Elements of an Aquatic Cultural Landscape – a regional study from a frog's eye perspective

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Abstract – Cultural landscapes are generally perceived as the result of land-based human activity. In postglacial landscapes like the German south western pre-alpine forelands this conception falls short. Large areas of a highly dynamic hydrological landscape were once submerged in water for long periods of the Holocene. Human communities have used these waters for a multitude of reasons and purposes. Just as on solid land, these respective activities left traces in the physical submerged landscape with specific flora, fauna and a large variety of man-made constructions being left behind. The assumption that a hydrological network of lakes, rivers and streams had a role in prehistoric traffic systems is supported by models calculated in the framework of the *"Beyond Lake Villages"* (BELAVI) Westallgäu-research project. By adopting an approach developed in the field of Maritime Archaeology, the present paper discusses elements of an aquatic cultural landscape from a frog's point of view.

Key words – archaeology; submerged landscape; cultural landscape; landscape archaeology; Medieval Age; Bronze Age; Neolithic; Underwater Archaeology; Lake Constance; Lake Federsee; Allgäu; EAA annual meeting 2019; BELAVI

Titel – Elemente einer Aquatischen Kulturlandschaft – eine Regionalstudie aus der Froschperspektive

Zusammenfassung – Kulturlandschaften werden im Allgemeinen als das Ergebnis menschlicher Aktivitäten auf festem Land wahrgenommen. In glazial geprägten Landschaften wie dem südwestdeutschen Voralpenland greift diese konventionelle Konzeption zu kurz. Weite Flächen in der hydrologisch bis heute sehr dynamischen Landschaft waren über lange Abschnitte des Holozäns wasserbedeckt. Menschliche Gemeinschaften haben diese Wasserflächen für eine Vielzahl von Zwecken genutzt. Diese Aktivitäten haben – ähnlich wie solche auf trockenem Land – Spuren in der überfluteten Landschaft und der belebten Umwelt hinterlassen, aber auch eine Vielzahl von Wasserbauten und Konstruktionen. Die Annahme, das hydrologische Netz aus Seen, Flüssen und Bächen habe bereits in prähistorischer Zeit eine Rolle im Verkehrswesen gespielt, wird durch Modelle gestützt, die im Rahmen des Forschungsprojektes *„Beyond Lake Villages"* (BELAVI) im Westallgäu erstellt wurden. Einem Ansatz aus der Maritimen Archäologie folgend, diskutiert der Beitrag Elemente einer aquatischen Kulturlandschaft aus der Froschperspektive.

Schlüsselwörter – Archäologie; Unterwasserlandschaft; Kulturlandschaft; Landschaftsarchäologie; Mittelalter; Bronzezeit; Neolithikum; Unterwasserarchäologie; Bodensee; Federsee; Allgäu; EAA Jahrestagung 2019; BELAVI

Introduction

When we imagine cultural landscapes, the images called to mind may include blooming meadows, patches of forests and fields, maybe a fence or a path in the foreground, some houses, or a steeple in the background. For most people, at least in Central Europe, a *"cultural landscape"* is something terrestrial – topographical formations combined with a *"natural"* environment evidently influenced by human activity. The development of this perception of *"landscape"* is beautifully illustrated in the history of European art; it was Renaissance painters who discovered the techniques that allowed three-dimensional spaces to become the motif to a whole genre of painting. At first, this *"Copernican turn"* (Meyer-Abich, 1997, 141) in Europe´s art history included water only marginally; wet elements were commonly used as a symbol for the potential power and violence of nature (Yu, 2008, 33). Painted *"waterscapes"*, even those of frozen environments, became customary in the Early Modern period, in regions where life and the economy were closely related to water and sea – with art of the Netherlands being perhaps the best example of this. At the beginning of the 20th century, when Claude Monet painted his famous *"paysages d'eau"*, artists were taking expanses of water, riverine vegetation and the effects of water to the landscape of the impressionist genre. Around the same time, German geographers coined the term *"cultural landscapes"* as a geographical concept. Most influential became the American Carl O. Sauer, who was the first to set the physical environment conceptionally against human culture. Since then, a *"cultural landscape"* has been understood as *"land"* which was *"shaped"* by humans. In the public discourse water continued as a potentially dangerous element that had to be, with all technical means available from the 18th century on, tamed or even conquered (Behre, 2008, 90; Poschlod, 2014, 127; Rackham, 1986, 154). In the meantime, fens and marshes were being transformed into meadows and fields, water

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Fokus: Waterscapes across Europe

