache 2004a, 46..

19 For the ritual at Trozen, see Paus. 2.32.1; for the ritual at Delos, see Paus. 1.43.4.

20 Aristoph. *Lys.* 641-67 and scholia.

21 Johnston 1997, 50.

22 Paus. 2.3.6f.

23 Scranton 1941, 131-65; Brelich 1959, 217; Salmon 1972, 159-204.

24 Johnston 1997, 47-50; Pache 2004a, 43; Dunn 1994, 110. Also, see Dunn 1994, 108-10 for an alternative theory, stating that there may not have been a tomb at all.

25 As noted by Johnston 1997, 48.

26 Suggested by the primary sources Eur. *Med.* 1378-83; Parmeniskos ap. schol. Eur. *Med.* 264. For more information, see Dunn 1994, 110.

27 Lefèvre-Novaro 2000, 66-67.

the one mentioned by the textual evidence. This building has a sacrificial table with a duct in its centre, which allows the blood of sacrificial animals to flow into the earth.²⁸ This specific type of sacrificial table, known as the *eschara*, is often found at the temples of *chthonic* divinities.²⁹ Through the sacrifices performed on it, the blood is metaphorically poured into the Underworld.³⁰ Therefore, if this cult site is indeed dedicated to Medea's children, the *chthonic* implications through its *eschara* are strong.

The Hera Akraia sanctuary also possessed several *chthonic* votives. The overall location contained remains of cooked pomegranates which seem to have *chthonic* significance.³¹ Pomegranates are a link to the Underworld, as shown in the myth of Persephone's kidnapping, in which Persephone becomes bound to the Underworld by eating a pomegranate.³² Likewise, the site holds fragments of *ex-votos* (offerings given in order to fulfil a vow) decorated with snakes, which can be considered *chthonic* symbols.³³ Snakes are recurrent in myths related to death and earth, such as in the myth of Erichthonius, a snake-like creature sprouted by the earth who causes the deaths of Herse and Aglauros.³⁴ As Ogden indicates, snakes inhabit both the worlds of the living and

the dead, "the creature that divide[s] its life between the earth and the surface, and which ever [*sic*] renews its own life by sloughing."³⁵ Therefore, the tomb of Medea's children possesses architectural elements and votives of *chthonic* meaning.

Hero cult of Melikertes-Palaimon

Melikertes-Palaimon was a child hero worshipped at Corinth from around the sixth century BC: the festivities in his memory were probably established in 580 BC.³⁶ The first account of Melikertes' cult, by Pindar, outlines the child hero's myth: baby Melikertes dies and is afterwards honoured with a *heroon* and the Isthmian Games (one of the four major Panhellenic festivals).³⁷ Later accounts narrate Melikertes' death in more detail. Ino, the mother of Melikertes, nurtures the newborn god Dionysus, Zeus' son by the mortal princess Semele. This act incurs the wrath of Hera, Zeus' jealous wife.³⁸ Ino is driven mad by Hera, leaping into the fatal sea with her own infant son Melikertes in her arms.³⁹ Melikertes' corpse is salvaged by a dolphin and deposited under a pine tree, where it is found by king Sisyphus – who consequently institutes the Isthmian Games to commemorate him.⁴⁰ In short, Melikertes' myth shows that his cult involved funerary games.

28 Id., 63.

29 Ekroth 2013, 26-27.

30 Od. 10.516-37, 11.24. For more, see Ogden 2001, 7-12.

31 Ibid.

32 *HH*, 411-12.

33 Ekroth 2013, 26.

34 About Erichthonius, see Paus. 1.18.2. For more examples, see Larson 2007, 45.

35 Ogden 2013, 247.

36 About the child's name, see Ovid. *Met.* 4.481, which mentions that Melikertes receives the name of Palaimon after his death and deification. About the date of origin of Melikertes' cult, see Pache 2004a, 136. About the date of the Isthmian Games, see Miller 1990, 2.

37 Pind. I. fr.5; schol. Pind. I., cited by Drachmann 3.194.

38 Eur. *Med.* 1282-91.

39 Ibid.

40 Paus. 1.44.8.

Melikertes' funerary rites contained a couple of emphatically *chthonic* elements. Pindar mentions that the winners of the Isthmian competitions received crowns.⁴¹ Plutarch adds that these crowns were made out of *selinon* (parsley, less often translated as celery), as he states that, “[parsley is] the wreath with which Corinthians crown the victors at the Isthmian Games, considering the garland of parsley to be traditionally sacred in their country”.⁴² *Selinon* is remarkable because it was regarded as a *chthonic* plant by the Greeks.⁴³ Plutarch hints at the *selinon's* symbolism as a link between life and death when he states that it was used at funerals and given to severely ill people.⁴⁴

The main site of Melikertes' cult was a sepulchral shrine located at the temple of Poseidon in the coast of Isthmia (Fig. 3). The cult site is known because of a description given by Pausanias, “Within the enclosure [of Poseidon's temple] is on the left a temple of Palaimon [Melikertes], with images in it of Poseidon, Leucothea [Ino], and Palaimon [Melikertes] himself.”⁴⁵ Since previous remains were probably destroyed during the Battle of Corinth (146 BC), the ruins uncovered at the spot described by Pausanias are mostly from a later Roman construction, a tiny round temple from around the second century AD.⁴⁶ Nonetheless, a stadium related to the Isthmian Games has been uncovered close to this area, dating back to the second

quarter of the sixth century BC.⁴⁷ Therefore, it seems likely that the Roman remains found there are a continuation of a previous Greek cultic tradition, like the one described in written sources.

Besides the temple itself, Melikertes' cult included an *adyton* (an underground crypt or pit generally used for ritual purposes) placed close to the proposed *heroon*. Plutarch indicates that central to the Isthmian Games was a night-time contest held in an *adyton*.⁴⁸ Similarly, Pausanias mentions an *adyton* and locates it at the same site of the temple, “There is also what is called his Holy of Holies (i.e. *adyton*), and an underground descent to it, where they say that Palaimon is concealed”.⁴⁹ Confirming Plutarch's and Pausanias' accounts, the archeological site holds a long, narrow underground reservoir cut from clay – most likely the above mentioned *adyton*.⁵⁰ As reported by the ancient sources, it is a place linked to the Underworld to which cult members could only get by descending into the earth.⁵¹ Next to the *adyton*, archeologists have also discovered a sacrificial pit with a large number of unusually shaped lamps (Fig. 4).⁵² Their close location and their unusual form suggest that they were part of the cult's rituals. These lamps are recorded to be *chthonic* ritual elements, since they have mainly been found in sites related to the *chthonic* Demeter.⁵³ Therefore, Melikertes-Palaimon's cult has *chthonic* significance due

41 Pind. *Nem.* 6.44-45.

42 Plut. *Vit. Tim.* 26.2.

43 E.g. Schol. Pind. O. 13.45, cited by Drachmann 1.366. For more info, see Hansson and Heiss 2014, 328.

44 Plut. *Vit. Tim.* 26.2.

45 Paus. 1.44.8.

46 Broneer 1958, 17.

47 Pache 2004b, 14; Gebhard 1992, 61.

48 Plut. *Vit. Thes.* 25.5.

49 Paus. 1.44.8.

50 *Ibid.*, 27.

51 Campbell 2013, 14.

52 Pache 2004a, 171.

53 Genovese 2020, 186-87.

to its *selinon* crowns, cypress grove, black cloaks, and night-time ritual performed in *adyton*.

Hero cult of Opheltes-Arkhemoros

Opheltes-Arkhemoros was worshipped as a child hero in the area of Nemea from the sixth century BC on, as his Nemean festival was most likely instituted in 573 BC.⁵⁴ Although the first reference to Opheltes is found in a fragment by Simonides, the first author to explain Opheltes' death is Bacchylides.⁵⁵ In his account, the infant Opheltes is slaughtered by a snake. As indicated before, this is significant because snakes are the 'earth-animal[s] par excellence', *chthonic* symbols of the limbo between life and death.⁵⁶ Opheltes is posthumously renamed Arkhemoros, which derives from the words 'beginning' (*arkhè*) and 'deathly fate' (*moros*), forbearing the death to come in Nemea.⁵⁷ Thus, his name has an allusion to impending death. Besides, the Nemean Games (a major Panhellenic festival) are created in his honor, as Bacchylides declares that, "[the] demigods with red shields, distinguished Argives, held games for the very first time in honor of Arkhemoros [Arkhemoros]."⁵⁸ In this festival, judges wear black garments, winners receive *selinon* crowns, and the child hero is

offered black oxen – all of which are *chthonic* symbols.⁵⁹ Thus, Opheltes is honoured through an athletic festival of *chthonic* overtones.

Later accounts of the myth reveal more information about Opheltes' death. Euripides and Apollodorus narrate that the nursemaid Hypsipyle is taking care of Opheltes when she encounters the Seven (seven champions that later died fighting against Thebes).⁶⁰ Neglected, Opheltes is then fatally bitten by a venomous snake.⁶¹ Hyginus also mentions that his death happens on a bed made of *selinon*.⁶² Besides, Statius confirms that the Nemean Games are established for Opheltes and adds that a *heroon* is built in his memory.⁶³ Moreover, Pausanias alludes to a cypress grove for Opheltes, a tree associated with death, and officials dressed in black robes, also symbolic of death.⁶⁴

Therefore, Opheltes' aetiological myth contains several *chthonic* elements: the posthumous name Arkhemoros, the murderous snake, and the recurring *selinon* plant.

Opheltes' ritual activity revolves around a *heroon* situated at the edge of the temple of Zeus in Nemea (Fig. 2), identified by Pausanias' description.⁶⁵ Constructed in the second quarter of the sixth century BC, the

54 Most ritual pottery related to Opheltes dates no earlier than the early sixth century BC. However, there are a few scraps that might suggest previous cult activity, maybe as early as the eighth century BC (Antonaccio 1995, 170-76). For information about the Nemean Games, see Miller 1990, 2.

55 For Simonides' version, see Ath. 9.625.

56 Soerink 2014, 4.

57 Soerink 2014, 4; Bacchyl. *Ep.* 9.12-14; Apollod. 3.6.4.

58 Bacchyl. *Ep.* 9.10.

59 Farnell 1921, 40-41; Pache 2004, 9.

60 Eur. *Hyps.* fr. 757.41-44, 753d, 754, 754a; Apollod. 3.6.4.

61 Ibid.

62 Hyg. *Fab.* 74.1-3; Soerink 2014, 15.

63 Stat. *Theb.* 6.2-3.

64 Paus. 2.15.2.

65 Paus. 2.15.2.

heroon has the shape of a broad, low earthen mound.⁶⁶ On top of the *heroon* is a possible altar, a rectangular construction of large stones with the greatest concentration of ash, burned bone, pottery, and other votive material.⁶⁷ This suggests that Opheltes' cult entailed the burning of animal sacrifices, libations, and votive offerings.⁶⁸ Among other remains found near his tomb is a bronze pomegranate pin (BR 52) also a *chthonic* symbol.⁶⁹

At the hero's shrine, several lead tablets have been uncovered, out of which four are love curses, whilst the others are illegible.⁷⁰ This is remarkable because love curse tablets are mostly found at sanctuaries of *chthonic* divinities, especially Demeter and Persephone.⁷¹ For instance, they have been found at the sanctuary of Demeter, Persephone, and Hades at Knidos, and the sanctuary of Demeter and Persephone in Corinth.⁷² These tablets seem to be particularly rare at hero's shrines.⁷³ In fact, although there may be more, we can name only one other instance of a tablet located at a hero's cult site: a curse tablet found in the worship site of the baby hero Melikertes-Palaimon mentioned earlier.⁷⁴ Tablets like these are very significant: they address dead individuals like Opheltes or Melikertes, who serve as a connection between the living and the *chthonic* divinities, to whom the suppliant requests some deed to be performed.⁷⁵ Sometimes tablets request the dead individuals to do the deed themselves,

because of which they work as direct agents of the Underworld.⁷⁶ Since he is addressed in curse tablets, Opheltes was probably perceived as a *chthonic* figure, a link to the *chthonic* deities and the Underworld.

Discussion

The child hero cults mentioned above vary. Medea's children are worshipped through the year-long ritual initiation of fourteen children. In contrast, Melikertes and Opheltes are venerated through athletic funerary festivities: The Isthmian Games are dedicated to the drowned Melikertes and the Nemean Games are founded for the deceased Opheltes. Besides this, Melikertes and Opheltes are addressed through curse tablets, whilst Medea's children do not seem to be. However, as seen throughout the paper, these child hero cults also display patterns in their myths and cults that offer some understanding of their functionality.

All three child hero cults possess *chthonic* rituals, *chthonic* votives, or *chthonic* tombs. All of them are offered votives with *chthonic* imagery, like snakes and pomegranates. Melikertes and Opheltes are honoured with rituals linked to the death, such as the sacrifice of black oxen and the use of *selinon* crowns. Melikertes and Opheltes also work as agents of the Underworld, since they are addressed in curse tablets. Melikertes' cult takes place in an *adyton*, which serves as a *chthonic* space, a connection to the Underworld. Opheltes is killed by the *chthonic* figure of a snake.

66 Bravo 2016, 123.

67 Antonaccio 1995, 170-76.

68 Bravo 2016, 123.

69 Ibid.

70 Id., 121-152.

71 Graf 1999, 127.

72 Ibid.

73 Bravo 2016, 148.

74 Pache 2004a, 135-80.

75 Graf 1999, 130-132.

76 Johnston 1997, 8.

Consequently, these child heroes present recurrent *chthonic* motifs, which seem to indicate that child heroes are linked to the Underworld and to *chthonic* deities.

So why were some dead babies and children venerated as figures connected to the Underworld and to *chthonic* divinities in ancient Greece during the archaic period? When looking at the ancient Greek sources on the death of children, most express concerns about deceased children not reaching the afterlife.⁷⁷ As explained by Garland, the ancient Greeks seemed to think that deceased infants had the same prospects as those whose lives were cut short, such as murder victims, who stayed trapped between life and death.⁷⁸ Therefore, ancient Greeks may have thought that venerating dead children served as a bridge between the alive and the dead.

In all three studied cases, the child heroes also show a connection to deities. Medea's children are connected to the goddess Hera, Opheltes-Arkhemoros is related to Zeus, and Melikertes-Palaimon is associated with Poseidon. Therefore, this connection to the divine seems to have allowed them to straddle the worlds of mortals and of the dead as *chthonic* figures.⁷⁹ Moreover, the child heroes' deaths centralize the role of a motherly figure. Medea's progeny and Melikertes die at their mothers' hands, whilst Opheltes perishes in the care of a nursemaid who acts as his mother (i.e., as caretaker). These women are exhorted by divine intervention, which results in the unfair, but inevitable, death of the children.

The central role of motherly figures in the child heroes' myths hints at the parental

anxiety of losing a child. By focalizing the fated death of a mother's progeny, these myths seem to acknowledge the inevitability of the infant's death (*moros*), whilst also addressing the fear and grief of such death. Since child mortality rates in ancient Greece were quite high, it is likely that child hero cults were partially a manifestation of the parental fear of losing a child, or even a tool to cope with the loss.⁸⁰ As Garland indicates, "early death [in ancient Greece] is not simply accepted but requires myth and ritual to be tolerable."⁸¹ Accordingly, the significance of child heroes like Medea's infants, Opheltes-Arkhemoros, and Melikertes-Palaimon becomes apparent, not only as recipients of preeminent cults during archaic Greece, but also as reflections of the society of the time.

Conclusion

In ancient Greece, during the archaic period, child hero worship displayed many *chthonic* characteristics. The cult of Medea's children exhibited *chthonic* features in the cult architecture and votive gifts, like *escharas* and depictions of pomegranates and snakes. The worship of Melikertes-Palaimon seems to have been more conspicuously *chthonic* as it consisted of a night-time ritual that took place in an underground *adyton*. The child hero Opheltes-Arkhemoros was surrounded by *chthonic* symbolism, for instance in his name, and functioned as a connection or agent of the Underworld. The *chthonic* elements found in the worship of ancient Greek child heroes, their rituals, and tombs, strongly suggest that ancient Greek child heroes of the archaic period were worshipped as connecting agents between the Underworld

77 E.g. Plut. Mor. De Gen. 22 p. 590F.

78 Garland 2013, 221.

79 It is also possible that only certain deceased infants were turned into recipients of worship because of historical reasons, but exploring this topic is beyond the scope of this paper.

80 For child mortality rates, see Pache 2004, 189; Garland 2013, 208.

81 Garland 2013, 235.

and the living. Furthermore, child heroes' aetiological myths centralized the role of a motherly figure during their death, as well as featuring the fatal intervention of the gods. Therefore, child hero cults might also evidence the parental fears latent in the Greek world. Thus, during the Greek archaic period, child heroes seem to have been venerated due to their premature death, through *chthonic*

cults that manifested their special status of liminality between life and death, as well as the parental anxiety and grief of losing a child. Accordingly, the significance of child heroes like Medea's infants, Opheltes-Arkhemoros, and Melikertes-Palaimon becomes apparent, not only as recipients of preminent cults during archaic Greece, but also as reflections of the society of the time.