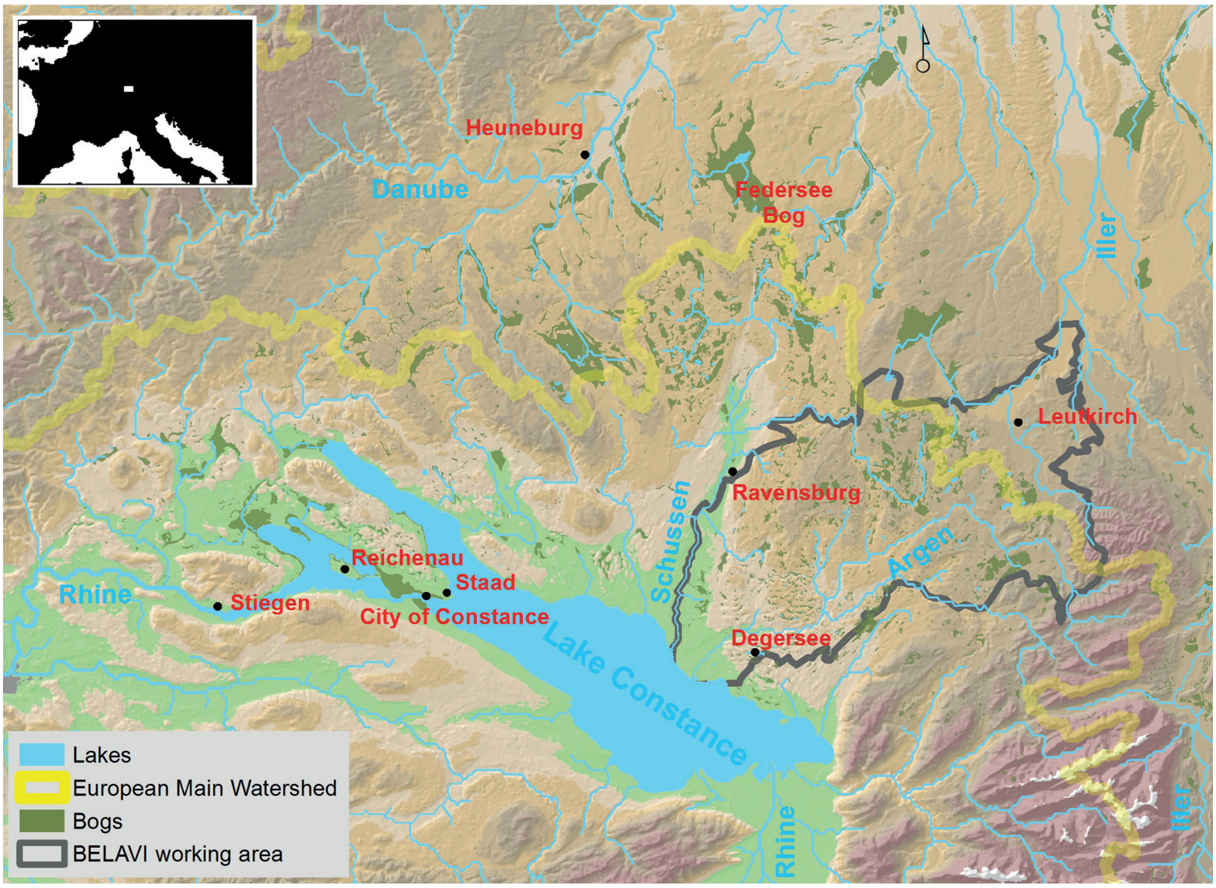

Fig. 1 The South West German alpine foreland with the BELAVI working area and places mentioned in the text.

courses were transformed to artificial channels, and the water tables of lakes regulated. To this day, in our everyday perception of landscape, water has more or less disappeared. It may be that this contemporary personal observation – for the social construction of *"landscape"* see Haupt (2012, 14) – contributes to the fact that water as an element of cultural landscapes remains in the background of research even in academic fields closely aligned to wet environments (see for instance Regierungspräsidium Stuttgart, 2005), and that water still represents a *"natural"* component of the landscape (Edgeworth, 2011, 25).

In the loess-covered *"Altsiedelland"* regions of continental Europe, the traditional concept of *"shaped land"* has allowed for enormous progress in the understanding of prehistoric farming communities´ interaction with their natural environments, of agrarian operation systems or woodland management. However, it falls short in regard to landscapes formed by ice shields and melting waters. Pre-alpine regions like Upper Swabia and Western Allgäu, which are today characterized by fields, forests, pastures and grass land, originate in landscapes that were dominated by water across long periods of the Holocene. Topographical–hydrological models carried out in the framework of the tri-national BELAVI-project (Ebersbach et al., 2017; Hafner, Schlichtherle, Taylor & Tinner, 2016; see **Fig. 1**) illustrate that in some places arable land was restricted to hills protruding from flooded basins and silted wetland like islands (Mainberger, 2009, 10; Mainberger & Mainberger, 2010, 331) (**Fig. 2**). The water-damming activity of beaver colonies may have ever expanded these water-covered and wet areas (Coles, 2001, 2006). Similar conditions are found in the physical landscape of the coastal and riverine regions of northern Europe and Scandinavia. The first scholar to include aquatic elements into a conventional concept of cultural landscape was a Scandinavian. From the 1980s on, Christer Westerdahl (1986; 1992; 1997) developed a concept that obliterated *"[…] the archaeological border between sea and land, while recognizing the overriding importance of this border in the past […]"* (Westerdahl, 2011, 733). He confronted and complemented the traditional concept of agrarian cultural landscapes with maritime elements, defining a *"maritime cultural landscape"* (Westerdahl, 2011, 733). Ralf Bleile adopted this approach for his research on the North-Eastern German moraine region (Bleile, 2010); in accordance with the character of his inland water source material, he used the term *"limnic cultural landscape"*. As we proceed in this discussion, we will make use of these concepts; however, in order to also include running water as sources (Edgeworth, 2011; Haughey, 2013), we will employ the superordinate term *"aquatic cultural landscapes"* instead (Mainberger, 2017, 13).