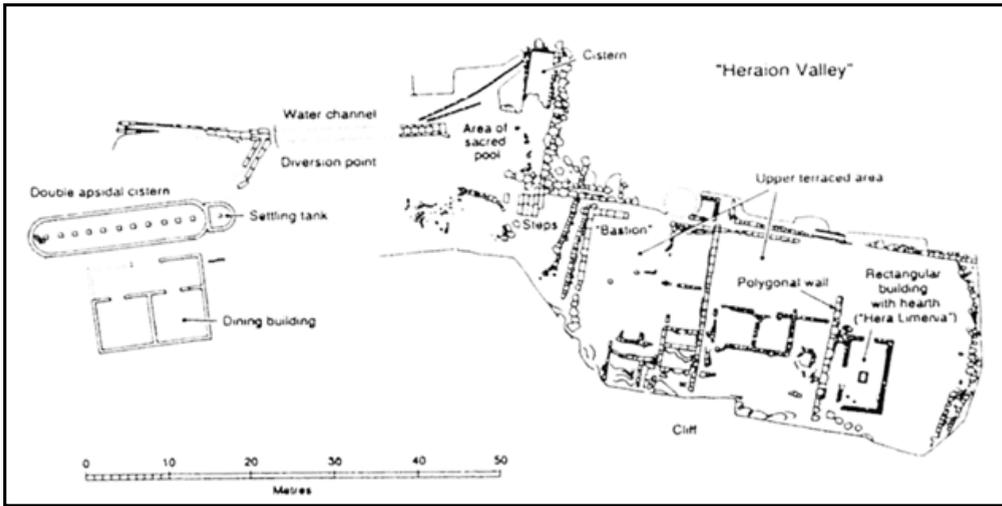


Figure 1. Overview of the temple of Hera Akraia and the probable temple of Medea's children⁸²

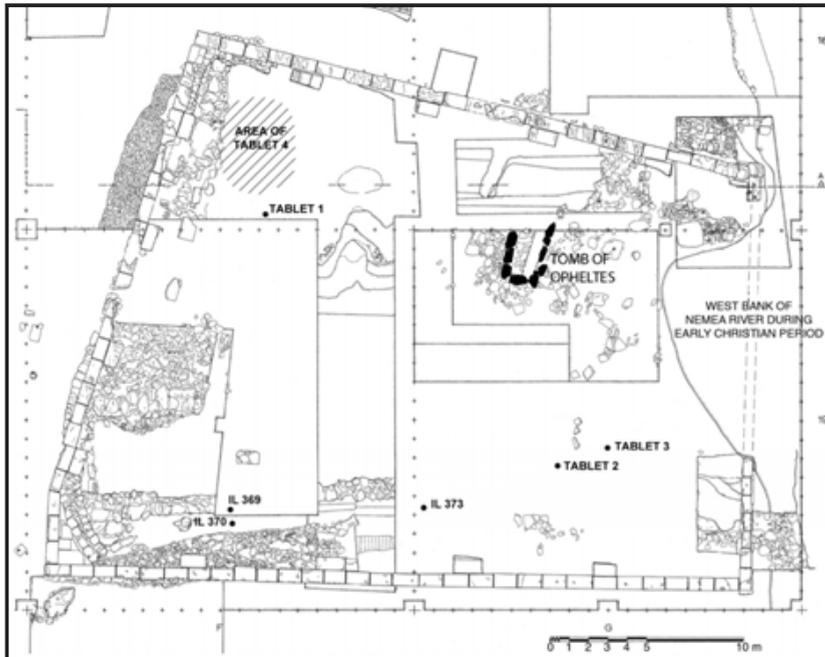


Figure 2. State plan of Opheltes' heroon and findspots of the curse tablets⁸³

82 Plummer 1966, 209

83 Bravo 2016, 123

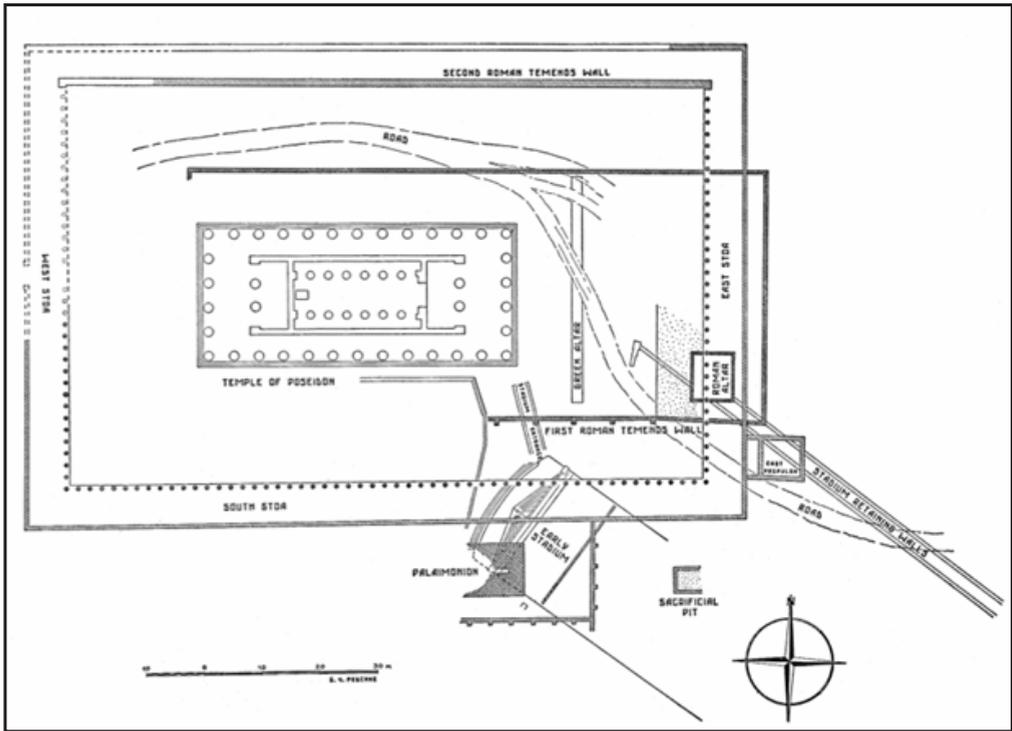


Figure 3. Sanctuary of Poseidon and Melikertes-Palaimon⁸⁴

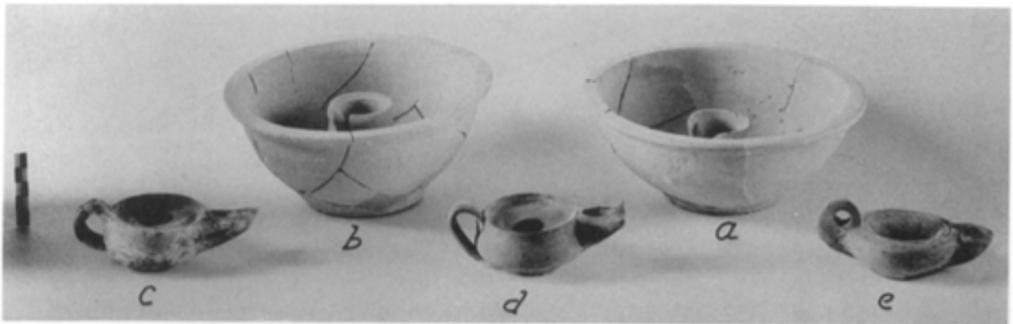


Figure 4. Five lamps from the Palaimonion area⁸⁵

84 Broneer 1958, 6

85 Ibid, plate 12

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Women in the Chicano Movement: Community and Memory

Abstract

The Chicano Civil Rights movement from the nineteen-sixties and nineteen-seventies was criticized for being male-dominated and male-orientated. Often, the efforts of women were often disregarded resulting in the marginalization of women from the movement. Despite this women found innovative ideas and redefined the movement by using art as a form of protest. This paper looks at the ways in which women contribute to the Chicano movement. It argues that, despite being shunned and excluded, women played a significant role in the Chicano Civil Rights movement. The goal of this paper is to go beyond women's participation in protests and strikes and focus on the way they influenced the movement and made their voice heard through art forms. It will look into the different characteristics that define and distinguish Chicana's artwork and how it became part of the movement.

The decade of the nineteen-sixties in the United States was characterized by social struggle. Movements such as the Black Power and the Chicano Civil Rights movement surged in response to the systematic oppression, discrimination and segregation endured by minorities in the U.S. The topic of this paper is the role of women within the Chicano Civil Rights movement that took place between the nineteen-sixties and nineteen-seventies. The main question is how did women contribute to the Chicano movement? The central argument is that women were crucial in the Chicano movement not only because of their participation in protests and strikes but also because of the different and innovative ways in which they enriched the movement

through artistic and literary means.¹

To better understand these contributions, the paper is divided into three different parts. The first part is a small introduction to the historical context of the Chicano movement. It will also address its patriarchal structure and the exclusion of women from the movement. The second part analyses how Chicanas contributed to the movement by re-defining the history of the Chicano community using art and literature. Finally, the paper will focus on how women created a sense of unity within the movement through the creation of murals.

This paper will draw upon Nanette Regua's article *Women in the Chicano Movement: Grassroots Activism in San José* published in 2012.² In her paper, Regua

¹ It is important to note that the paper will not focus on the entirety of the Chicano Art movements. In fact, the Chicano art movements arose at the same time as the Chicano Civil Rights movement during the nineteen-sixties. This movement was characterized by the use of strong Latino symbolism and Spanish language. Although such artistic movements are a form of resistance, this paper will focus on art pieces from the Chicano Civil Rights movement that seek to be explicitly political by porting a strong statement supporting the Chicano Civil Rights movement. In other words, the pieces analysed in this paper should not only have the cultural-affirming narratives that characterize the Chicano Art Movement but should also seek to denounce the injustices experienced by the Chicano community.

² Nanette Regua, "Women in the Chicano Movement: Grassroots Activism in San José." *Chicana/Latina Studies*(2012): 114-152.

uses ten interviews she conducted with Chicana women to prove that women were crucial to the movement despite the fact that their contributions were often disregarded or portrayed as secondary to men's. The women she interview, out of which two used a pseudonym, were named Delia Alvarez, Ernestina Garcia, Sofia Mendoza, Elena Minor, Fernanda Reyes, Consuelo Rodriguez, Concha Saucedo, Rachel Silva, Shirley Trevino and Monica Venezuela. They all came from poor or working-class families that lived in San Jose, California. Although Regua makes a good case, her definition of participation is limited. In fact, she focuses primarily on women's participation in strikes and marches. This paper addresses this limitation by expanding the notion of participation to include art and literature. It draws from various primary sources such as poems, journals, paintings, and murals. Moreover, this paper will not limit itself to a single city but rather explore the various ways in which the movement appeared throughout the whole country. However, it will maintain the small-scale grassroots activism approach to the movement that Regua highlights in her paper.

What is the Chicano Movement?

The Chicano movement has a long history of struggle. The term comes from the Nahuatl word *Mexica* used to refer to the Nahuatl-speaking population of Mexico and was later used as an insult by White-Americans to depict Mexican-Americans. The movement is known for its inconsistency and tendency to disappear and resurge years later. The movement was initiated by

Mexican-Americans after the violation of the Guadalupe Hidalgo Treaty in 1848, leading to the U.S. invasion of Mexico and the second major redefinition of the Mexico-U.S border.³ In fact, the border between Mexico and the U.S. saw various important changes through the 19th century. These changes resulted in the annexation of the present territories of California, Nevada, Utah, New Mexico as well parts of Arizona, Colorado, Kansas, Oklahoma and Wyoming to the United States of America.⁴

Each time the border was changed the Mexican population inhabiting the territory became a minority due to cultural and socioeconomic differences they had with the Anglo-American population of the United States.⁵ They were discriminated against and became unwanted foreigners in a land that was theirs but no longer belonged to them.⁶ Various generations later, inspired by the Black Civil Rights movement, the descendants of such populations decided to engage in nation-building by fighting for equality in their community.⁷ They stopped identifying as Americans or Mexicans, rejected a white identity and defined themselves as Chicanos and started the Chicano Civil Rights Movement. With time, the movements were opened to all Americans of Latin-American descent who often faced the same discrimination, exploitation and segregation as Mexican-Americans.⁸

However, it is important to highlight that gender-equality was not a main theme within the Chicano movement. Men from the Chicano movement were products of a patriarchal and homophobic culture and did not question the gender roles

3 Arturo Rosaler, *Chicano! The History of The Mexican American* (Huston, Arte Público Press, 1997).

4 Ibid.

5 José Ángel Gutierrez, "The Chicano movement: Paths to power." *The Social Studies* 102, no. 1 (2010): 25-32.

6 Ibid.

7 Ibid.

8 Carlos Muñoz, *Youth, identity, power: The Chicano movement* (London, Verso Trade, 2007).

established by the society.⁹ The movement was male-dominated and male-orientated. As a result, women were often excluded from the narrative of the movement and their achievements and their contributions were often disregarded.¹⁰ Despite this, Chicanas continued to contribute to the movement by re-defining Chicano history and creating a sense of community through the use of art.

How did Chicanas re-define Chicano history through the use of art?

The Chicano Civil Rights movement is characterized by the posters, poems, journals and murals that accompanied the Chicano's fight for equality.¹¹ The art created by Chicanos and Chicanas within the art movement was characterized by the Latino iconography and displays of biculturality. Art pieces were very often bilingual, using phrases or words both in Spanish and in English.¹² This was a way of contesting white identity and reclaiming a bicultural identity.

The Chicano Civil Rights Movement often worked hand in hand with the Chicano Art movement. Many art pieces portrayed political messages in line with the Chicano Civil Rights movement's agenda and as a result art became part of the political movement. In her paper, Regua gives the example of a poem written by a Chicano activist where he depicts the image of a woman picketing a supermarket as a form of protesting.¹³ However, the author forgets to mention that many Chicana activists also

participated in the creation of art but often approached it from a different angle than men.

Although all art forms from the movement show a clear bicultural esthetic, art created by Chicanas had the particularity of using strong iconography of memory.¹⁴ In much of their work, Chicanas referenced past Latino cultures, like the Inca culture, as well historical events, such as the violation of the Guadalupe Hidalgo treaty, and even important historical figures, such as Chicano war heroes. This use of history in art reinforced the Chicano identity by allowing them to reclaim the history of their community in order to redefine themselves.¹⁵ Thus, women went beyond the usual forms of protesting and resistance, such as organizing marches and strikes. The art works also reminded the observer that the Chicano community struggles have a strong and long history that differentiates Chicanos both from Latinos and Americans. It was a way of using the past in the present.

A clear example of this emphasis on history and how it is used to reinforce the Chicano identity is a poem by Joye R. Swain published 1975.¹⁶ The poem is written in first person and directed to Mictlancihualt, the goddess of death according to the Aztec culture. In the poem, the poet tells the goddess that everyone keeps saying that all the gods of the past are dead. However, Joye reassures the goddess by telling her that she knows that she, the goddess death, will never

⁹ Norma Alarcón, "Chicana feminism: In the tracks of 'the' native woman." *Cultural Studies* 4, no. 3 (1990): 248-256.

¹⁰ Alma M Garcia, "The development of Chicana feminist discourse, 1970-1980." *Gender & Society* 3, no. 2 (1989): 217-238.

¹¹ Ella Diaz, "Seeing is Believing: Visualizing and Performing Testimonio in Chicana/o and Latina/o Art." *Chicana/Latina Studies* (2011): 35-83.

¹² Ibid.

¹³ Regua, Nannette. "Women in the Chicano Movement: Grassroots Activism in San José." *Chicana/Latina Studies*(2012): 114-152.

¹⁴ Laura E Pérez, *Chicana Art*. (Durham, Duke University Press, 2007).

¹⁵ Ibid.

¹⁶ Joye R. Swain, "Mictlancihualt." *Letras Femeninas* 1, no. 2 (1975): 7. Accessed December 10, 2020. <http://www.jstor.org/stable/23066498>.

die because wherever there is life there is death.

“Mictlancihualt

Los viejos dioses están muertos,
Mictlancihualt.

O así dicen, hombres y mujeres, jóvenes
y niños:

- En las naves de las catedrales;
 - En los corredores de los museos;
 - En las salas de la universidades;
 - En los vestíbulos de los cines;
 - En los periódicos de la esquina;
 - En los libros en las librerías;
 - En la Capital esta mañana;
 - En los salones cada tarde;
- Así dicen. Pero yo no les creo.

Otros pueden morir, quizás. Pero tú no.
Mictlancihualt.

Yo te he visto.

Mictlancihualt, Diosa de la Muerte,
Tú vives !