The physical landscape: underwater and shore-zone reliefs

It is in the very nature of landscapes that they are perceived through vision. For land habitants, water surfaces appear as two-dimensional flat areas. However, hidden below this cover, lake floors generate similar physical landscapes to those of dry land. Technical developments – the invention of the aqualung in the 1940s and the methodological use of aerial photography by archaeologists – have allowed for the first insights scholars have had into this submerged world. Only in the last two decades has there been immense progress in the development and archaeological use of hydrographical methods, and subsequently, there are now new possibilities to detect and model such sub-aquatic surfaces. A first milestone in this process was the result of projects launched in co-operation with archaeologists and North Sea aggregate industries (Firth, 2011; Fleming, 2004). For Southern Germany and similar large pre-alpine lake regions, a pilot project carried out in Lake Constance advanced the standard similarly. Using multi-beam sonar and green laser LIDAR methodology, this undertaking yielded a new, highly resolved bathymetric model of the lake floor and shore zone (Wessels et al., 2016). Most of the topographic formations that are now rendered can be easily identified as geological or hydrographic features – glacial moraines, Holocene silt accumula-

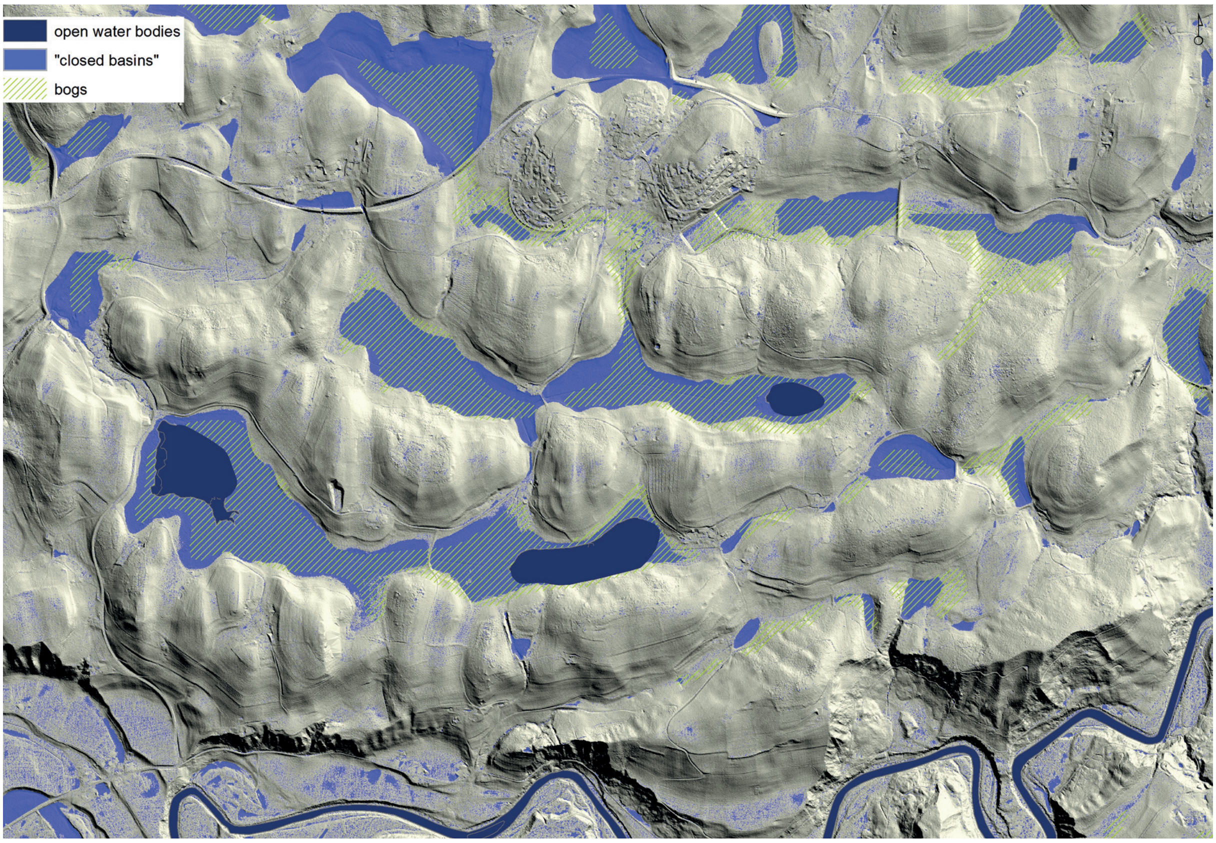

Fig. 2 Model of a landscape near Neukirch, Bodenseekreis, based on LIDAR data provided by Landesamt für Geoinformation und Landentwicklung (LGL). Modelling of *"closed basins"* (basin without hydrological outlet): courtesy of Ralf Hesse, Landesamt für Denkmalpflege im RP Stuttgart.