- En las cunas de los niños;
- En las tumbas de Monte Alabán;
- En la risa del macho;
- En el llanto de la mujer;
- En el llanto de la mujer;
- En las calaveras de la Posada;
- En las murales de Rivera;
- En los panteones el Día de los Muertos;
- En los barrios cada noche

Mueran otros, pero Tú, no.
Tú vives, Mictlancihualt !

Joye R. Swain” 17

(“Mictlancihualt

The gods of old are dead, Mictlancihualt.

Or so they say, men and women,
youngsters and children

- In the nave of the cathedrals;
 - In the halls of the museums;
 - In the rooms of the universities;
 - In the lobbies of the cinemas
 - In the books in the libraries;
 - In the Capital this morning;
 - In the salons every afternoon;
- So they say. But I don't believe them.
Others may die, maybe. But not you.
Mictlancihualt.

I have seen you.

Mictlancihualt. Goddess of death,
You live!

- In the cribs of the children;
 - In the tombs of Monte Alabán;
 - In the laughter of the macho
 - In the cry of the woman;
 - In the cry of the woman;
 - In the skulls of the Posada;
 - In the Murals of Rivera;
 - In the cemeteries of the Day of the Dead
 - In the neighborhoods every night
- Others dies, but You, not.
You live, Mictlancihualt !

Joye R. Swain” 18)

In this poem, we see a clear reference to the Chicano's Mexican past, represented here by Mictlancihualt. Joye Swain is aware that this part of the Chicano culture can never die, despite what society might say, because it is part of their history and who they are. Here, through poetry, the author redefines the history of Chicanos and enriches the

17 Joye R. Swain, "Mictlancihualt." *Letras Femeninas* 1, no. 2 (1975): 7. Accessed December 10, 2020. <http://www.jstor.org/stable/23066498>.

18 Joye R. Swain, "Mictlancihualt." *Letras Femeninas* 1, no. 2 (1975): 7. Accessed December 10, 2020. <http://www.jstor.org/stable/23066498>.

movement with poetry. It is also important to note that Joye chose to write a poem about a Goddess and not a God, establishing the historical importance of the feminine figure in ancient Mexican culture, something that men rarely did.

The poem was published in the *Letras Femeninas* journal, one of the many journals that surged from the Chicano Movement. The journal published solely works written by Chicanas and was coordinated only by women. It had a poetry, literature and critical analysis section as well as an *homenaje* section where the lives of important, historical feminine Chicana figures were honored. This section aimed for the establishment of feminine historical Chicana figures that were often disregarded by the male-dominated movement. Showing once again how Chicanas contributed to the movement by

drawing from history.

This was also visible when it came graphic design. In fact, posters created by Chicana artists, unlike the ones created by Chicano artists, often portray women that were important within the movement. Figure 1, for example, is a poster displaying the profile of Lolita Lebron, a Puerto Rican Chicana activist that was charged with attempted murder after protesting against the designation of Puerto Rico as a commonwealth.¹⁹ By using her image in the poster, not only does the artist Linda Lucero make a strong political statement against the oppression of Chicanos, but she also makes sure that the history of the women that contributed to the movement is passed on.



Figure 1: Linda Lucero, *Lolita Lebron. Viva Puerto Rico Libre!* (Lolita Lebron. Long live Puerto Rico Free!), 1975

19 Linda Lucero, *Lolita Lebron. Viva Puerto Rico Libre!*. 1975. Silkscreen 28in x 22in. (La Raza Silkscreen Center).

How did Chicanas contribute to the community identity of the movement?

In her paper, Regua highlights the physical segregation that Chicanos experienced during the nineteen-sixties and nineteen-seventies. She explains that in San José, tenants were forbidden from renting their property to individuals with Hispanic surnames.²⁰ As a result, Chicanos were segregated to the neighborhoods within the periphery of the cities, called the *barrios*. This was a reality confronting Chicanos nation-wide. These neighborhoods were characterized by their insecurity, unmaintained schools and lack of infrastructure. However, Regua does not mention how, by creating murals, women reclaimed the space and established a sense of community while denouncing the inequalities experienced by Chicanos. The following paragraphs explore the role of muralist women and how they created a community within the *barrios* and the movement.

The *barrios* became an important place of resistance and symbol of the Chicano Civil Rights movement. The appropriation of the walls in the *barrios* through the creation of murals became increasingly important in the

movement. Murals allowed the Chicanos to visually communicate their history not only to their community but to the rest of the world. They displayed the collective experiences of the community that simultaneously spoke to the struggles of other minorities.²¹ The result was a redefinition of a space of oppression and segregation into a visual expression and physical place for marginalized peoples.²²

A clear example of such murals is Figure 2, which displays a mural situated in a *barrio* in North Hollywood.²³ The piece, coordinated by a Chicana woman in 1983, displays the struggles faced by the Chicano community. The segregation endured by the community is represented by the separated family painted at the left of the image and by the title of the piece "division of the barrios". The mural also highlights the police brutality experienced by women in the movement. Unfortunately, the police brutality endured by women during protests is a topic that is often forgotten by the male-dominated Chicano movement. Murals painted or coordinated by women, unlike those painted or coordinated by men, always depicted the struggles faced by Chicanas.

20 Nannette Regua, "Women in the Chicano Movement: Grassroots Activism in San José." *Chicana/Latina Studies*(2012): 114-152.

21 Robb Hernandez, "Mapping Another LA: The Chicano Art Movement." (Los Angeles, Fowler Museum, 2011).

22 Ibid.

23 Under the supervision of Judith Baca, *Division of the Barrios and Chavez Ravine*, Tujunga Wash, North Hollywood, 1983.



Figure 2: Under the supervision of Judith Baca and Tujunga Wash, Division of the Barrios and Chavez Ravine, North Hollywood, 1983.

The approach taken by women regarding the painting of murals was unique and enriched the Chicano Civil Rights movement. Women's murals did not only send a political message against oppression while successfully portraying the community's history, they also promoted a sense of unity and community among Chicanos.²⁴ Women often challenged the emphasis of individualism portrayed by murals that were created by a single artist and represented a single reality. Chicanas made sure that the murals they created were a collective experience before, during and after the realization of the mural.²⁵ Murals by Chicanas were characterized by the participation of various artists during their

creation as well as by the *fiestas* organized for their inauguration where all the community was invited to have drinks and eat.²⁶

A clear example is the collective of muralist *Mujeres Muralistas*. This collective was composed solely by women from Latin America and every mural created was the result of a collaboration of multiple women. Figure 3 displays the mural "Latino America" painted by the collective in a *barrio* of San Francisco.²⁷ The mural depicts iconography and scenes from all Latin America. For example, the Bolivian underworld lord *El Tio* is depicted in the center. The emblematic Mexican plants *maguey* and corn can also be seen all throughout the bottom of the

²⁴ Robb Hernandez, "Mapping Another LA: The Chicano Art Movement." (Los Angeles, Fowler Museum, 2011)

²⁵ Cary Cordova, "Hombres Y Mujeres Muralistas On a Mission: Painting Latino Identities in 1970 s San Francisco." *Latino Studies* 4, no. 4 (2006): 356-380

²⁶ Ibid

²⁷ *Latino America*, Mujeres Muralistas, San Francisco, 1974. retrieved from: https://www.foundsf.org/index.php?title=Latino-américa_by_Mujeres_Muralistas

mural. Through the use of such iconography, Chicanas succeed in creating a community identity not often seen in murals painted by Chicano men. Moreover, during the inauguration of this mural Chicanas distributed pamphlets condemning the inequality and suppression experienced by the Chicano community.

In conclusion, Chicana women contributed to the movement in many ways. Not only were they, as Regua notes, very present in marches and strikes, but they also contributed through the creation of posters, murals, journals and poetry. They strengthened the movement by re-shaping Chicano memory through poetry and posters. They celebrated communal histories with iconography of and depictions of historical figures. These expressions rejected white identity and instilled a sense of pride. They also countered male individualism. Chicana expressions of community reached beyond Chicano/a people. Murals, for example, redefined physical space and connected Chicano/a experiences with other

marginalized peoples.

Chicanas experienced a double oppression. They were discriminated against by the Anglo-American society due to the Latino heritage, and they were disregarded by the male-dominated Chicano movement. Through the creation of murals, posters, journals and poems, Chicanas fought against this double-discrimination. Chicana resistance of this double-oppression through various art forms and enriched social movement, community, and individual lives. Future research might explore other ideas and ideals by exploring additional expressions like Chicana theater and performance. In fact, during my research I came across various plays and performances by Chicanas in which I noticed a similar use of memory iconography and rejection of individualism can be observed in both Chicana theater and performance. An example is the choreographed performance *Flight to Izcán* performed in San Francisco by Bernardi, a more contemporary artist that also incorporates themes of history in her art.²⁸



Figure 3: *Latino America*, Mujeres Muralistas, San Francisco, 1974.

28 Ella Diaz, "Seeing is Believing: Visualizing and Performing Testimonio in Chicana/o and Latina/o Art." *Chicana/Latina Studies* (2011): 35-83.

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Appendix 1: Posters and Murals by Men

As the main goal of this paper is to focus on the artworks of Chicanas, little explicit analysis of art by Chicanos is provided through the text. This small appendice seeks to analyse murals and posters created by men and highlight how they differ from the ones created by women.

Figure 4 represents a mural by Emigdio Vazquez, titled “Tribute to the Chicano Working Class”.²⁹ The mural is a clear example of how women were segregated from the male-dominated movement. Although this is supposed to be a tribute to the Chicano working class, the mural depicts solely men. The only woman represented has been placed behind the men and is significantly smaller

than the rest of the characters.

Another clear depiction of the exclusion of women from the movement is figure 5.³⁰ In this poster by Richard Duardo, does not use memory iconography which is very present in Chicana art. Moreover, he emphasizes the importance of individualism as the two men are portrayed alone and take up the entirety of the poster. This type of portrayal was strongly critiqued in Chicana art forms that always emphasized the importance of community. It is also important to note that art pieces by men were rarely created in collaboration with other artists, another characteristic of the individualism portrayed in art by Chicano men.

²⁹ Emigdio Vazquez, *Tribute to the Chicano Working Class*, 1979, 8 feet x 64 feet, Orange, California.

³⁰ Richard Duardo, *Zoot Suit*, 1978, 40in. x 26 in.



Figure 4: Emigdio Vazquey, *Tribute to the Chicano Working Class*, 1979, 8 feet x 64 feet, Orange, California.



Figure 5: Richard Duardo, *Zoot Suit*, 1978, 40in. x 26 in.



The Legality of Targeted Killings: Analyzing the Interplay between Three Legal Regimes in the Soleimani Case

Abstract

This paper analyzes the interplay between *jus ad bellum*, *jus in bello*, and international human rights law (IHRL) in cases of targeted killings, with special attention to the drone attack on Iranian general Soleimani by the US. As drone strikes are becoming a regular feature of warfare, more targeted killings can be expected in the future, making questions about its legality extremely relevant. Since the three legal regimes yield different answers to the question of legality, and international lawyers are divided on which regime should be prioritized, uncertainty prevails. This paper suggests that the key to a solution might lie in a broader legal interpretation of the scope of the notion of ‘assassination’ under *jus in bello*. This would allow for harmonization of *jus in bello* and international human rights law on the topic of targeted killings, scrutinizing them under both regimes.

Introduction

Over the past decade, drone warfare has become central to the response to the terrorism of both the US¹ and the UK². Increasingly, non-state actors are using drones as well.³ With 102 countries and at least 20 non-state actors possessing military drones, we are said to live in a ‘second drone age’.⁴ The primary military use of drones is to ‘neutralize dan-

gerous individuals’ in so-called targeted killings.⁵ Previously, two UN special rapporteurs already focused on the unclarity of state obligations related to targeted killings, the last one being in 2013.⁶ However, after the targeted killing of Iranian General Soleimani by the US, international lawyers were very much divided on the question of whether this targeted killing was legal.⁷ Part of the division

1 WG Werner, ‘Drones, targeted killings and the politics of law.’ (2015) 2 *Netherlands Journal of Legal Philosophy* 95

2 J McDonald, ‘Decapitation, repression, or cauterization? The problem of targeted killings’ in DM Jones and others (eds) *Handbook of Terrorism and Counter Terrorism Post 9/11* (Edgar Elgar Publishing, 2019) 53

3 H Haugstvedt and JO Jacobsen, ‘Taking Fourth-Generation Warfare to the Skies? An Empirical Exploration of Non-State Actors’ Use of Weaponized Unmanned Aerial Vehicles (UAVs—‘Drones’).’ (2020) 14(5) *Perspectives on Terrorism*, 26

4 A Callamard, ‘Report of the special rapporteur on extrajudicial, summary or arbitrary executions - Annex: the targeted killing of General Soleimani (2020) *UN Doc A/HRC/44/38*

5 *supra* (n 1)

6 *A/HRC/26-36, A/68/382*

7 L Ferro, ‘Killing Qasem Soleimani: International Lawyers Divided and Conquered.’ (2020) *Case Western Reserve Journal of International Law, Forthcoming*

is due to the confusion about which legal regime needs to be applied.⁸ Even when there is agreement about the legal regime, there can still be reasonable disagreement about the legality of targeted killings, as exhibited by Soleimani's targeted killing.⁹ This unclarity presents a problem to international security, especially when targeted killings become more and more common, as demonstrated by the elimination of Mohsen Fakhrizadeh, former head of the Iranian nuclear program, in November 2020. This paper, therefore, aims to explore the legality of targeted killings by examining the debate around General Soleimani's death, focusing on the interplay of the three legal regimes of the *jus ad bellum*, the *jus in bello*, and international human rights law (IHRL).¹⁰ This paper suggests that the key to a solution might lie in a broader legal interpretation of the scope of the notion of 'assassination' under *jus in bello*. This would allow for harmonization of *jus in bello* and international human rights law on the topic of targeted killings.

Targeted Killings under Three Legal Regimes

On the 3rd of January 2020, Iranian General Qasem Soleimani was killed in an American drone attack together with nine other individuals.¹¹ The attack was a con-

sequence of the already escalating conflict between Iran and the US. As a result of the killing, Iran and the US almost engaged in open warfare. Although that did not happen, the killing still triggered many debates about its legality.¹² The core of the argument lies in the question of which legal regime needs to be applied since the legality of the targeted killing depends on the result of that debate. After all, Special Rapporteur Callamard wrote that 'although in most circumstances targeted killings violate the right to life, in the exceptional circumstance of armed conflict, some may be legal'.¹³ The Soleimani killing perfectly illustrates the importance of the question of which regime ought to be applied since each regime yields a somewhat different answer to the question of legality.

International Human Rights Law

Article 6(1) of the International Covenant on Civil and Political Rights (ICCPR) prohibits arbitrary deprivations of human life.¹⁴ States are not only obliged to respect this at the domestic level but also extraterritorially.¹⁵ Only in strictly limited conditions can targeted killings be justified under international human rights law,¹⁶ since arbitrary targeted killings under international human rights law are a violation of Article 6 *ipso*

8 supra (n 4)

9 supra (n 7)

10 In some instances, the term 'international humanitarian law' (IHL) is used to refer to *jus in bello*

11 supra (n 7)

12 R Janik, 'Soleimani and Targeted Killings of Enemy Combatants – Part I: Revisiting the "First Shot"-Theory' (2020) *Opinio Juris*, available at <http://opiniojuris.org/2020/01/20/soleimani-and-targeted-killings-of-enemy-combatants-part-i-revisiting-the-first-shot-theory/>

13 supra (n 4) 3

14 International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR)

15 See Legal Consequences of the the Construction of a Wall in the Occupied Palestinian Territory (Advisory Opinion) 2019 ICJ para 109; General comment no. 31 [80], The nature of the general legal obligation imposed on States Parties to the Covenant (2004) HRC (CCPR/C/21/Rev.1/Add.13)

16 D Kretzmer, 'Targeted killing of suspected terrorists: Extra-judicial executions or legitimate means of defence?' (2005) 16(2) *European Journal of International Law* 171

*facto*¹⁷.¹⁸ Thus, taking the ICCPR as a basis, the legality of targeted killings depends on whether the act is interpreted as ‘arbitrary’.¹⁹ Interestingly, the approach in the European Convention on Human Rights (ECHR) differs somewhat, only allowing violations of the right of life in cases of ‘absolute necessity’.²⁰ However, in practice, both approaches yield a very similar result. Kretzmer concludes that there are only two circumstances under which a targeted killing can be justified under international human rights law.²¹ First, lethal force can be justified as a form of preemptive self-defense when the immediacy of the danger is sufficiently high, using the *Caroline* test.²² Second, in cases where there is substantially strong evidence of a terrorist attack and apprehending or arresting the suspect is virtually impossible, lethal force can be justified. This second point is significantly weaker and mostly based on ambiguities in a report by the UN Human Rights Committee on targeted killings in the Occupied Territories,²³ and the lenient approach taken in *Kelly v UK*,²⁴ in which the European Commission on Human Rights disregarded the notion of imminence. However, this decision has been

criticized by many.²⁵ Therefore, it seems fair to conclude that the targeted killing of General Soleimani violated Article 6 ICCPR. After all, General Soleimani did not pose an imminent threat, and thus his killing was arbitrary and unnecessary.

Jus ad Bellum

Article 2(4) of the UN Charter prohibits the threat or use of force in international relations,²⁶ which is also an established rule of customary international law.²⁷ The only exception to this rule is codified in Article 51, granting states the right of self-defense ‘if an armed attack occurs’.²⁸ The targeted killing of General Soleimani is clearly in violation of the prohibition of the use of force, unless the attack falls under Article 51. The US, in its public announcement, argued that it was preemptive self-defense in stating that ‘the U.S. military has taken decisive defensive action to protect U.S. personnel abroad by killing Qasem Soleimani’ and that Soleimani was ‘actively developing plans to attack American diplomats and service members in Iraq’.²⁹ However, an act of self-defense needs to respect the principles of necessity, propor-

17 *Ipso facto* means “by the fact itself”

18 supra (n 4)

19 supra (n 16)

20 Convention for the Protection of Human Rights and Fundamental Freedoms (European Convention on Human Rights, as amended) (ECHR) Art 2

21 supra (n 16)

22 G Nolte, ‘Preventive Use of Force and Preventive Killings: Moves into a Different Legal Order.’ (2004) 5(1) *Theoretical Inquiries in Law* 111

23 Concluding Observations of the Human Rights Committee: Israel 21/08/2003, CCPR/CO/78/ISR, available at https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolNo=CCPR%2fCO%2f78%2fISR&Lang=en

24 *Kelly v United Kingdom*, 74 D & R (1993) 139

25 S Joseph, ‘Denouement of the Deaths on the Rock: the Right to Life of Terrorists.’ (1996) 14(1) *Netherlands Quarterly of Human Rights* 5; F Leverick, *Killing in Self-Defence*. (Oxford University Publishers, 2006) 183

26 United Nations, *Charter of the United Nations*, 24 October 1945, Article 2(4), available at <https://www.un.org/en/sections/un-charter/chapter-i/index.html>

27 Military and Paramilitary Activities in and Against Nicaragua (*Nicaragua v. U.S.*) (merits) 1984 ICJ

28 supra (n 27) Article 51

29 US Department of Defense, ‘Statement by the Department of Defense’ (Jan 2, 2020), available at <https://www.defense.gov/Newsroom/Releases/Release/Article/2049534/statement-by-the-department-of-defense/>

tionality, and imminence, generally not allowing preemptive self-defense.³⁰ As Article 51 only refers to self-defense in situations in which ‘an armed attack occurs’, most experts conclude that the self-defense requirements are not met,³¹ even if the slightly more lenient *Caroline* test is applied, since the US failed to demonstrate the imminence of the Iranian attack.³²

However, in a later letter to the UN, the US argued that it invoked Article 51 after a series of Iranian attacks taking place in 2019.³³ This raises the questions whether a series of earlier attacks justifies the use of force. Haque argues that this is not the case, stating that ‘an ongoing series of attacks is not ... an imminent attack’ and that ‘if one attack is clearly over, then the legal “clock” resets’.³⁴ Others have proposed to use the ‘accumulation-of-event-doctrine,’ which assumes that a series of events that would not qualify on their own as an armed attack, can together qualify as an armed attack, invoking Article 51.³⁵ The ICJ confirmed the possibility of such an approach in the *Nicaragua*

case.³⁶ However, Callamard disregarded this argument, stating that it blurs the difference between *jus ad bellum* and *jus in bello*.³⁷ Overall, a majority of scholars seem to believe that the killing of Soleimani was a violation of Article 2(4).³⁸

Jus in Bello

Both Iran and the US have ratified the Geneva Conventions, but Iran has not ratified the Additional Protocols, which clarifies the applicable law in case the *jus in bello* regime is applied. This doctrine will be applied only if the killing of Soleimani triggered or was part of an international armed conflict. This question, in essence, is the most important one in assessing the legality of the act, and is at the same time the most debated,³⁹ which is why the next section will cover this question in depth. This section, instead, will examine what would happen if *jus in bello* would be applied. Since General Soleimani was a military combatant on the sense of Rule 4 of the ICRC report on international customary law of armed conflict,⁴⁰ some

30 D Akande and T Liefänder, ‘Clarifying necessity, imminence, and proportionality in the law of self-defense.’ (2013) 107(3) *American Journal of International Law* 563

31 *supra* (n 7)

32 *supra* (n 4); E Al-Hihi, ‘The Right to Life in Jus Ad Bellum Targeting; A Functional Approach to Extraterritorial Jurisdiction in Human Rights Law.’ (2020) 24 *UCLA Journal of International Law and Foreign Affairs* 359

33 Letter dated 8 January 2020 from the Permanent Representative of the United States of America to the United Nations addressed to the President of the Security Council, U.N. Doc. S/2020/20, available at <https://digitallibrary.un.org/record/3846463?ln=en#record-files-collapse-header>

34 AA Haque, ‘U.S. Legal Defense of the Soleimani Strike at the United Nations: A Critical Assessment.’ (2020) *Just Security*, available at <https://www.justsecurity.org/68008/u-s-legal-defense-of-the-soleimani-strike-at-the-united-nations-a-critical-assessment/>

35 SA Talmon and M Heipnertz, ‘The US Killing of Iranian General Qasem Soleimani: Of Wrong Trees and Red Herrings, and Why the Killing May Be Lawful after All.’ (2020) *Bonn Research Papers on Public International Law Paper No 18/2020*, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3530273

36 *supra* (n 27), para 231

37 *supra* (n 4)

38 *supra* (n 7)

39 *ibid*

40 ICRC, *Customary IHL Database*, Rule 4, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_cha_chapter1_rule4, last accessed 9-12-2020

commentators⁴¹ maintain that he was a legitimate target on the basis of the principle of distinction. This has convinced some experts to declare the killing to be legal under international humanitarian law.⁴² Corten and others, however, hold that the killing was illegal and provide two legal arguments for their case. Firstly, they claim that even though Soleimani was a legitimate target, the killing was illegal on the basis of Rule 65 of the ICRC report,⁴³ prohibiting killing by resort to perfidy.⁴⁴ Although there are different views of what exactly perfidy entails, the fact that the killing of Soleimani was the first time since World War II that the US targeted a highly ranked military leader reflects the problematic character of such a killing.⁴⁵ Therefore, O'Connor argued that the killing can be seen as an assassination,⁴⁶ which is outlawed by Rule 65.⁴⁷ Secondly, Corten and others point out that Soleimani might have been on a diplomatic mission for peace negotiations in Saudi Arabia while he was killed.⁴⁸ Consequently, killing him ignored the inviolability of parlementaires, set out in Rule 67 of the ICRC report.⁴⁹

Which Regime Should be Applied?

Overall, there was significant disagreement among experts about what would happen under which legal regime.⁵⁰ Most scholars seem to agree that the killing was illegal under both *jus ad bellum* and international human rights law. The illegality of the act under the latter is also a logical consequence of the former, since a violation of *jus ad bellum* is an *ipso facto* violation of the right to life.⁵¹ However, as noted before, the killing can be justified under *jus in bello*. Therefore, it is of utmost importance to determine which doctrine needs to be applied.

In the Soleimani case, most commentators agreed that the attack was a violation of *jus ad bellum* and thus, as explained before, a violation of the right to life. This suggests that IHRL applies. However, many commentators argue that *jus in bello* applies as well. Although there might not have been an armed conflict between Iran and the US before the strike, the attack itself triggered *jus in bello*.⁵² Special Rapporteur Callamard, however, opposes the view that the first shot triggers *jus in bello* on the basis that the conflict

41 GS Corn and C Jenks, 'Soleimani and the Tactical Execution of Strategic Self-Defense.' (2020) *Lawfare*, available at <https://www.lawfareblog.com/soleimani-and-tactical-execution-strategic-self-defense>; O Corten and others, 'The Crisis Between Iran, Iraq and the United States in January 2020: What Does International Law Say?' (2020) *Centre de Droit International Université Libre de Bruxelles*, available at <https://cdi.ulb.ac.be/the-crisis-between-iran-iraq-and-the-united-states-in-january-2020-what-does-international-law-say-an-analysis-by-olivier-corten-anne-lagerwall-vaiois-koutroulis-and-francois-dubuisson/>

42 GS Corn and C Jenks, *supra* (n 42); *supra* (n 36); *supra* (n 12)

43 ICRC, *Customary IHL Database*, Rule 65, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule65, last accessed 9-12-2020

44 O Corten and others, *supra* (n 42)

45 *ibid*

46 ME O'Connell, 'The Killing of Soleimani and International Law.' (2020) *EJIL:Talk!*, available at <https://www.ejiltalk.org/the-killing-of-soleimani-and-international-law/>

47 *supra* (n 45)

48 O Corten and others, *supra* (n 42)

49 ICRC, *Customary IHL Database*, Rule 67, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule67, last accessed at 9-12-2020

50 *supra* (n 7)

51 A Gurmendi, 'The Soleimani Case and the Last Nail in the Lex Specialis Coffin.' (2020) *Opinio Juris*, available at <http://opiniojuris.org/2020/01/13/the-soleimani-case-and-the-last-nail-in-the-lex-specialis-coffin/>

52 Corten and others, *supra* (n 41); *supra* (n 11); *supra* (n 25)

lacked intensity, thus concluding that the Soleimani killing would be excluded from application to *jus in bello*.⁵³ Conversely, Corten and others vehemently reject this view, arguing that this would lead to the absurd result that a first attack could never constitute a war crime.⁵⁴ Their argument is strengthened by the Criminal Tribunal for the Former Yugoslavia, which famously stated that ‘an armed conflict exists whenever there is a resort to armed force between States’ and that ‘international humanitarian law applies from the initiation of such armed conflicts’.⁵⁵ This approach has since been adopted by other international bodies.⁵⁶ However, Janik then points out that, if the first-shot theory is valid, military combatants can then always be seen as legitimate targets, even during peacetime.⁵⁷ Although Janik raises a fair criticism, the first-shot-theory is generally accepted by the international community and therefore *jus in bello* applies to the Soleimani killing as well. Gurmendi thus concludes that under *jus in bello* the targeted attack would be legal, and under IHRL it would be illegal on the basis of Article 6 ICCPR.⁵⁸ That

raises the question of which regime should be prioritized. In order to analyze this, the next section will specifically examine the role of the ICJ.

Which Regime Should Be Prioritized?

For a long time, it was thought that in times of war, *jus in bello* fully replaced IHRL.⁵⁹ However, many human rights advocates and courts, such as the European Court of Human Rights and the UN Human Rights Committee, argued in favor of applying IHRL to situations of armed conflict. Therefore, in the 1960s, processes of co-application and harmonization had begun, and by the 1990s they were well underway.⁶⁰ In 1996 the ICJ tried to clarify the exact relation between the two regimes, establishing the *lex specialis*⁶¹ doctrine in the *Nuclear Weapons* advisory opinion.⁶² Here, the Court determined that both *jus in bello* and IHRL apply during armed conflict, but that *jus in bello* is the *lex specialis* and thus prevails. However, this resulted in more confusion, since in many cases it is hard to decide what exactly the *lex specialis* would be, and what the role

53 *supra* (n 4)

54 Corten and others, *supra* (n 42)

55 Tadic Case (Appeals Chamber Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction) ICTY IT-94-1-AR72 (2 October 1995), available at <https://www.icty.org/s/cases/tadic/acde/en/51002.htm>, last accessed at 10-12-2020

56 ICRC ‘How is the Term “Armed Conflict” Defined in International Humanitarian Law?’ (2008) *International Committee of the Red Cross (ICRC) Opinion Paper*

57 *supra* (n 12)

58 *supra* (n 52)

59 *ibid*

60 Y Shany, ‘Co-application and Harmonization of IHL and IHRL: Are Rumours about the Death of Lex Specialis Premature?’ in R Kolb and G Gaggioli (eds) *Research Handbook on Human Rights and Humanitarian Law: Further Reflections and Perspectives* (Edward Elgar, forthcoming 2020), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3646936

61 *Lex specialis* (from the Latin phrase “lex specialis derogat legi generali”) is a legal principle that states that special laws have legal supremacy over general laws

62 Legality of the Threat or Use of Nuclear Weapons (1996) ICJ, para 25, available at <https://www.icj-cij.org/files/case-related/95/095-19960708-ADV-01-00-EN.pdf>

of other conflict-resolution principles such as *lex posterior*⁶³ and *pro homine*⁶⁴ would be.⁶⁵

Moreover, it practically mutes IHRL in cases of armed conflict.⁶⁶ The UN Human Rights Committee, therefore, argues for the belt-and-suspenders approach, which calls for a central place for the *pro homine* principle, where individual rights prevail over state rights.⁶⁷ Gurmendi also called this the *lex protector* approach, when the Inter-American Court in the *Las Palmeras* case chose the most protective law over the most specific one.⁶⁸ The problem with this approach, however, is that it compels *jus in bello* to become obsolete, only functioning as a ‘confirmation tool’.⁶⁹

The ICJ, trying to find middle ground, expanded its view in subsequent cases.⁷⁰ In the *Israeli Wall* case, it stated that some rights may be exclusively matters of international humanitarian law; others may be exclusively matters of human rights law; yet others may be matters of both these branches of interna-

tional law. In order to answer the question put to it, the Court will have to take into consideration both these branches of international law, namely human rights law and, as *lex specialis*, international humanitarian law.⁷¹

Although the Court still referred to *lex specialis* in this opinion, it gave more room for interpretation. In order to interpret which regime applies, Todeschini points out that it seems to use ‘systemic integration under the guise of *lex specialis*’.⁷² In the *Armed Activities* case the Court no longer referred to *lex specialis*, but simply saw a violation of law under both branches.⁷³ This harmonization approach, focusing on coordination of two different regimes instead of on their incompatibility, can be valuable for solving apparent conflicts, but not for genuine conflicts.⁷⁴ Schabas argues that there is a genuine conflict between *jus in bello* and IHRL, since *jus in bello* is indifferent about the legality of the war, whereas war, under IHRL, is a violation

63 *Lex posterior* (from the Latin phrase “lex posterior derogat legi priori”) is a legal principle that states that newer laws have supremacy over older laws

64 The *pro homine* principle holds that in case of conflict between laws “international human rights law must first and foremost take into account the protection of the human person”. See D Ribeiro, ‘The *Pro Homine* Principle as a fundamental aspect of International Human Rights Law.’ (2016) 47 *Journal of Global Studies*

65 supra (n 61); supra (n 52)

66 supra (n 61)

67 WA Schabas, ‘Lex Specialis-Belt and Suspenders—the Parallel Operation of Human Rights Law and the Law of Armed Conflict, and the Conundrum of Jus Ad Bellum.’ (2007) 40 *Israel Law review* 592

68 A Gurmendi, ‘There and Back Again: The Inter-American Human Rights System’s Approach to International Humanitarian Law.’ (2017) 56 *The Military Law and the Law of War Review* 305

69 *ibid* 324

70 AE Cassimatis, ‘International Humanitarian Law, International Human Rights Law, and Fragmentation of International Law.’ (2007) 56(3) *International & Comparative Law Quarterly* 623

71 Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory (2004) ICJ, para 106, available at <https://www.un.org/unispal/document/auto-insert-178825/>

72 V Todeschini, ‘The ICCPR in Armed Conflict: An Appraisal of the Human Rights Committee’s Engagement with International Humanitarian Law.’ (2017) 35(3) *Nordic Journal of Human Rights* 207-208

73 Case Concerning Armed Activities on the Territory of the Congo, (Democratic Republic of the Congo v Uganda) (merits) (2005), para 216, available at <https://www.icj-cij.org/en/case/116/judgments>

74 International Law Commission, Fragmentation of International Law: Difficulties Arising From the Diversification and Expansion of International Law—Report of the Study Group of the International Law Commission, Finalized by Martti Koskenniemi, UN Doc A/CN.4/L.682, 13 Apr 2006.

per se.⁷⁵ According to Schabas, the two regimes can only be reconciled if IHRL drops the view that a violation of *jus ad bellum* is an *ipso facto* violation of IHRL.⁷⁶ However, other commentators are strongly in favor of systemic integration.⁷⁷ The ILC report on the fragmentation of international law argues that systemic integration, possibly by prioritizing one rule but keeping the other ‘in the background, continuing to influence the interpretation and application of the norm to which priority has been given,’ is of vital importance to ensure that legal regimes do not become isolated in their application, potentially yielding contradictory outcomes in the same legal cases.⁷⁸