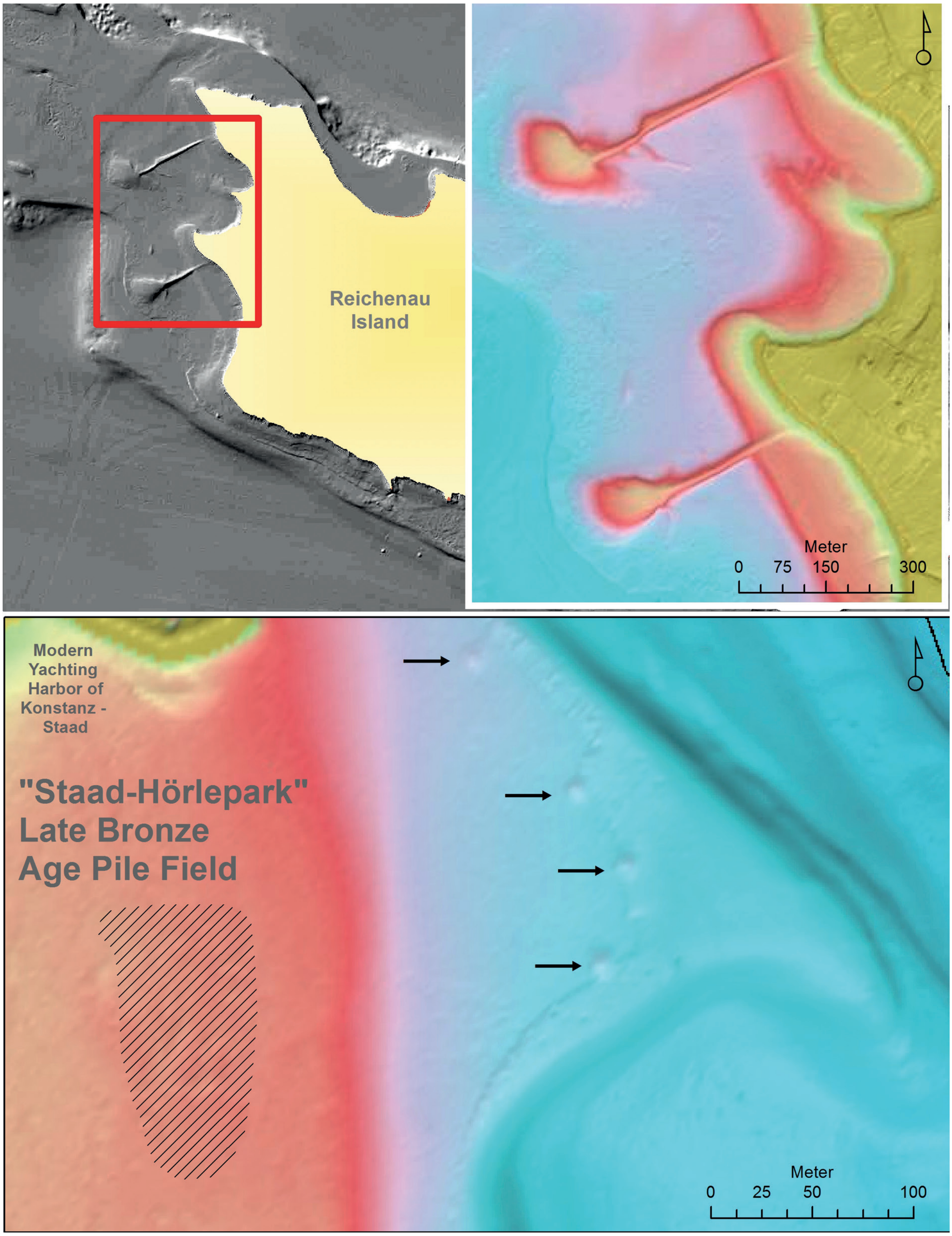

Fig. 3 Models of submerged landscapes at Reichenau Island (above) and City of Constance, Staad (below). Data origin: LUBW (WESSELS ET AL., 2016). Coloured models: courtesy of M. Wessels, LUBW

tions, subaquatic riverine channels, beach ridges, and former shore cliffs that indicate a historical change in water levels. Against this natural background, which is highly dynamic (particularly in the shallow water zones) man-made structures are revealed. In the west of Reichenau Island for instance, linear structures have become visible that run in exact parallel lines separated by a distance of 550 m (**Fig. 3**, top). They originate at the shore and end in irregular, island-like shallows. At present we have only sparse indications as to their chronological origin or potential function. Maybe they are from the same context as the so called *"Stedi"*. The shore of the island with its famous medieval monastery (which is listed as a UNESCO World Heritage site) (see Neuer & Lazar, 2001; Spicker-Beck & Keller, 2001) is lined with an array of pebble dams, facilitating water transport and fishing activity. The dams were spanning areas too shallow for the navigation of ships and boats with heavy loads, like stone or timber for house-building or yields of underwater vegetation used as fertilizer in the fields (Baumann, 1911, 68; Mainberger & Schnyder, 2006). Another example for underwater man-made anomalies is the mounds observed in the shallow water zones of the Lake Constance south shore. Based on stratigraphic observations and absolute dating of wood sampled in spatial context, it is assumed that these anomalies are of Neolithic origin (Leuzinger, 2019). Similar structures, though somewhat smaller, have been observed near the city of Constance and in the direct vicinity of a Late Bronze Age site (**Fig. 3**, bottom). Again, findings like these raise more questions than they give answers, but nevertheless they make clear that bathymetric data has the same potential for archaeological assessment of the waterscape as airborne LIDAR data in terrestrial applications.

Biotic components

In the same extent that water covered areas have disappeared from our field of vision, it is increasingly overlooked how the economic resource of water was critical to the past. The Medieval pond economy – best exemplified by the Cistercian monasteries – serves as an impressive example of the efforts undertaken to harness water (Klapp, 2020). In the vicinity of the City of Ravensburg in southern Upper Swabia it was Benedictine monks that artificially modified watersheds between two different hydrological systems to feed a water supply to their facilities, fishponds and watermills. The system of ponds and channels, originating in the 12th century AD, spanned an area up to 25 km^2. The list of uses for such hydraulic engineering systems is too large to be listed here. It included the transport of timber and firewood, the irrigation of meadows and fields, and the harvesting of ice-sheets for breweries. In Early Modern Times these hydraulic systems became vital for energy production and had great importance in the context of mining and steel production (Herbst, 1989, 2018).