Discussion

It is fair to conclude that there is significant disagreement among international lawyers about how to treat the targeted killing of Soleimani, and about the legality of targeted killings in general. It is therefore impossible to provide a final answer as to the question of legality. However, by combining some of the proposed theories, it is certainly possible to offer a perspective. First, it is important to accept that the first shot triggers *jus in bello*, even when the attack in question breached *jus ad bellum*. Doing otherwise, as discussed earlier, leads to absurd conclusions. Janik’s point that all military combatants always constitute a legitimate target under this premise is fair but can be overcome by systemic integration. After all, IHRL applies as well, due to the premise that a breach of *jus ad bellum*

is an *ipso facto* violation of IHRL. Since the ICJ rightfully has dropped the *lex specialis* doctrine, which rendered IHRL irrelevant, systemic integration offers the possibility of prioritizing *jus in bello*, but interpreting it in light of IHRL. Moreover, it gives the opportunity of harmonization, to focus on coordination. Corten and others might have found a possibility of coordination by highlighting ICRC Rule 65, prohibiting killing by resort to perfidy. This rule, in a way, resembles the prohibition of arbitrary killings under IHRL, and comes close to declaring such arbitrary killings illegal under *jus in bello* as well, since assassinations are prohibited under this rule. However, the main problem lies in the interpretation of the term ‘assassination’. Whereas some states interpret it as including citizens and soldiers, other states, including the US, argue that it only protects citizens and excludes combatants.⁷⁹ It would, therefore, be desirable to broaden the legal meaning of ‘assassination’ to include combatants. There seems to be enough ground to classify this as a rule of customary international law, since the assassination of Soleimani was the first time in 70 years that the US killed a high ranked military leader.⁸⁰ This would mean that the killing of Soleimani was an assassination, and is thus illegal under *jus ad bellum*, *jus in bello*, and international human rights law. It would, moreover, clarify the legality of targeted killings in general, limiting it to cases of justified self-defense in accordance with the Caroline test, in which the killing could be justified under all three regimes.⁸¹

75 supra (n 68)

76 ibid

77 see supra (n 52); supra (n 73); supra (n 61); supra (n 15)

78 supra (n 75) para 479–480

79 Corten and others (n 42)

80 ibid

81 supra n (16)

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Between Life and Death in Sardinia: *S'accabadora*

Abstract

In light of recent debates regarding euthanasia, the paper investigates life and death with an anthropological approach, by diving into Sardinian culture. In this Mediterranean island, there is a social understanding of death expressed through the popular figure of *s'accabadora*. Whether real or legendary, *s'accabadora* is a woman playing the role of midwife as well as the one of putting an end to one's sufferings. The idea of a sacred femininity embodying both life and death in the same figure is not new to Mediterranean cultures. In archaic societies, it is likely that femininity was considered a manifestation of the Great Mother. This was a triple goddess that archaic European and Mediterranean matriarchal societies seem to have worshipped. The arrival of the Indo-Europeans brought a disruption to this cultural framework, but the triple goddess survived in popular culture through various feminine figures. This paper investigates the possible connections between the Sardinian *s'accabadora* and other sacred feminine figures in the European and Mediterranean popular cultures. In other words, the aim is to understand whether *s'accabadora* is an isolated case of sacred femininity or enfolded in a wider network linking back to the Great Mother.

Introduction

Life and death are central themes in the cosmological patchwork that different cultures create in order to make sense of the world. Therefore, the understanding of life and death is key to the understanding of a culture. This paper aims to provide insight on Sardinian culture by focusing on how the people of the island have dealt with such conceptualisation within their worldview. Although fascinating, the cultural study of such concepts as life and death is relatively abstract, at least from an anthropological perspective. It is necessary to investigate these concepts by taking a symbological approach, which implies looking at the cultural representations of life and death in rituals as well as in popular figures on the boundary between folklore and religious belief.

In Sardinia, the symbol of the coexistence of life and death is *sa femmina accabadora*, or "the woman who finishes". In their folklore, this woman is the one in charge of ending the lives of those suffering within the community. She also plays the role of midwife, who welcomes new members of the community.¹ This paper investigates the cosmology of life and death in Sardinia, as well as in the understanding of the Italian state. The social acceptance of death in the context of archaic Sardinian cosmology is then discussed, and the specific death ritual of *s'accabadora* described.

Because of her ambivalent nature, *s'accabadora* stands in between life and death. This paper analyses the possible connection between *s'accabadora* and other sacred feminine figures in the Mediterranean and the

1 Gisella Murgia. "Sardegna tra leggenda e realtà: 'Sa femmina accabadora', colei che dà la buona morte, nelle immagini e nelle parole di alcuni autori sardi." *Italianistica Debreceniensis*, Vol.24 (2018): 80.

European area. Indeed, the aim is to understand whether the Sardinian conceptualisation of life and death is an isolated case, or one among other cases of sacred femininity with an ambivalent nature. Therefore, the paper focuses on the concept of ambivalent sacred femininity in Mediterranean and European archaic cultures. On the basis of this discussion, it is possible to understand whether a link between the Sardinian *s'accabadora* and the other feminine ambivalent figures can be established.

The fame of *s'accabadora* in Sardinian folklore makes her the most representative figure embodying the meaning of life and death in the cosmology of local people, which is why she is the central figure of this paper.² Even though *s'accabadora* is a well-acknowledged figure in the Sardinian cultural world, there is an ongoing debate about whether she is a mythological figure or a real woman in the villages of the island. There have been various testimonies that account for the existence of *s'accabadora* in some rural communities. The first official records are the ones of European travellers in the nineteenth century, when Sardinia was still considered a mysterious and exotic island. One of these travellers was Alberto La Marmora, who explicitly acknowledged the existence of *s'accabadora*. According to him, "in some parts of the island, some women, named as *Accabadure*, were charged with the burden of shortening the process of dying for the

suffering ones."³ Nonetheless, whether these women are part of a myth or reality is not relevant to this research. Rather, the collective memory of this feminine figure represents in itself the memory of tasks and roles that in primitive Sardinia probably had a ritual valence, as "they were linked with the mystical moments of life and death."⁴

Cosmology of life and death: Sardinia and Italy

In Italy, the interest in the figure of *s'accabadora* has recently been revived due to the current discussion on euthanasia in the Italian government. Traditionally, euthanasia is considered a taboo subject, repressed by both the Italian state and the Catholic Church. For instance, the Italian Penal Law establishes that assisted suicide is a criminal activity. Instead, in the Sardinian traditional cosmological approach, the act of "finishing a life" is believed to be an act of love for the suffering person, their family and their community.⁵ Unlike in other regions of Italy, in Sardinia there is a traditional culture of empathy with death, a sort of cultural thanatology that has profoundly influenced the worldview of its inhabitants across centuries. Within this framework, *s'accabadora* is the one elected to be in contact with the supranatural forces ruling over the processes of life and death.⁶

The act of love performed by *s'accabadora* is considered part of the natural order of things and it is not put into relation with the idea of killing. Linguistically speaking, in the

2 [Ibid.]: 80.

3 [original text]: "in alcune parti dell'isola venivano incaricate specialmente delle donne, alle quali si è dato il nome di *Accabadure* per abbreviare la fine dei moribondi" (Turchi, 1993: 2) In: Alessandra Sanna. "A proposito di *Accabadura* di Michela Murgia: Leggenda, Mito, Realtà e Storia." in: Eva Maria Moreno Lago, *Mujeres y márgenes, márgenes y mujeres* Vol.2: 108.

4 [original text]: "anche il ricordo di questa figura prettamente femminile rimanda all'assegnazione di compiti e ruoli che nel passato della Sardegna primitiva probabilmente avevano una valenza rituale, in quanto legati ai momenti spontaneamente mistici della vita e della morte." (Murgia, 2008:194) In: Sanna. "A proposito di *Accabadura* di Michela Murgia: Leggenda, Mito, Realtà e Storia.": 109.

5 Luciano Bernadette. "The Last Mother: from Enrico Pau's *L'Accabadura* (2015) to Valeria Golino's *Miele* (2013)." *Italianistica Debreceniensis*, Vol. 24 (2018): 87-88.

6 Murgia. "Sardegna tra leggenda e realtà: '*Sa femmina accabadura*', colei che dà la buona morte, nelle immagini e nelle parole di alcuni autori sardi.": 81.

Sardinian language there is a difference between *l'hat mortu* (she killed him) and *l'hat accabbadu* (she finished him; she gave an end to his suffering). Necessarily, the *accabadora* falls within the second semantic sphere. Therefore, the element of such a natural death is emphasised and it comes to be considered as a part of the circle of life, to which only *s'accabadora* is entitled to give an end.⁷

The limbo between life and death in which the *accabadora* stands is empowered by the fact that within the community she is the figure in charge of giving an end to the lives of the suffering ones, as well as the one in charge of the role of midwife.⁸ *S'accabadora* is the “last mother,” embodying in her figure the meaning of motherhood and death.⁹ She is a *femina pratica*, a woman “in between the priestess and the sorceress”. This gives her a crucial role in the community, because she is able to “heal various ills, prepare medical herbs and take the evil-eye away.”¹⁰ These elements show that she could be inscribed within the narratives of witchcraft and witches, which are traditionally highly recognised in Sardinia. According to Satta, this might be due to the fact that Sardinia did not suffer from inquisitorial practices as heavily as other parts of Europe during the time of the well-known witch-hunt.¹¹

The social acceptance of death

In Sardinia, the social acceptance of

death also shows in the rituals of both geronticide and infanticide, in which the elements of the community that did not contribute in any way to the social group needed to be eliminated. According to the traditional belief, once a member of the group reached the age of seventy, he would be pushed off a precipice by their own offspring. Generally, this kind of death was reserved only for old males, since old females were traditionally believed to be fundamental for household duties and child care.¹² This factor supposes the existence of an archaic Sardinian matriarchal culture, in which the figure of the patriarch and his incarnation of the *mores* (traditional costumes of a community) did not have the cultural and literary value that the Roman patriarchal cosmology conferred them.¹³ In the Sardinian cosmology, geronticide was understood as a sacrifice to the god *Kronos*¹⁴ that in the Roman cosmology then translated into *Saturnus*. In modern and catholic Sardinia this divinity took the name of *Santu Sadurru* (San Saturn), a saint who does not have any other correspondences within the Christian hagiography.¹⁵

Regarding infanticide, the archaic Sardinian culture required the killing of the newly born that presented physical disabilities and illnesses or was illegitimate or premature. Although the traditional Mediterranean and European narrative links this practice only to the ancient Spartan world,

7 [Ibid.]: 77.

8 [Ibid.]: 80-81.

9 Aureliana Di Rollo. “The Female Life Secret? Mother, Daughter, and New Family Paradigms in Michela Murgia's *Accabadora*.” *Carte Italiane*, Vol.12 N.1 (2019): 98.

10 [original text]: “a metà strada tra sacerdotessa e fattucchiera” and “guarire da vari mali, preparare erbe medicinali o togliere il malocchio” In: Sanna. “A proposito di *Accabadora* di Michela Murgia: Leggenda, Mito, Realtà e Storia.”: 109.

11 Andrea Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.” *Matriarcato e Montagna* Vol. 6 Report 37 (2007): 12.

12 Massimo Pittau. “Geronticidio, eutanasia ed infanticidio nella Sardegna antica.” *L'Africa romana. Arti dell'8. Convegno di studio, 14-16 dicembre 1990*. Vol.2 (1991): 707.

13 Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 4.

14 In Ancient Greek “kronos” means “time”

15 Pittau. “Geronticidio, eutanasia ed infanticidio nella Sardegna antica.”: 704.

several studies have shown that infanticide was a common practice among a huge variety of Mediterranean societies. The reason why the sources regarding infanticide are lacking might be the fact that this practice was quite common in the Mediterranean world before the advent of Christianity. Geronticide, on the other hand, seems to have been a practice peculiar to the Sardinian culture.¹⁶

However, the knowledge and the control of the element of death was necessary, not only on a social and medical level, but also on a transcendental and mystical one. Although the figure of the doctor was present in Mediterranean archaic communities, other actors had to come into play, especially when the situation of the suffering led to an area of uncertainty that opened the limbo between death and life. In Ancient Greece, when the “Hippocratic signs indicated to the doctor that the patient was entering a state of agony, «the atrium between life and death», the doctor was required to withdraw from the bedside of the dying” in order to leave space to a more mystic figure that in the catholic world would have then be embodied by the priest.¹⁷

In the framework of the Sardinian world after the advent of Christianity, it seems that the figure of the priest was not necessarily excluded by the death ritual that involved *s'accabadora*. This was possible because the religiosity of the Sardinian people is profoundly syncretic, allowing the mixture of archaic

cults, traditional Catholicism and modern instances.¹⁸ The *accabadora* was actually called *in extrema ratio* (as a last resort). Prior to that, there were a set of ritual steps that the family needed to take. Firstly, the priest was called to the bedside of the suffering person in order to absolve their sins, which the Catholic religion believes to be an obstacle to a peaceful death. Secondly, the family often chose to put into practice *s'ammentu*, a process which is connected with the Catholic belief and recalls the dying with the necessity of repentance in the immanence of their death. Lastly, the family needed to choose whether to call *s'accabadora*, the only figure in which her being a “sorceress integrated and fit with her being Christian.”¹⁹

The ritual of *s'accabadora*

In order to dive into the mystery of *s'accabadora*, it is necessary to look into how she actually performed her ritual. Testimonies report that she would come onto the stage whenever the family was sure that the sufferer was not able to recover anymore. Firstly, she would “recommend the soul [of the dying] to God”²⁰ and then she would greet him/her with the formula “Deus ci sia.”²¹ After this initial step, the ritual required that each person standing beside the bed of the suffering would leave; indeed, it was feared that either the affection of the family would keep the suffering one alive or the family's presence would not allow the soul of the dying to part

16 [Ibid.]: 710

17 [original text]: “segni ippocratici indicavano al medico che il paziente era entrato in agonia, ‘l'atrio fra la vita e la morte’, il medico doveva ritirarsi dal capezzale del morente.” In: Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 5-6.

18 Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 14.

19 [original text]: “maga si integra col suo essere Cristiana” In: Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 18.

20 [original text]: “raccomanda a Dio l'anima” In: Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 21.

21 [my translation]: “God may be here” Murgia. “Sardegna tra leggenda e realtà: ‘*Sa femmina accabadora*’, colei che dà la buona morte, nelle immagini e nelle parole di alcuni autori sardi.”: 82.

with its body.²² When *s'accabadora* left the room, the person had died. The ritual lasted only a few minutes and it was shrouded with mystery, given that nobody was allowed to witness it. However, some crucial elements of the ritual are known. For instance, the woman would end the life of the suffering one by using either *su mazzoccu*, an olive-tree hammer, or *su juvale*, a wooden yoke that was placed under the head of the dying.²³

In all archaic Mediterranean agricultural and pastoral societies, the yoke (*su juvale*) is an object full of meaning. In Sardinia, it was considered a sacred object that related to the crucial moments of death and birth. According to Gimbutas, the sacrality conferred to this object refers back to the bovine symbolism that may be connected with the cult of the Great Mother Earth.²⁴ The ambivalence of the yoke allowed for it to both indicate a difficult process of trespassing, and have a protective function whenever a woman was giving birth. Consider the following account: “in Oliena, when a baby was about to be born, the yoke was put behind the door, as it would have facilitated the delivery and lured any malefic influence.”²⁵

The practice of using *su juvale* in the death ritual of *s'accabadora* has also been recounted by Paolina Concas, who accidentally witnessed the ritual in her youth. In 2008 she was interviewed by Dolores Turchi, who at the time was busy studying the mystery surrounding this ritual of Sardinian folklore.

Paolina Concas remembers that by chance she came across the death ritual of an *accabadora*, who in that case was a woman she knew to be a member of her community. In addition to the role played by *su juvale*, which has been previously discussed, Concas also remembers another fundamental element to the ritual: all the religious symbols connected to Christianity needed to be taken away from the room.²⁶ This element has been testified to in a variety of accounts, and it proves the fact that the traditional ritual of *s'accabadora* was of a pagan nature. It certainly belonged to a religion and a cultural background, but one that was different from Christianity.²⁷

Therefore, the understanding of death within the traditional Sardinian culture has nothing to do with the mainstream Catholic narrative, which the Italian non-laic national culture has partially inscribed within its institutions. Because of such an alternative and parallel understanding of reality, in the past century there have been legal issues related to the debate on whether the practice of *s'accabadora* can be authorised by the state. One of the last instances was presented in Luras in 1929: at the time, that case was considered “emblematic” because the concerned *s'accabadora*, who had ended the life of a seventy-year-old man, was also known to be the obstetrician of the village. According to the documents of the time, “the carabinieri and the attorney of Regno di Tempio Pausania agreed to inscribe such an act within a

22 Sanna. “A proposito di Accabadora di Michela Murgia: Leggenda, Mito, Realtà e Storia.”: 109; Murgia. “Sardegna tra leggenda e realtà: ‘Sa femmina accabadora’, colei che dà la buona morte, nelle immagini e nelle parole di alcuni autori sardi.”: 83.

23 Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 22; Sanna. “A proposito di Accabadora di Michela Murgia: Leggenda, Mito, Realtà e Storia.”: 109.

24 Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 16.

25 [original text]: “ad Oliena, quando stave per nascere un bambino, il giogo veniva messo dietro la porta; avrebbe agevolato la nascita ed allontanato qualsiasi influsso malefico.” In: Murgia. “Sardegna tra leggenda e realtà: ‘Sa femmina accabadora’, colei che dà la buona morte, nelle immagini e nelle parole di alcuni autori sardi.”: 83.

26 Turchi, Dolores. “Ho visto agire s'accabadora. Intervista alla Sig.na Paolina Concas di anni 90 fatta il 25/03/2008.”

27 (Turchi, *Ho visto agire s'accabadora*) in: Murgia. “Sardegna tra leggenda e realtà: ‘Sa femmina accabadora’, colei che dà la buona morte, nelle immagini e nelle parole di alcuni autori sardi.”: 80-81.

humanitarian context. The woman was not condemned and the case was archived.”²⁸

The fact that the governmental institutions agreed on inscribing the act within a context of humanitarian procedures shows that death in Sardinia was still understood as a social fact. Traditionally, the death of an individual was lived by the community in its entirety, and it was surrounded by rituals such as the ones performed by *s'accabadora*. The death ritual that she performed had the aim of safeguarding the natural equilibrium of a society. Such a social control of death and the acceptance of euthanasia reside in “environmental and social reasons” of societies that have been generally labelled as primitive and archaic, even though they also reach the “highest ranks of social commonality.” Satta states that “death as a social loss was able to destabilize not only the family but also the whole parental structure, which implied the fall of the relational and economic structures as well.” In these communities, the necessary control and understanding of death was a prerogative of the sacerdotal class, the one entitled to handle such a delicate issue with such a high social value.²⁹

Sacred femininity and its ambivalent nature

The magical element that lives within her representation is connected to the idea of a sacred femininity that is entitled to stand in the limbo between life and death, assuming a mystical value. The association of life and death with femininity is deeply embedded

within the European and Mediterranean archaic cultures. One of the most outstanding examples of such cosmological belief resides within the Greek myth of Demeter and her daughter Persephone. The first one, goddess of the harvest and fertility, embodies the earth's life-giving forces; the second one, queen of the underworld and the realm of the dead, incarnates instead the natural forces of death.³⁰ The link between the ritual of *s'accabadora* and this ancient myth flows through the object of *su juvale*, the yoke that the *accabadoras* traditionally used in order to end someone's life. Indeed, in the Greek cosmology the invention of the yoke is nonetheless attributed to Philomelus, the son of Demeter and Jason.³¹ Specifically within the myth of Demeter and Persephone, the connection of their mother-daughter dyad with the agricultural world and the earth's seasonal cycle seems to belong to an archaic pre-patriarchal and pre-Indo-European civilization that spread across the Mediterranean. “When the mother's rule drew to an end, the myth of Demeter and her daughter survived and adapted to patriarchy.”³²

The original matriarchal roots of Europe have been researched by Percovich, who argues that the pre-Indo-European and pre-historical forms of social organisation revolved around the conceptualisation of a Great Mother. This goddess originally did not have a name, since she represented the natural forces modelling the world and its life elements and she was linked with “earth, its

28 [original text]: “i carabinieri e il procuratore del Regno di Tempio Pausania furono concordi nel riferire l'atto ad un contesto umanitario, la donna non fu condannata e il caso fu archiviato.” In: Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 11.

29 [original text]: “ragioni storico-ambientali”, “alti gradi di condivisione sociale” and “la morte come perdita sociale è in grado di destabilizzare non solo la famiglia ma l'intera struttura parentale e la caduta di quella relazionale, economica.” In: Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 4.

30 Di Rollo. “The Female Life Secret? Mother, Daughter, and New Family Paradigms in Michela Murgia's *Accabadora*.”: 97.

31 Satta. “La signora della buona morte: l'accabadora. Riti di morte nella Sardegna tradizionale.”: 16.

32 Di Rollo. “The Female Life Secret? Mother, Daughter, and New Family Paradigms in Michela Murgia's *Accabadora*.”: 97-98.

cycles of birth, harvesting and death.”³³ The understanding of death coming from such archaic societies clashes with the one that has been portrayed by Christianity and modernity. In the pre-Indo-European world, death was understood as a necessary phase, not an annihilation. “Going back to Earth was returning to the Living Body of the Mother the Creator, because Earth was not yet the inanimate ‘dust’ of the biblical curse to death pronounced by God to Adam in Genesis.”³⁴

Therefore, the Great Mother subsisted as a metaphor of nature. She was One and Triple in its form, as she embodied the three stages of a woman’s life: firstly, the young maiden in charge of her own sexuality; secondly, the ripe mother able to nurture and protect; and thirdly the old crone embodying the values of wisdom and death.³⁵ The Indo-Europeans’ arrival seems to have brought a major disruption within the archaic matriarchal societies of Europe. In fact, Indo-Europeans were hierarchically organized and this brought about a completely different set of values, which most likely distorted the original matriarchal cosmologies revolving around the Great Mother. Nonetheless, the spiritual feminine element managed to survive through the centuries and adapted to the patriarchal culture in the form of various figures that embodied its sacrality. This is the case of the Demeter and Persephone in the Greek world, the *Madonnas* in the Catholic narrative, and feminine figures of the folk tales in the rest of Europe such as *Frau Holla*, the *Befana* and other witches or fairies.³⁶

Conclusion

Saccabadora stands as a representative feminine figure embodying the Great Mother, the archaic goddess that related to the natural laws of life and death as both the life-giver and life-taker. In Sardinian traditional cosmology, this conceptualisation translated into the figure of *s'accabadora*, midwife and “the one who finishes.” Culturally, death was understood as a necessary passage of life, which did not disrupt its natural cycle. Some might argue that such a cultural conception can only be related to a local cultural framework within the island of Sardinia. However, the existence of other ambivalent traditional female figures in European and Mediterranean popular culture proves the presence of a network that crosses the borders of modern Sardinia in time and space.³⁷

In conclusion, *s'accabadora* is not an isolated case but rather part of a wider network that connects various feminine figures of the European and Mediterranean archaic world. The centre of this network is the archaic Great Mother. In the conceptualisation of this triple goddess, fertility and decay are entangled in a complex relationship that does not subscribe to the polar duality of the patriarchal “good versus evil” put into place by the Christian cultural framework. Instead, within the original sacred femininity, polarities are fluid since the maternal divine spiritual trinity integrates the opposites rather than bringing them to conflict.³⁸

33 Luciana Percovich. “Europe’s First Roots: Female Cosmogonies before the Arrival of the IndoEuropean Peoples.” *Feminist Theology* Vol.13 N.1 (2004): 6-7.

34 [Ibid.]: 7.

35 Leslie E. Gomberg. “What Women in Groups Can Learn from the Goddess.” *Women & Therapy*, Vol.23 N.4 (2001): 59.

36 Percovich. “Europe’s First Roots: Female Cosmogonies before the Arrival of the IndoEuropean Peoples.”: 2 and 5-6.

37 Gomberg. “What Women in Groups Can Learn from the Goddess.”: 58.

38 Percovich. “Europe’s First Roots: Female Cosmogonies before the Arrival of the IndoEuropean Peoples.”: 12.

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COVID-19 in Zeeland

Introduction

As a rule of thumb in epidemiology, the world is hit by a pandemic once every 100 years. The previous one, before the worldwide spread of SARS-CoV-2, was the Spanish flu [1,2]. At the end of World War I, a new strain of the influenza virus, H1N1, broke out in the United States. The disease mainly affected young adults, initially recruits in army camps who were in training to be deployed to Europe. Ultimately, more American soldiers died from the flu while still in the camps than in the battlefields of Europe. During wartime, most newspapers were censored and coverage of the outbreak of this very serious form of influenza was prohibited. However, Spain was neutral during the First World War and Spanish newspapers reported on this flu, which subsequently became known as the Spanish flu. Incidentally, the Netherlands was also neutral during the First World War, but the Dutch press was largely failing. In retrospect this is fortunate because otherwise this pandemic could have gone down in history as the Dutch flu.

The Spanish flu lasted for 2 years; by the time it was over, more than 50 million people had died worldwide. Every place on earth was affected, including Douglas Island, an island the size of Walcheren off the coast of Alaska. Its capital is Juneau, a town slightly smaller than Goes in Zeeland. In the second week of November 1918, 100 patients with influenza were admitted to the local hospital. There was one death, that of Maude Kelly, a nurse of the influenza patients [3].

The Spanish flu also reached Zeeland. The military hospital in Middelburg (located in the building now known as the Kloveniersdoelen) was so completely full that sick

soldiers were also nursed in school buildings, which were seized for that purpose. Many people died; in the town of Yerseke alone, twelve deaths from the Spanish flu were reported to the registry office in the week of 25 - 31 October 1918. In the whole year of 1918, 684 people died of the Spanish flu in Zeeland, and of these deaths 82 were in Tholen [4]. At that time there were no drugs or vaccines, but even then fake news was rampant with advertisements of so-called wonder drugs [5]. Abbey Syrup (a cough syrup) claimed to prevent and cure influenza. The price of the smallest package (1.25 Dutch guilders) would be € 95.40 when converted to today's currency. The former President of the USA suggested drinking bleach (Clorox, which claims that it kills 99.9% of all germs) as a means of killing SARS-CoV-2. Much cheaper than the Abbey Syrup at just € 1.06 per litre, but absolutely contraindicated for internal use.

Another pandemic following the Spanish flu was something scientists had expected; the question, therefore, was not "if" but "when". The risk of disease outbreaks that can spread from animals to humans inevitably increases when animals and humans come into close contact with each other, caused, for example, by habitat degradation [6], intensive livestock breeding (potentially leading to Q fever) and the trade in wild animals [7]. Combined with other factors such as increased air traffic [8], urbanisation (more than 50% of the world's population lives in urban areas) [9] and climate change [10], the chances of another pandemic taking place were high. In 2018, the World Health Organization (WHO) listed a number of infectious diseases that could pose a serious

threat to public health; for most, no vaccines or effective drugs are available [11]. One of these listed infectious diseases was "Disease X" - a future disease that humans had never seen before that would cause a pandemic. We now know that COVID-19 is "Disease X" [11].

Diseases caused by coronaviruses.

COVID-19 (Corona Virus Disease 2019) is caused by a coronavirus, SARS-CoV-2 [12]. There are hundreds of coronaviruses that exist in wild animals, especially in bats [13]. Once in a while, a mutation occurs in one of these coronaviruses which allows it to become infectious to humans, often via a so-called intermediate host [14]. When the virus is subsequently passed from person to person, it can cause an outbreak which can

causing 775 deaths in 37 countries (though not in the Netherlands) [15]. In retrospect, the coronavirus that caused SARS has now been named SARS-CoV-1. MERS-CoV (Middle East Respiratory Syndrome Corona Virus) is a coronavirus that is transmitted to humans via camels as intermediate hosts, but rarely from human to human. MERS was first diagnosed in Saudi Arabia in 2012, and sporadic outbreaks have caused 2,519 cases of illness and 866 deaths [16].

SARS-CoV-2 outbreak

In the second half of January of 2020, popular and medical press reported on a new coronavirus that had broken out in China [18]. Dozens of people who had recently visited the fish market in Wuhan had been infected, and some of them had died. These

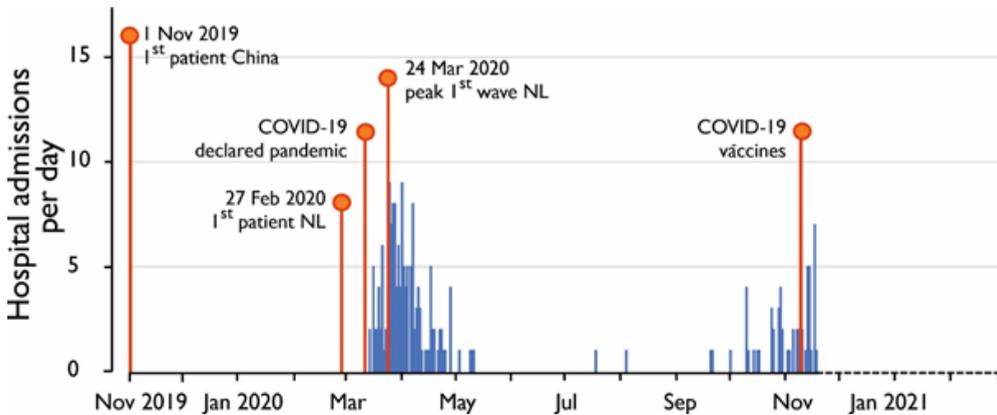


Figure 1. Timeline of COVID-19 infections resulting in hospitalisation in Zeeland, in relation to other relevant events in the Netherlands and the world. The data is complete until November 2020 [17].

develop into an epidemic and, ultimately, a pandemic. Before SARS-CoV-2 conquered the world, there had been other outbreaks of coronaviruses in humans. SARS (Severe Acute Respiratory Syndrome) previously caused a worldwide pandemic from late 2002 to July 2003, infecting 8,273 people and

types of notifications occur often and usually, they fade rather fast. This time it was different. The outbreak rapidly increased in size, and it was difficult to guarantee the reliability of data coming from China. What was evident was that something dramatic was happening. China was very quick to identify

the molecular signature of the novel coronavirus, called SARS-CoV-2 [19]. The World Health Organization named the disease COVID-19 [19]. Knowing the molecular signature made it possible to determine with certainty how the virus subsequently spread beyond China's borders and gained a foothold in Europe, starting in Italy. The virus travelled (back) to the Netherlands from Italy with a winter sports tourist from Loon op Zand; on February 27, 2020 the diagnosis of COVID-19 was made in the St Elisabeth Hospital in Tilburg (Figure 1) [20, 21]. The virus also spread rapidly within the Netherlands; the first infection in Zeeland was diagnosed on the 5th of March 2020 and the first patient in Zeeland was hospitalised on the 14th of March 2020.

The initial studies regarding COVID-19 indicated major clinical manifestations, including first signs such as a dry cough, fever, dyspnea and headache, with the sickness eventually even progressing to pneumonia in some cases [22]. A distinction must be made between mild and severe cases, in which mild

cases can already recover after a few days of facing cold symptoms [23]. The major clinical manifestation of a severe COVID-19 infection is acute respiratory distress syndrome (ARDS), in which acute respiratory failure and dyspnea are present. In these severe cases, mechanical ventilation is required. The recovery period differs per person. Based on a study from the 20th of July 2020, the most persistent symptoms include dyspnea and fatigue [24].

COVID-19 in Zeeland

During the first wave of the disease, which lasted from mid-March to early May 2020, a total of 1144 people were infected in Zeeland, of which 154 were hospitalised and 73 died. Of those 154 hospitalised patients, 40 came from Tholen (Table 1). In ongoing research, we investigate the characteristics of COVID-19 patients in Zeeland, in comparison with the rest of the Netherlands. Besides this, we also want to investigate which factors and circumstances contribute to the relatively high infection rate in Tholen.

Table 1. COVID-19 in Zeeland (situation until 14 September 2020)

Per 100.000 residents				
Municipality	Population [1]	Infected	Hospital admissions	Deceased
Borsele	22.762	167	22	4,4
Goes	38.423	481	31,2	33,8
Hulst	27.631	181	32,6	18,1
Kapelle	12.808	250	23,4	7,8
Middelburg	48.766	269	36,9	20,5
Noord-Beveland	7.560	198	13,2	0
Reimerswaal	22.843	206	17,5	8,8
Schouwen-Duiveland	34.012	359	32,3	26,5
Sluis	23.173	112	38,8	17,3
Terneuzen	54.476	275	45,9	7,3
Tholen	25.894	722	154,5	61,8
Veere	21.974	223	27,3	9,1
Vlissingen	44.132	242	20,4	11,3
Zeeland in total	384.454	298	40,1	19,0

1 Total.

Table 2. Male female ratio COVID-19 patients in NL and ZL

	Infected	Hospital	Deceased
Netherlands			
Female	52	42	33
Male	48	58	67
Zeeland			
Female	61	33	32
Male	39	67	68

The overall trend in the Netherlands indicates that the infection rate for SARS-CoV-2 is equal among men and women on average, but men seem to be more likely to be hospitalised as well as being more likely to die (Table 2). In Zeeland, significantly more women were infected (61% in Zeeland in comparison with 52% in the Netherlands; $p < 0,001$), whereas in proportion fewer women become hospitalised (33% in Zeeland in comparison with 42% in the Netherlands; $p = 0,0293$). In the case of deaths, a distinction must be

made between death during hospitalisation and death outside the hospital (for example, in a nursing home). In the case of death outside the hospital, the ratio between men and women is 1:1, whereas 15% of in-hospital deaths were women. It is tempting to conclude that women in Zeeland are better at combatting an infection with SARS-CoV-2. With the use of individual patient data, we plan to investigate whether a difference in age and body mass plays a role here.