In a way, ponds, channels and irrigated areas were early predecessors of modern aquaculture. They were linked to specific plant and animal biotopes (Poschlod, 2014, 196). In urban as well as rural contexts, the use of such habitats was a substantial part of subsistence for the local people. Water-borne animals, including mammals such as the beaver, played an important dietary role as Lenten fare in the monastic community. Fisheries were extraordinarily important – in the South German pond economy the most significant food was carp – but aquatic environments also provided for the foraging of crabs, frogs, leeches, snails and the hunting of water fowl (Herbst, 1989, 23). A systematic study carried out in Upper Swabia and Western Allgäu lists 30 man-used plant species growing in these wetlands and shallow waters. *Typha latifolia* (cattail) demonstrates the wide variety of uses found in aquatic plants: green stems were eaten as vegetables, used for the production of flour and as a substitute for coffee. Rhizomes were cooked and consumed as food or used as pig fodder. In the context of handicraft and house building, cattails were used as caulking mass, for binding and for roof thatching. In the household it served as surrogate for bedding, and in medical applications as a dressing material. The plant even appears in flower arrangement with crucifixes in the context of spirituality and religion (Konold, 1987, 82). Some submersed macrophytes – the most prominent being the water-chestnut *Trapa natans* (**Fig. 4**) – may be classified in a field of transition between pure utilization and targeted promotion and distribution. Especially in times of famine, the crop was an essential calorie source (Karg, 2016, 345; Lang, 1994, 209).

These examples shed a light on a taphonomic problem we face with respect to periods lacking written sources. Prehistoric cultural layers influenced by water will always contain seeds or parts of submersed macrophytes. It is in most cases impossible to differentiate intentionally gathered supplies from natural sediment components. Remains of water-borne plants will therefore not

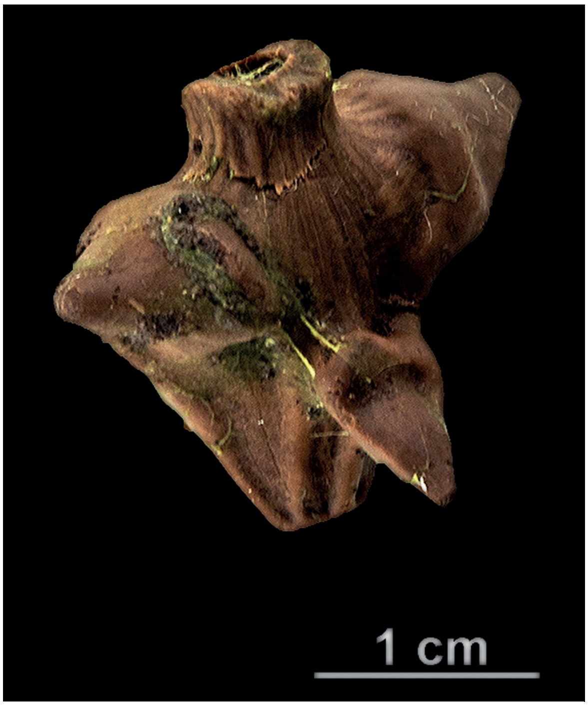

Fig. 4 Water chestnut (Trapa natans), sampled in Late Bronze Age layers at Hirensee bog, Bodenseekreis. Photography: Landesamt für Denkmalpflege Baden-Württemberg, Monika Erne.

be detected as anthropogenic components in water-logged culture layers. Palaeo-osteologists face a similar problem with the quantitative assessment of small animal remains like snails, frogs, mussels and leeches, which may have also been consumed as food. In prehistoric cultural layers rich with archaeological evidence of fishing, fish bone remains grossly underrepresented without the deployment of specific sieving devices (see Gross & Huber, 2018, 266; Hüster-Plogmann, 2004, 253). Botanical or faunistic on-site data is therefore hardly apt to draw a precise picture of the quantitative role of submerged or wet habitats in human economies. Much more complete evidence is generated by archaeological off-site investigation. Lake sediments investigated by pollen and geochemical analysis reveal close interrelations of environmental conditions in the surroundings of lakes and water bodies. They represent natural archives with immense information content on vegetation history (Rösch, 1991; Rösch & Heumüller, 2008), as well as the chemical, physical, and climatic conditions of the past (Geyh, Merkt & Müller, 1971; Müller, 1962). In some rare cases lake sediments are annually laminated. If it is possible to link such ultra-high resolved sediment sequences to precisely dated archaeological evidence and absolute dating, a detailed picture of natural history in its relation to the impact of human communities can be displayed (Kleinmann, Merkt & Müller, 2015). The sedimentological record mirrors not only changes in the catchments and surroundings, but also changes in the physical and chemical water conditions in the lakes themselves. These conditions change with anthropogenic input (Hinderer, Hollert, Schwalb & Wessels, 2017; Kleinmann et al., 2015, 451). If one takes into account that such human-induced changes happened since prehistoric times, shorelines, wetland belts and freshwater bodies are as much a part of the cultural landscape as any field or pasture.

Large objects and constructions at both sides of the waterfront

150 years after the discovery of prehistoric lake shore and bog settlements, the public interest in pile-dwellings (*"Pfahlbauten"*) remains unbroken. Fostered by popular full scale *"reconstructions"*, pile-dwellings have become an iconographic trademark for a whole region and a popular motif within Southern German waterscapes (**Fig. 5**). In 2011, the *"Prehistoric Pile Dwellings Around the Alps"* became listed as UNESCO World Heritage (Hagmann & Schlichtherle, 2014). Constructions originating in more recent periods, although quite frequent and prominent at both sides of the waterfront until the present day, are publicly and archaeologically much less known. Historical sources illustrate a large multitude and wide variety of installations that lined the shorelines of lakes and rivers. Only a fraction of them has been archaeologically investigated. Some have simply served to protect and reinforce the shore against erosion (Jenisch & Mainberger, 2009). Long rows of