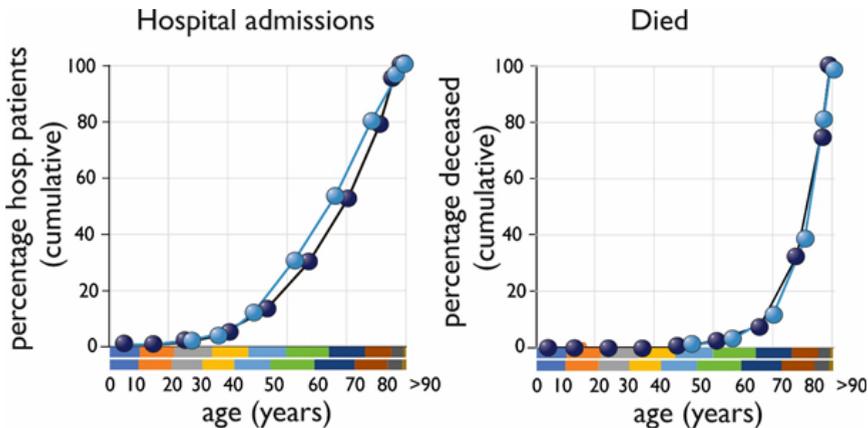


Figure 2.

Figure 2 Age distribution of hospital admissions (left panel) and deaths due to COVID-19 (right panel). Data are presented as cumulative percentages for patients from Zeeland (light blue symbols) and the rest of the Netherlands (dark blue symbols). The colour coding on the X-axis is proportional to the age distribution in the Netherlands (top bar) and Zeeland (bottom bar).

Most of the hospitalisations and deaths in Zeeland as well as in the rest of the Netherlands are among the elderly above the age of 60 (Figure 2). The age at which patients die in Zeeland is slightly, but significantly, higher in comparison to the rest of the Netherlands. Age is an important determinant in the severity of a COVID-19 infection. Younger children and adolescents experience less severe symptoms and a better prognosis after infection with SARS-CoV-2 as compared to the elderly [25]. The clinical symptoms upon infection can include fever, cough, headache and loss of taste and smell, which can persist quite some time after resolution of fever and respiratory symptoms. The virus also affects your physical condition, which makes activities you were used to doing more demanding

than you previously experienced. The anxiety of infecting others also influences your mental state and keeps you from having close contact with others for quite some time [S. ter B, personal experience][26].

Obesity and COVID-19

Patients with obesity have a higher risk of dying due to COVID-19 [27,28]. The reasons for this higher risk are not totally clear, but may be related to the activation status of the immune system. Adipose tissue gives rise to a constant, low-grade inflammation and therefore the immune system becomes more slowly activated in the case of a “real” infection [28]. Due to the positive effect of relatively little weight loss on the recovery of the immune system, a group of 65 experts, led by prof. van Rossum, wrote an emergency letter to the Dutch government. They pleaded for more attention to a healthy lifestyle: healthy food, sufficient exercise, adequate sleep and relaxation, no smoking and moderate (preferably none) alcohol consumption [29].

Figure 3. Body weight of patients with COVID-19 in Zeeland. Body length and weight were determined at the moment of

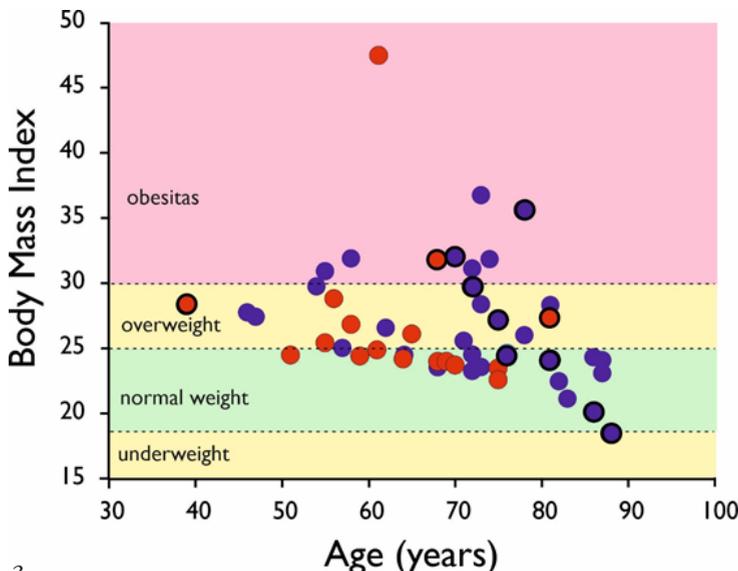
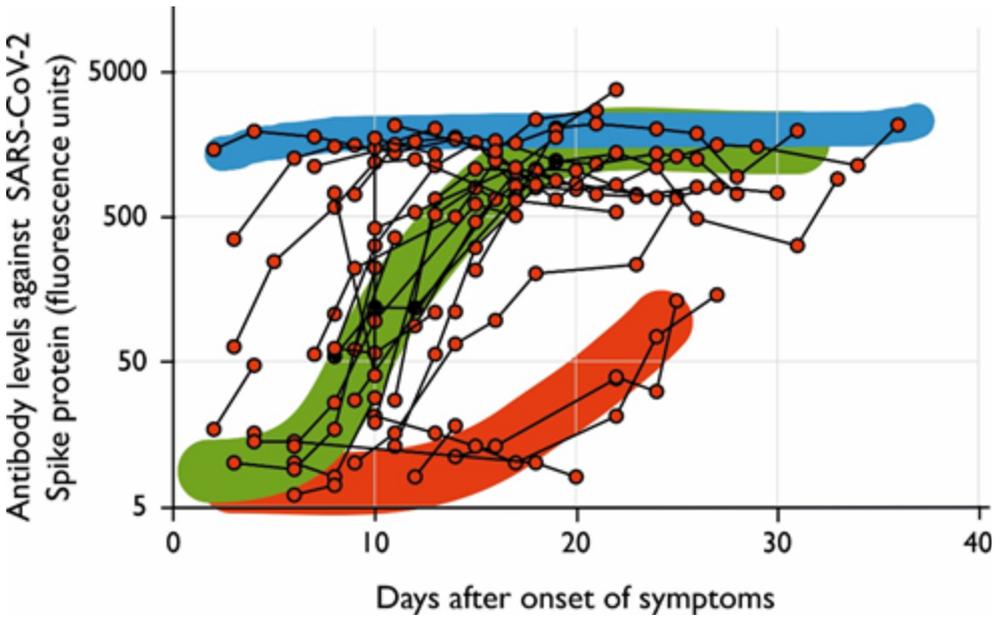


Figure 3.



hospital admission and expressed as Body Mass Index, BMI (= weight (in kg) / height² (in meters)). Plotted is the age of the patient against BMI for patients admitted to the COVID ward (purple symbols) or intensive care (red symbols) Patients who died from COVID-19 are outlined in black The limits for underweight (BMI <18.5), normal, weight (BMI 18.5-25), overweight (BMI 25-30) and obesity (BMI> 30) are indicated in the figure.

Analysis of preliminary (and incomplete) data from COVID-19 patients in Zeeland shows that 26 of the 51 evaluated patients (51%) were overweight, of which 9 were obese (BMI>30). Almost all of the other patients had a body weight at the upper limit of what is considered healthy. It is striking that in patients above the age of 80 obesity no longer occurs. Therefore, obesity does not seem to be a risk factor in COVID-19 related morbidity and mortality in patients > 80 years.

Host immune response to SARS-CoV-2

The current medications used to treat patients with COVID-19 combat the effects of the viral infection (protection against excessive blood clotting, attenuating of inflammation) but have no direct effect on the virus itself. Initially, the focus of clinical research was on the malaria drug hydroxychloroquine and the virus inhibitor remdesivir, but these agents were found to be of limited effectiveness, and only in specific stages of the disease. The patient's own immune system has to slow down and eventually destroy the virus. Almost all parts of the immune system are involved, including both antibodies and T lymphocytes. We have carefully monitored the development of the antibody levels in blood of the patients admitted to the ADRZ hospital (see Figure 4). The preliminary data suggest that there can be 3 different groups of patients: a small group of patients who have high antibody titres early after the onset of first complaints (indicated by a blue line

in Figure 4, in other terms: the “breakaway group”), a large middle group (the green line, the “peleton”) and a group lagging behind where the antibody titre increase is late or doesn’t occur at all (the red line, the “bus” or grupetto”) The antibodies shown in Figure 4 are directed against the Spike S1 protein of the virus. This is the part of the virus that binds to the ACE2 receptor on human cells and is the route via which the virus can infect the cell. The current vaccines are almost all based on inducing immunity against this S1 protein (see below).

Figure 4. Kinetics of the IgG SARS-CoV-2 Spike S1 antibody response in hospitalized COVID-19 patients in Zeeland; see also [30].

COVID-19 in Tholen

The numbers of infected people, hospital admissions and deceased patients are far above average in Tholen in comparison to the rest of Zeeland and to the Netherlands (Table 1). With less than 7% of the total population being in Zeeland, Tholen had 16% of the infections, 26% of the hospital admissions and 22% of the deceased patients due

to COVID-19.

Age and body mass are already known risk factors for COVID-19. The population of Tholen as a whole, in comparison to the rest of Zeeland, is in the middle in terms of obesity and, in terms of age, one of the youngest populations in Zeeland (Table 3). Nevertheless, an average characteristic of the whole population does not provide enough information regarding individual patients. Therefore, research is currently being conducted to investigate the determinants for individual hospitalised patients in Zeeland. Attention is also paid to environmental factors such as religious affiliation and church attendance, active membership of associations, commuters outside Zeeland (West-Brabant, Rotterdam) and other possible factors.

At the moment of writing, the Netherlands and most of the world is in the so-called second wave of COVID-19. After a relatively calm summer period in which some measures were relaxed or even abolished, the number of infections increased again at the beginning of autumn, eventually followed by an increase in hospital admissions and mortality (see Figure 1). It is striking that many cases

Table 3. Obesity and demography Zeeland municipalities

	% obesity		% > 65 years
Terneuzen	17	Sluis	24,0
Noord-Beveland	16	Noord-Beveland	22,8
Sluis	16	Schouwen-Duiveland	22,4
Vlissingen	16	Terneuzen	21,3
Borsele	15	Veere	21,3
Hulst	15	Hulst	20,7
Tholen	15	Goes	20,0
Goeree-Overflakkee	15	Vlissingen	19,7
Schouwen-Duiveland	13	Middelburg	18,8
Goes	12	Goeree-Overflakkee	17,9
Kapelle	11	Borsele	16,7
Middelburg	11	Kapelle	16,5
Reimerswaal	11	Tholen	16,2
Veere	11	Reimerswaal	15,5

of illness are now occurring again in Tholen, which makes research regarding risk factors even more challenging and promising.

Concluding Remarks.

Douglas Island already had a local newspaper in 1918: Douglas Island News. In the same issue that reported Maude Kelly's death, it also published a list of 11 Do's and Don'ts to safely get through the influenza pandemic. It is striking that almost all of this advice is fully applicable at the time of COVID-19. Just a few examples: wear your face mask, do not ignore the advice of specialists because you do not understand them, do not think that you cannot contract or spread influenza (for influenza read corona), do not think that an exception can be made for you, (and finally) don't worry!

COVID-19, a word that did not exist in January 2020, has infected more than 87 million people worldwide and has killed 1.91 million on January 9, 2021 [31]. Also, by January 2021, a total of 89,871 scientific publications on COVID-19 had been published [32]; that's 250 publications per day on average, a number that reflects how all efforts are being made to better understand the disease, ways to treat it and prevent it by vaccination. That is the commitment of both clinicians and scientists. The population as a whole can make an important contribution by respecting the measures taken (see above) and reducing the risk of serious illness by adopting a healthier lifestyle.

In 1918 also, clinicians and scientists naturally worked hard to develop an influenza vaccine. Unfortunately, they were not successful and the Spanish flu pandemic only ended when everyone (in the world) who was sensitive had contracted the disease and either recovered and were subsequently immune, or had died. At the time of writing (January 2021) the prospects of putting an end to the SARS-CoV-2 pandemic are much better. Pfizer's mRNA vaccine BNT162b2 has been tested to be 95% successful [33]. The Moderna vaccine, also an mRNA vaccine, scores comparably high at 94.5% [34]. The Astra Zeneca vaccine (the so-called Oxford vaccine) also provides 70-90% protection [35]. More vaccines are in the pipeline and will most probably be available in early 2021.

This is all good news, and vaccination has begun all over the world in late December 2020 and early January 2021. Nevertheless, mutations of SARS-CoV-2 are already on their way and have even been detected in multiple countries, including the UK, the Netherlands, Belgium, Denmark and Australia [36]. The new SARS-CoV-2 virus variants mainly differ due to Spike S1 protein mutations as well as mutations in other genomic regions, such as in the Receptor Binding Domain [36]. The future will tell us whether COVID-19 and its associated mutations can be controlled in 2021, in the world and in Zeeland.

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The Question of Octopus Intelligence

Abstract

Octopuses are considered to be the most intelligent of all invertebrates, and often have similar cognitive capabilities as that of more highly developed vertebrate species. Intelligence might have ethical implications for the captivity of octopuses. This paper attempts to answer the question: What is the evidence of octopus intelligence? In this review, intelligence is defined as acquiring, storing, retrieving, and applying knowledge with a tangible goal. Six areas of intelligence are investigated: learning and memory, problem-solving skills, personality, neurobiology, and consciousness. Both experimental set-ups and observations in natural habitat provide evidence that octopuses have spatial and episodic memory and are fast learners. Furthermore, they are excellent at applying knowledge, therefore being able to escape mazes. This creature's usage of tools highlights their creative cognitive abilities. They also have diverging characters. Their intricate neurobiology is illustrated by a high number of neurons and encephalisation quotient, which may provide a framework for complex cognitive processing. Nevertheless, consciousness has not been studied enough to make any assumptions, although evidence has been provided for at least primary consciousness. Future studies should focus on octopus consciousness and emotional intelligence, and animal rights activists might want to reevaluate cephalopods, as they are capable of more than one might assume.

Introduction

The octopus: a bizarre creature with eight limbs, nine brains, three hearts, and blue blood. Besides these peculiar attributes, they have attracted a fair amount of attention due to their perceived problem-solving skills and ingenious escape repertoire. They have also been observed to be capable of using tools, which may indicate higher-order processing (Finn, Tregenza, and Gregenza, 2009). Of the invertebrates, octopuses are believed to be the most intelligent (Linden, 2002), yet no literature review examining octopus intelligence currently exists. Studying octopus intelligence is of high significance as it is important to assess octopus animal rights; indications of higher cognitive processing may have ethical implications for the captivity and farming of octopuses. Momentarily, octopus farms are associated with parasitic infection, digestive tract issues, increased aggression, and high mortality rates (Jacquet, 2019). Therefore, enhancing understanding of these creatures can progress policies regarding their captivity. Reflecting on the intellect of animals may also aid us in understanding how humans are similar or dissimilar to other organisms. Lastly, octopus DNA is diverging from that of other animals, yet they show overlap in behaviours. Thus, octopuses provide a compelling comparative framework for evolution, because they may provide clues for environmental or genetic factors associated with evolution. It may further illuminate whether there are certain converging evolutionary traits present in both vertebrates and invertebrates.

The current literature review aims to gather evidence for octopus intelligence. It is impossible to appropriately answer the question of *how* intelligent octopuses are: applying a numerical value such as an Intelligence Quotient (IQ) is unsuitable due to limited research, and comparing

octopuses to other animals would not suffice as the morphology of the octopus is unlike that of any other creature. This review will first briefly define intelligence and will presume to provide a literature review of octopuses' intelligence by discussing the following topics: learning, problem-solving skills, neurobiology, personality, and consciousness. Lastly, ethical considerations will be considered.

Defining Intelligence

Scientists cannot agree on a single definition of intelligence since it is a multidimensional concept, ranging from emotional capacities to problem-solving skills. Dictionaries commonly define intelligence as the ability to acquire and apply knowledge and skills. More specifically, some psychological interpretations add that an individual should be capable of having a particular end-goal in mind, having emotional intelligence, or having creative cognitive abilities (Legg, 2007). A more recent definition includes that intelligence “involves foresight and insight, and is intended to identify impending change which may be positive, representing opportunity, or negative, representing threat” (Breakspear, 2013). In this essay these definitions will be combined with intelligence being defined as acquiring, storing, retrieving, and applying knowledge with a tangible goal. Additionally, other attributes might influence intelligence, which will also be addressed. For example, neurobiology may provide the means for cognitive abilities, and temperamental traits may influence intellectual capacity and indicate the complexity of an animal (Altschul, Wallace, Sonnweber, Tomonaga, and Weiss, 2017). Thus, the subtopics of this essay are learning and memory, problem-solving skills, personality, neurobiology, and consciousness.