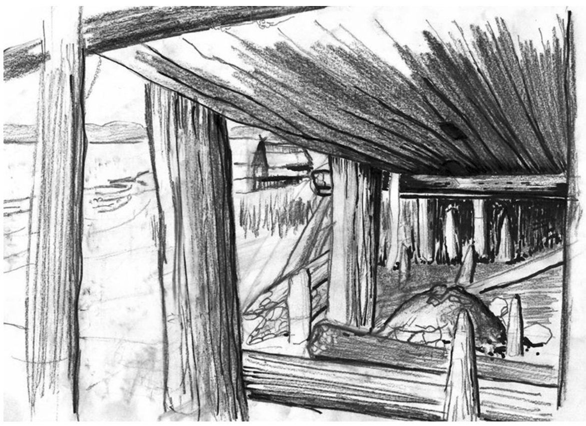

Fig. 5 Prehistoric lakeshore site house construction from a frog´s perspective.

wooden palisades in the shallow zones bordering urban settlements and monasteries, as observed at the northern shore of Reichenau Island, may have been built for protection reasons, but also for delimiting juridical or spiritual space. In the case of the medieval City of Constance, palisades were part of the urban fortification system (Heiligmann & Röber, 2011, 92). A variety of jetty constructions, as mentioned above, represent waterfront infrastructure which were part of the historical water transport system (Mainberger & Schnyder, 2006). The urban harbors of Lake Constance originated in such simple pile-earth-stone dams, which in the steam boat era grew into a series of impressive constructions (Mainberger, 2006) (**Fig. 6**). In the vicinity of such landing infrastructure the exposed stumps of piles are omnipresent. In most cases their original function remains unknown. At some places accumulated pile groups originate from a long tradition of navigational mark usage (vernacular German: *"Bauchen"*). The complex technical and social infrastructure in the vicinity of harbors and landing sites has been exemplarily investigated at the *Kippenhorn* Late Medieval shipwreck site (Hakelberg, 2003). Wooden weirs and the foundations of watermills, watch towers, bridge foundations, and a multitude of other hydraulic engineering relics present in the narrowing effluent of Lake Constance can be found here. Although in many cases precise datings can be obtained from written or pictorial sources, water-logged wooden remains of hydraulic engineering contain an enormous potential for future dendrochronological research.

Fig. 6 The *"Old Harbour"* of Bodman, Lake Constance. Photograph: courtesy of Martin Mörtl.

A second large group of submerged monuments are features related to historical fisheries. We find so called *Fischreiser* – impressive con-

Fig. 7 Relics of a fish trap in Degersee Lake, Bodenseekreis. Photograph: Landesamt für Denkmalpflege Baden-Württemberg, Wolfgang Hohl.

structions made of stakes and the branches of fruit trees for the protection of fish offspring and catching of large predators. They extend into the water up to 25 m in depth (Koch, 2002; Löffler & Mainberger, 2005). A post-medieval stone structure in the outlet of Lake Constance towards the Upper Rhine was used for the extraction of fish spawn (Mainberger & Kramer, 2011). Quite frequently we find the relics of fish weirs (**Fig. 7**), some of them dating back to prehistoric times (Köninger, 2000; 2002; Köninger & Lübke, 2001). Near the medieval cities wooden cases made of stakes several meters in diameter have been found (Mainberger & Schlichtherle, 2013, 35) – they possibly served to store the week´s fishing catch for market days. Omnipresent in the shallow water zones of our pre-alpine lakes are singular objects connected to historical fishing – oars and rudders, iron-studded poles, and relics of wicker fish traps.

Most prominent are the remains of watercraft. It is known from historical sources how important ships, boats and floats were in the past. They were used in all kinds of waterbodies and for all purposes of water transport: as ferries, for trade, for fisheries and for military reasons. A database of archaeological relics of boats and ships lists for Baden-Württemberg alone 120 objects; 93 of them logboats (Hoffmann & Mainberger, 2017). The database entries include objects originating from natural and artificial lakes, from wetlands and from river sites. Surprisingly, only four archaeological remains of prehistoric logboats are known from Lake Constance (for the most recent discovery see Herzig, Angermayr & Pflederer, 2019). A large number of potential vessels from historical times that were detected in the framework of the *"Tiefenschärfe"* project (Wessels et al., 2016, 33) has hitherto not been confirmed or validated by archaeologists. The objects that have undergone underwater archaeological investigations date to the Late Medieval period; all have only been discovered in the context of recent erosion processes (Hakelberg, 1996; 2000; 2003; Mainberger, 2013; Mainberger, Billig & Million, 2013; Mainberger, Dieckmann, Bibby & Steffen, 2012; Mainberger & Hakelberg, 2014). Shipwrecks positioned in deeper water are in many cases attractive diving sites. The *"wreck diving"* visitors of these monuments are more and more aware that the long-term preservation of these respective sites and objects is in their own interest (Eisenmann, Knepel, Maak & Mainberger, 2007). In reality, these visitors are the only non-professionals that have the privilege to experience these sometimes huge monuments in the natural environment – a cultural landscape underwater.

In the last decade, airplane crash sites have moved into the field of underwater archaeological inquiry as well. There is an increasing interest to investigate or even recover these wrecks – be it for technical reasons, in the context of environmental hazards, or because they are war graves. Nearly all of them originate from World War II.

Hydrological systems – basic elements of a prehistoric traffic network?