Learning and Memory

Octopuses are fast learners and can discriminate between objects or shapes that are not in their natural habitat. Messenger and Sanders (1972) were one of the first to show that octopuses can differentiate between colour and shape. In their study, thirty octopuses were trained to distinguish a black vertical rectangle from a white horizontal rectangle. The octopuses were rewarded for “attacking” the white shape and would get a light shock for “attacking” the black rectangle. By the third trial, the octopuses had an 85% success rate, on average. Nevertheless, the researchers asserted that the brightness and orientation of the shape impacted the performance of the octopuses (Messenger and Sanders, 1972). Many other studies corroborate these results (Boal, 1996; Hvorecny et al., 2007; Sutherland, 1957).

A recent study showed that octopuses have the ability to successfully solve serial reversal learning tasks in which they first have to differentiate between two stimuli and choose the positive stimuli to obtain an award. This stage is referred to as R0, as no reversal has taken place yet. After they have responded successfully to the stimuli for sufficient trials, the stimuli are switched. Thus, the positive stimulus becomes the negative stimulus, and vice versa; they have to choose the negative stimulus to attain the reward. This is referred to as the first reversal (R1). In multiple reversal tasks, the second reversal (R2) once more redefines the reversal as in R0, and the third reversal (R3) requires the same stimulus-response as in R1. Thus, in this task, not only should an animal learn stimulus-specific responses, the task also illustrates whether it has learned to learn (Harlow, 1949; Shettleworth, 1999). In one striking experiment, one octopus successfully completed four reversal tasks, and another completed one reversal. They also showed improvement during reversal

training. However, the two other subjects did not complete R1 (Bublitz et al., 2017).

Fiorito and Scotto (1992) add that octopuses are capable of observational learning. In their experiment, they let untrained octopuses observe conditioned, trained octopuses choose one object. The objects would only differ in colour. The observing octopuses consistently selected the same objects as the demonstrators. Social learning appeared to work faster than conditioning the octopuses. These findings are extremely surprising, considering that it is believed that observational learning is only possible in highly social animals, whereas octopuses are solitary animals (Godfrey-Smith, 2018).

Octopuses also seem to have a good understanding of where their body is in relation to space. In an unfamiliar experimental setup, octopuses were capable of using spatial cues to locate their burrow and retained the information for up to eight days (Schnell, Amodio, Boeckle, and Clayton, 2020). When returning from short foraging trips to their den in the wild, they do not retract their path. Instead, they make detours, perhaps to cover more foraging grounds, which indicates spatial memory (Mather, 1991). Moreover, in another observational study, octopuses did not forage in areas that they had covered in the previous few days. This might show that they possess episodic memory (Mather, 1991; Forsythe and Hanlon, 1997).

Hence, octopuses are fast individual and social learners and possibly possess episodic memory as well as spatial memory. However, differences exist between octopuses’ learning capacities.

Problem-solving Skills

Problem-solving is considered to be a crucial aspect of intelligence, as memory, learning, and knowledge application is

required. Octopuses are known to be as competent in problem-solving as some highly developed vertebrates. In a striking study, octopuses were trained to open L-shaped containers to retrieve food, as Figures 1 and 2 show (Richter, Hochner, and Kuba, 2016).

After that, they were challenged to obtain the container through a tight hole at different orientations and opaque barriers, or to open the container at random orientations. Octopuses had to apply push, pull, or release actions. All seven octopuses had a rapid

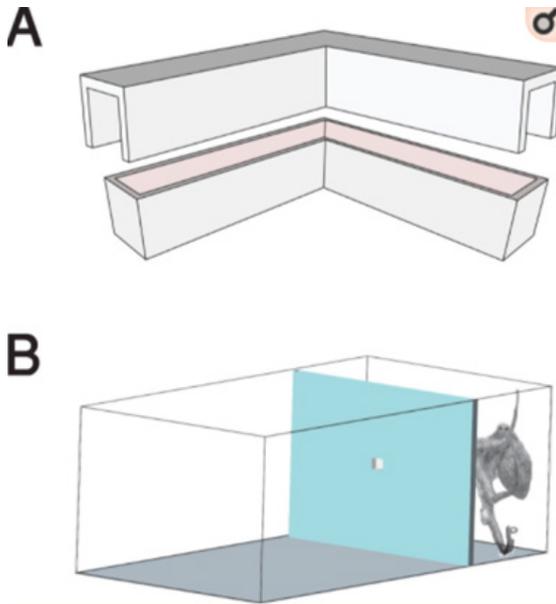


Figure 1: Set-up of the experiment, A shows the container they had to open; B shows the set-up with the hole through which they had to pull the container to the other side of the barrier (Richter, Hochner, and Kuba, 2016).



Figure 2: Octopus pulling container through the hole, orientation of the container is “down” (Richter, Hochner, and Kuba, 2016).

decrease in working time, showing quick adaptation to changes in tasks.

Furthermore, studies have produced mixed results regarding the capabilities of octopuses to solve mazes. In these experiments, octopuses are motivated to solve the maze by using visible rewards behind glass. Some studies found no improvement in the time it took an octopus to locomote through a maze (Bierens de Haan, 1949; Boycott, 1954), whilst others found evidence for spatial learning as octopuses reduced the time they took to solve the maze after multiple trials (Schiller, 1949; Wells, 1970). Interestingly, these experiments are particularly old and had small sample sizes. Perhaps novel research methods may offer more conclusive evidence of spatial learning in a maze. In a slightly more recent experiment, octopuses were placed in a maze for 23 hours. After a week they were once again placed in the maze to test their burrow location memory. Eight out of eleven octopuses remembered the location of their burrow (Boal et al., 2000).

Additionally, octopuses have been observed using tools. Finn, Tregenza, and Gregenza (2009) observed the veined octopus (*Octopus vulgaris*) transporting, manipulating, and hiding in coconuts, consequently colloquially being named the coconut octopus, as seen in Figure 3.

Octopuses also employ bivalves, plastic bottles, and glass jars for these purposes (Finn, Tregenza, and Gregenza, 2009; Mather, 1994). They are also known to create an armour of shells and stones to defend themselves from sharks, which is portrayed in Figure 4 (Jeffs and Brownlow, 2017). Moreover, male blanket octopuses (*Tremoctopus sp.*) utilise the tentacles of the Portuguese Man O'War jellyfish in an attempt to defend themselves and catch prey (Jones, 1963). Figure 5 depicts this rare usage of tools. Fortunately, octopuses are immune to the venom of the jellyfish and occasionally hold the tentacles with their suction cups in front of their shelters.

These examples of tool use illustrate that they are adept at manipulating the environment to their advantage. They also seem to have a concept of theory of mind, since they can understand that these tentacles will hurt another organism, even though it does not hurt the octopus itself. Furthermore, this behaviour shows that they are capable of future planning, as they carry the objects and employ them to combat or hide when a predator is in close proximity.

Octopuses' problem-solving skills illustrate their creative cognitive abilities, and the use of tools demonstrates that they are capable of future planning.



Figure 3:
Coconut or veined octopus in its assembled coconut (Finn, Tregenza, and Gregenza, 2009).



Figure 4: An octopus protected by its constructed armour of shells and stones (Jeffs and Brownlow, 2017).



Figure 5: A male blanket octopus carrying the tentacle of a Portuguese Man O'War jellyfish, as indicated by the red arrow (Jones, 1963).

Personality

Although personality may not seem important in evaluating intelligence, it shows distinctiveness between octopuses. Moreover, in humans, the five-factor model can be used to predict academic achievement (Poropat, 2009). This model asserts that all personality traits can be grouped into five dimensions: emotional stability, extraversion, openness, agreeableness, and conscientiousness. Thus, these traits collectively best characterise personality structure (McCrae and Costa, 2008). More specifically, in animals such as chimpanzees, capuchins, and macaques, intellect is influenced by certain personality features such as conscientiousness and openness (Altschul, Wallace, Sonnweber, Tomonaga, and Weiss, 2017). Altogether, it may be productive to investigate octopus personality traits.

One case study demonstrates how some octopuses have a conspicuous personality, as the peculiar Otto the octopus has even made headlines for the last couple of years. Zookeepers assert that he continued squirting water at the lights above his aquarium, causing the electrical system to short-circuit. After maintenance fixed the lights, Otto perpetually damaged them. He was also seen throwing hermit crabs and rocks against the glass, eventually damaging it. His behaviour started during winter when the aquarium closed, so his caretakers believe Otto was simply bored (Seabrook, 2008). Moreover, through anecdotal evidence, Montgomery (2016) highlights the distinctiveness between octopuses. During her journey behind the scenes of an aquarium, she meets four octopuses, who are exceptionally dissimilar. Some were mischievous, would often play, and were keen on touching Montgomery's skin, whereas others were shy and abstained from human contact (Montgomery, 2016). Although these case studies cannot be applied to all octopuses, these particular octopuses

show that they have discrete personalities.

Furthermore, there is also empirical evidence that suggests that octopuses have distinct personalities. One study evaluated early temperamental traits in octopuses. Sinn, Perrin, Mather, and Anderson (2001) examined changes in the octopuses' behaviour in response to alerting, threatening, or feeding them through monitoring of, for example, their pupils, posture, or colour. The results suggest that there was a significant relatedness on developing temperamental profiles of octopuses. For instance, an octopus with tendencies to avoid a change in its environment or show anxious behaviour is expected to exhibit certain papillae changes or to shrink after being alerted (Sinn, Perrin, Mather, & Anderson, 2001). Thus, octopuses seem to have specific personalities, seeing that they respond divergently to their surroundings and because individual characteristics within an octopus are related to each other.

Lastly, play is a large part of octopuses' personality, which is an indicator of intelligent species (Blaisdell, 2013). One study investigated exploration, habituation, and exploratory play in eight octopuses that were given a floating pill bottle. Three octopuses played with the object by shooting water jets through a funnel, causing the object to transport through the funnel and return to the octopuses (Mather and Anderson, 1999). Many zookeepers confirm that octopuses do in fact play with objects in their enclosure (Montgomery, 2016).

So, the octopuses' personality in general seems to be playful and mischievous, which is related to openness. When looking at individual octopuses, one can see that there are large discrepancies between them. Perhaps future studies could relate different personality traits of octopuses to the five-factor model.

Neurobiology

Studying brain anatomy can indicate how developed or complex an organism is. As stated previously, octopuses have nine brains: one that controls the central nervous system and eight smaller brains in every tentacle. They possess approximately 500 million neurons, compared to 250 million neurons in a cat's brain, and 86 billion in the human brain (Budelmann, Bullock, and Williamson, 1995; Herculano-Huzal, 2009). This is of importance, as Dicke and Roth (2016) state that the degree of intelligence in animals and their brain traits are reflected by the number of cortical neurons, interneuronal distance, and neuron packing density. Moreover, they have a high encephalisation quotient, which conveys relative brain to body size and is used as an index of cognitive ability. Studying their neurobiology may further enhance our understanding of these species accordingly.

To show that octopuses' brains are surprisingly similar to that of developed vertebrates, Hochner et al. (2003) investigated the cellular mechanisms that underlie learning and memory. More specifically, they explored long-term potentiation (LTP), which refers to a long-term strengthening of transmission between two neurons that are activated as patterns. Hochner et al. recorded field potentials in the brains, and revealed that "LTP of glutamatergic synaptic field potentials are similar to that in vertebrates", sequestering them from invertebrate creatures. Therefore, octopuses possess high plasticity.

Another study specified the long-term memory acquisition process (Shomrat, Zarrella, Fiorito, & Hotchner, 2008). They examined two groups: in one, they tetanised the vertical lobe (VL) which caused enhancement of the VL pathway, and in the other group, they transected the VL pathway. They found that the transection delayed short-term memory (STM) learning,

whereas tetanisation sped up STM learning. Nevertheless, in both groups, long-term memory (LTM) was impaired the next day. The results suggest that the memory system in an octopus is divided into STM and LTM sites, as is also the case for many higher-order mammals (Squire, 2009). They suggest that the two memory sites are dependent on each other as they are connected to one another; the VL mediates STM learning as well as LTM acquisition (Shomrat, Zarrella, Fiorito, and Hotchner, 2008).

From these studies, it can be concluded that octopus cognition has complex pathways and may offer a platform for higher functioning.

Consciousness

Even though few studies have studied consciousness in octopuses, some aspects of it can be assessed using Pennartz, Farisco, and Evers (2019) criteria. They provide six indicators: goal-directed behaviour, physiological conditions that may generate multimodal representations, psychometrics, susceptibility to illusions, visuospatial behaviours, and episodic memory. This paper has shown that octopuses indeed show goal-directed behaviour, as they will utilise tools to catch prey. Moreover, octopuses have highly complex physiology and show creative cognitive abilities. Additionally, octopuses seem to have spatial and episodic memory. More research should be conducted on octopuses' responses to illusions and multimodal representations. Thus, according to this model, there is hope that octopuses have consciousness.

Furthermore, octopuses experience pain, which is often examined when assessing consciousness. After a tentacle injury (crushing, cutting, or arm removal), octopuses show neuronal hyperexcitability and nocifensive behaviours such as holding the injured tentacle in their beak (Alupay,

Hadjisolomou, and Crook, 2014). For at least 24 hours after the injury, the octopuses show similar distressed behaviour. It is very difficult to prove that octopuses experience pain, but this study adds to the evidence.

Hence, whilst studies have not shown yet that octopuses do have consciousness, they certainly do not rule it out. While complexity does not equal consciousness, it may provide a platform for it. The extent to which they experience consciousness might be extremely complicated due to the smaller brains in each of their tentacles. Perhaps they have eight consciousnesses connecting to an overarching mediator, thereby deviating from consciousness as humans understand it. One thing is certain: their cognition seems distinct from all other animals.

Ethical Implications

Insofar as the studies in this review have shown, octopuses are intelligent creatures with distinct personalities. Unfortunately, many octopuses are used for consumption or are subjected to invasive experiments. For example, in many areas ranging from the Mediterranean to Japan, octopuses are considered as a delicacy. According to Knowles (2019), approximately 350,000 tonnes of octopuses are captured annually. However, due to a growing demand, some countries such as Spain have started farming octopuses. In these farms, octopuses often attack each other, or are kept in solitary confinement in cramped enclosures (Jacquet, 2019). Not only do these farms have ethical qualms, they may also have a detrimental effect on the environment, considering that octopuses require three times their own weight in terms of food. They also have a carnivorous diet, thereby putting pressure on an already over-exploited marine ecosystem (Knowles, 2019). In some cases, octopuses are even eaten alive, causing further ethical concerns for octopus wellbeing. Furthermore,

some research programs are dedicated to decode the genetic sequence of cephalopods, whereby octopuses are kept in small tanks devoid of entertainment (King and Marino, 2019). Instead of engaging in these invasive experiments, future studies should focus more on the capabilities of octopuses in order to raise awareness of their intelligence.

These unethical farms and experiments are facilitated by the attitude the public has towards octopuses. They lack understanding of the capabilities of octopuses, since they are not fluffy animals that they can pet. Moreover, animal welfare policy makers often disregard octopus rights. In the US for example, octopuses lack protection under the Animal Welfare Act and other animal welfare legislation (Smith et al., 2013). As octopuses can arguably experience pain (Alupay, Hadjisolomou, and Crook, 2014) and considering their intelligence, it is imperative for policymakers to include octopuses in their laws: strict governmental regulations should put a stop to harmful traditions.

Conclusion

From this overview, one may conclude that octopuses are clever and complex creatures. Studies have shown that they are capable of both social as well as autonomous learning, exhibit tool use, have complex neurobiology, and likely possess at least primary consciousness. However, they may not reach the cognitive level of primates since they lack language learning abilities. That being said, they seem to have traits that are present in higher vertebrates, such as the ability to use tools and solve puzzles. Thus, the handling of and attitude towards these creatures must be reevaluated. Instead of using octopuses for consumption or holding them in small confinements, policymakers should protect their wellbeing.

Limitations of many studies are small sample sizes and perhaps emotional

attachment to the octopuses. Moreover, recent studies on octopus intelligence are limited; since the beginning of the 21st century, there seems to be a decreased interest in octopus intelligence. However, many studies have objectively shown that they are swift learners and have surprisingly creative cognitive abilities. Future studies should look further into consciousness and perhaps perform experiments with mirrors or optical illusions, which have been carried out with dolphins. Furthermore, this review did not address emotional intelligence, even though it is included in psychological definitions. Presently, however, no studies exist on the octopuses' processing of emotion. Lastly, research may focus on individual differences between octopuses, as studies show that they are distinct in personality traits and cognitive capacities.

These compelling creatures of the deep have surprised researchers for many years, yet the number of experiments is limited when compared to primate research. Although these creatures are dissimilar from humans, they may offer added value to the understanding of evolution. Octopuses' high number of neurons combined with the evidence of their rapid learning and problem-solving skills may provide corroboration that their abilities have only partially been discovered; studies have yet to find out what else they might be capable of.

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