Distribution maps of prehistoric materials like jade, copper (see for instance Pétrequin, 2016, fig. 638) and spondylus (Müller, 1997, fig. 1) demonstrate distances and spaces spanning large parts or even the whole European continent. Based on ethnographical, historical and archaeological data it has been emphasized that the network of river valleys must have played a crucial role in the distribution of such material (Ellmers, 1989; Goldmann, 2000; Montelius, 1911, 274). This is made further plausible when we consider that the aforementioned *"prestige"* goods showing up on archaeological maps potentially represent the exchange and distribution of much heavier and bulkier material culture, particularly salt, which was produced from Neolithic times on but has left no direct archaeological evidence. Salt was a physiological and nutritional necessity and must be assumed to have been an important commodity from prehistory on (Saile, 2012, 233; Weller, 2015, 186). Historical sources illustrate quite distinctly what advantage water transport has had in landscapes without developed land traffic infrastructure (Kunow, 1980, 22; 1983, 53; Reitmaier, 2008; Scheidel, 2013, 4).

In southern Germany, the dominating riverine systems are formed by the Rhine and Danube. While the Danube connects to the cultural spaces of the east, the Rhine, with its Alpine sources and its North Sea river mouth, opens transalpine connections to the South, but also to landscapes in the West and to the North. A rich archaeological heritage, best represented by the Iron Age *"Heuneburg"* hillfort on the Upper Danube (Wieland, 2000) as well as the renown Neolithic and Bronze Age sites of the Federsee Lake basin (Schlichtherle, 1997, 2009), reflects the use of these rivers as prominent transport routes (**Fig. 1**).

There is no archaeological evidence testifying to the way alpine and South German river valleys were actually used for transport. However, some archaeological finds in the Lake Federsee bog have raised the question about the role watercraft might

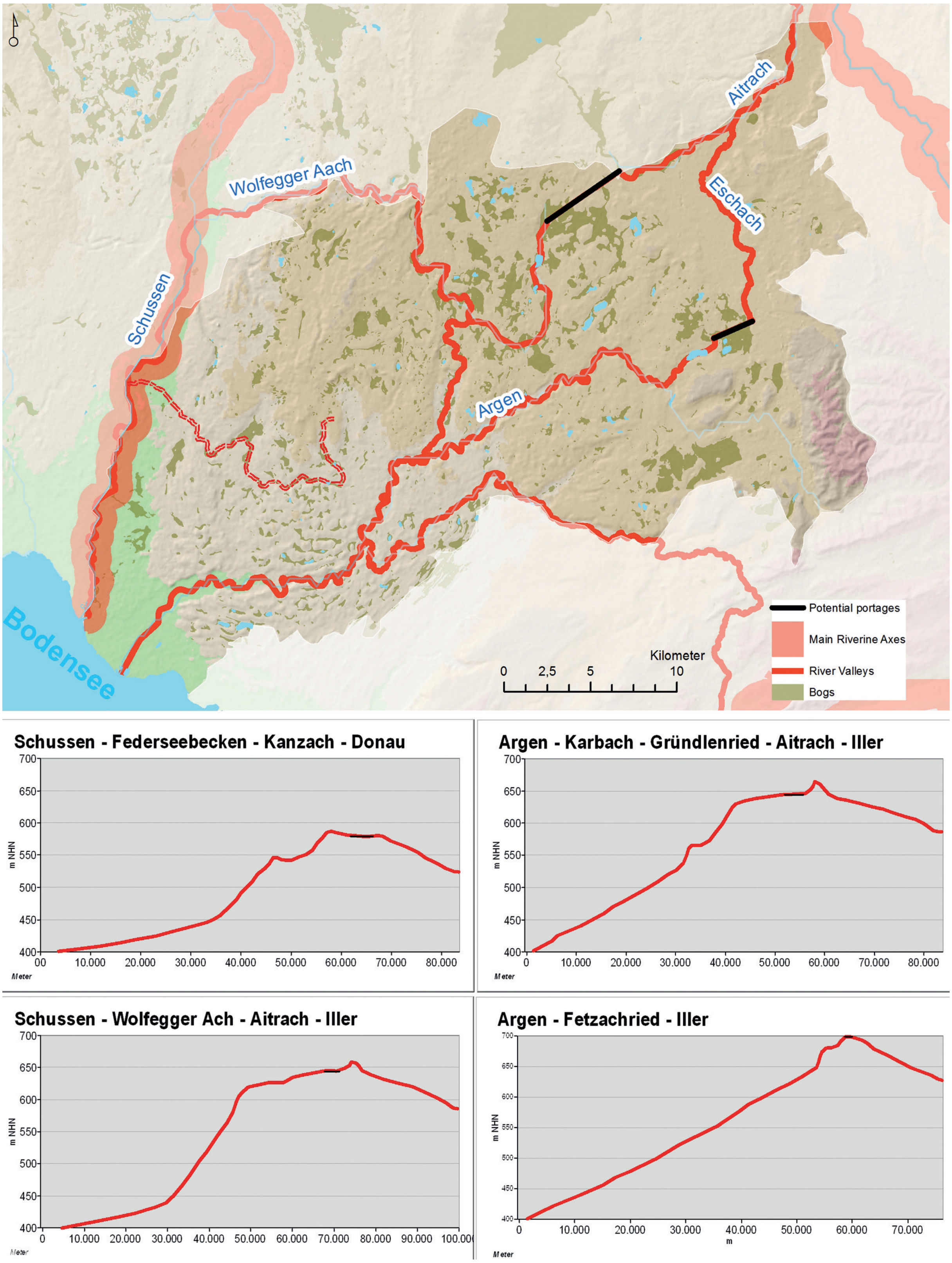

Fig. 8 Models showing distances, elevations and inclinations at different potential travelling routes in the BELAVI working area.

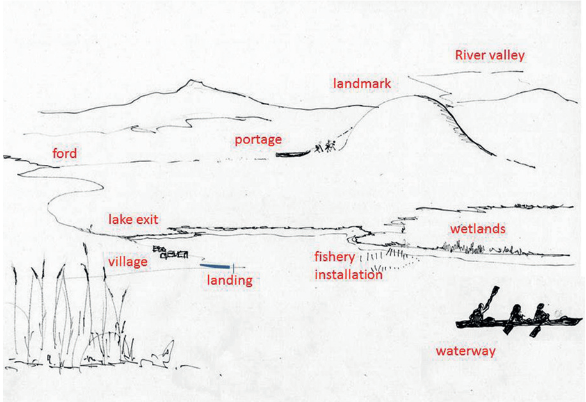

Fig. 9 Potential elements of an aquatic landscape in the South West German pre-alpine foreland.

have played. The Lake Federsee bog is located on the European watershed separating the Danube and Rhine riverine systems (**Fig. 1**). Considering this key geographical and hydrological position, the more than 60 archaeological logboat finds suggest that at least part of the regional traffic was not carried out solely via land-routes (Mainberger, 2016, 348). In the terminology of pre-modern long-distance trade, the space between the two hydrological units would have functioned as a *"portage"* or *"carrying place"* (in German: *Schleppstelle*), a location whereby travelers and boats changed from one hydrological system to the next, carrying or hauling goods and boats over an isthmus of solid land (Westerdahl, 2006a). In the case of Lake Federsee, this land-bridge would only measure a few kilometers in length, and less than 50 m in elevation change (Mainberger, 2017, 12). There is rich historical evidence proving that huge distances were overcome under much more difficult geographical and topographic conditions through the use of these watersheds (Ellmers, 1972, figs. 169-174); Mainberger, 2017, 7; Sherratt, 2006; Westerdahl, 2006b).

When the *"Degersee-Project"* (Mainberger, Merkt & Kleinmann, 2015) and the subsequent BELAVI-project detected a hitherto unknown archaeological landscape in the western Allgäu region (Ebersbach et al., 2017), we modeled elevations and distances in the larger river valleys of the area. We observed that a large group of archaeological sites – highlighted by a newly-discovered hilltop site at Leutkirch (see **Fig. 1**) – were concentrated near the watershed between the Rhine and Danube River systems at the tributaries of the Iller River. This raised the question as to whether the observed evidence indicated an alternative travelling route from Lake Constance to the Upper Danube, which is the northernmost section of an archaeologically well-documented communication line across the Alps to Northern Italy (Köninger & Schlichtherle, 1999; Mottes, Nicolis & Schlichtherle, 2002). Models clearly show that the route via Lake Federsee represents an 80 km distance and only 200 m maximum elevation change following the shortest and most convenient route. However, there are alternatives (**Fig. 8**). The Western Allgäu river network possesses several itineraries which differ only in elevation from the Lake Federsee-route. The least simple variants measure up to 100 km distance and 300 m elevation difference. In view of this situation it seems perfectly possible that these archaeological sites point to a portage situation very similar to that observed in the Lake Federsee area.

Nevertheless, the way people and goods moved in prehistoric landscapes, evidently without the use of a developed terrestrial road system, remains hypothetical. However, in the pre-alpine landscapes like Western Allgäu, with direct inland routes obstructed by a tangle of lakes, bogs, and flooded areas, the river valleys had outstanding advantages for travelling by foot as well as navigating watercraft. Their inclined slopes provided the only well-drained surfaces to walk on, and potentially attracted wild game movements which marked safe and short routes. In heavily wooded environments, river flows could serve as a direction marker. Downstream navigation could quite easily be managed by very simple and basic floats, but in view of numerous historical sources the use of simple logboats on rivers appears to be more likely (Mainberger, 2017, 7). Watersheds must have played a crucial role. At portage locations they connected the main lines of traffic to a network that was open to all directions. It has been proposed that some of the evidence found in Lake Federsee bog – such as wooden trackways and footbridges, waterfront constructions and jetties, even parts of carriages (for the most recent discoveries see Goldhammer, Hohl, Nelle & Vogt, 2019) may be linked to such considerations (Mainberger, 2017, 13). Elevated points in the landscape, visible land marks (and at the same time potential look-outs), may be seen in the same context of the *"landscape of transport and communication"* (Westerdahl, 2011, 746) (**Fig. 9**).

A frog's eye perspective

Although one might see the same features, it makes a big difference whether one observes a specific surrounding from a mountain top location or from the waterline *"on-board a vessel closing in with the coast"* (Westerdahl, 2011, 740). If we try to understand a specific archaeological landscape as a whole, it actually makes sense to take both perspectives (Gross, in prep.; Huber et al., 2019). Within the archaeological landscape methodology of the BELAVI-Westallgäu project, this approach has been successfully adopted. Former blank spots on the archaeological map of the Western Allgäu region are now dotted with numerous sites (Ebersbach et al., 2018). These sites are located on lake shores, in bogs, but also on the flanks of river valleys, on hilltop and promontory locations. Not all new sites can be subsumed under convenient archaeological categories, but each represent a proxy of human impact at varying levels of intensity (Ebersbach et al., 2018).

This paper mainly takes a frog´s point of view. The waterscapes described above are more a result of this perspective than they aim to be a compilation of a complete or even an exclusive list of elements in a given landscape. Just like *"terrestrial"* cultural landscapes, the perception of an *"aquatic"* cultural landscape may vary widely as a result of the geographic space, the historical period and the personal background of the observer. The approach presented here is closely linked to South West Germany, to a special interest in prehistory, to waterlogged evidence, and to underwater archaeological field practice.

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