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On the Cultural Significance of the Leaf of the Indian Lotus: Introduction and Uses*

"There is hardly any symbolism in Indian poetry, sculpture and painting more extensive than that belonging to the lotus flower and other parts of the plant."[1] The significance of the lotus in the cultural history of South Asia and culturally related regions, evident from its pervasiveness in their literary, artistic, as well as religious and ritual traditions, indeed cannot be stressed too strongly. When attempting to gather some insight into the symbolisms at play, the necessity of an interdisciplinary approach soon becomes evident.[2] A broad-based study of the cultural significance of the Indian lotus has therefore been planned, in which data from the different fields of indology is systematically brought into context with that obtained from botanical sources. The current article presents some first results.

Among the different parts of the lotus, the green lotus leaf is taken up first. Although it has rarely received due attention in secondary literature dealing with lotus symbolism – for apparent reasons the focus is mostly on the lotus *flower* – it is represented prominently in both literary and visual primary sources and even plays a pivotal role in cosmological mythology.

The present study is divided into two major sections: Part 1 provides a botanical introduction, essential for the proper understanding of the following part. It first considers the lotus as a whole, distinguishing it from water lilies (1.1.), and subsequently focuses on the lotus leaf, incorporating textual references from Sanskrit sources (1.2.). The specific qualities of the lotus leaf have led to a large number of uses. Part 2 presents a systematic overview of some of these, providing examples

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[1] English rendering of Morenz/Schubert 1954: 104: "Es gibt in der indischen Dichtkunst, Plastik und Malerei kaum einen umfassenderen Symbolismus als den der Lotosblüte und anderer Teile der Pflanze."

[2] The failure to consider botanical information on the lotus to a sufficient extent has produced a large number of confusions, indistinctions and ambiguities in secondary literature, as will be pointed out in the following pages.

from a wide range of literary and other material. A bibliography and abbreviations conclude the article. Two additional aspects will be covered in follow-up articles: (a) the role of the lotus leaf in some Vedic cosmologies, leading to a new interpretation of the Purāṇic layout of the world, and (b) the lotus as a symbol of purity and non-attachment in which a remarkable property of the lotus leaf plays a crucial role.

The following conventions are followed in the text: Remarks, emendations, etc. placed between curly braces are invariably my own. Whenever text quoted in this article has also been found quoted or referred to in secondary literature, an asterisk is prefixed to the latter's abbreviation.[3] Abbreviations of electronic sources are marked by a hyphen before the year of access (e.g., PIER-2010).[4] The author of a botanical binomial is only given after the latter's first occurrence. In citations from Vedic sources, accents have been omitted. The verses of a stanza are represented by the capital letters A and B. In order not to overburden the already dense main text, additional information on topics touched upon in the latter are relegated to the footnotes.

The website http://sites.google.com/site/lotusleafinfo/ (from now on referred to as lotus-leaf-2010) has been created as a supplement to this article. It aims at improving upon the article by making available the colour versions of the black-and-white pictures printed here and by giving additional visual and literary material. It furthermore provides the opportunity for feedback. Contributions from readers (literary references not covered in the article, corrections, comments, etc.) will be considered for inclusion in the website with due acknowledgement.

1. BOTANY

Intrigued by the symbolism of the lotus seat I visited the Botanical Garden of the University of Vienna in August 2004 to have a look at the receptacle (*karṇikā*) of the Indian lotus flower. My initial disappointment at not finding any lotus flower in bloom soon gave way to amazement at the highly symmetrical shape and large size of the lotus leaves, which were abundantly present.[5] Especially the former characteristic, previously unknown to me, seemed meaningful and resulted in a more in-depth study of the matter. It soon emerged that secondary literature often confuses the features of both leaf and flower of the lotus with those belonging to water lilies. It is therefore essential to first present a general description of the lotus before proceeding to its leaf.

[3] This is done even when the secondary source quotes from a different edition or only a part of the text.

[4] These abbreviations additionally afford a simple way of reaching the website they refer to. The URL created by appending the abbreviation to http://preview.tinyurl.com/ or http://tinyurl.com/ (e.g., http://tinyurl.com/PIER-2010) automatically redirects the reader to the original URL. The latter is also provided in the bibliography.

[5] Cf. fig. 3, p. 490. For synthesised pictures of this lotus pond made in July 2008, see Photosynth-Nelumbo-2010 (plug-in required).

1.1. Lotus vs. water lily

For any person able to have a look at both lotus and water lily, the differences become apparent at once.[6] Indeed, the only immediately noticeable characteristics shared by both are their polypetalous flowers and their aquatic habitat.[7] The South Asian artist, familiar with both plants, was consequently able to differentiate them in his works.[8] Among those studying the cultural history of South Asia, it is therefore "the art historians, who are more likely to be aware of the differentiation between water-lilies and lotuses" (Hanneder 2002: 302). Yet, whereas philologists indeed often lack the visual acquaintance with the subject, the art historian for his part is "unlikely to stumble upon problematic passages in the Mahākāvyas or in philosophical works" (ibid.) in which their names occur.[9] As a result, secondary literature abounds with instances in which lotuses and water lilies are either not differentiated,[10] or even confused with each other.[11]

The lack of discrimination between lotus and water lily is also evident in the indistinct use of the names commonly assigned to them, "with the lotus usually taking over the meaning of both" (Crowe-2010: 1).[12] To make the confusion worse, the Latin term *'lotus'* and its Greek equivalent 'λωτός' designate a rather wide range of different plants since antiquity,[13] besides denoting the Indian lotus.[14]

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[6] Hanneder therefore encourages his readers "to compare pictures of lotuses and water-lilies in a botanical or even gardening handbook, or preferably, visit a botanical garden. The anatomical differences should convince the reader that although both plants can be confused in secondary literature, they are not likely to be confused in real life" (2007: 162). – It should be noted that the German term for 'water lily' is 'Seerose'. Although 'Wasserlilie' can also be used in this sense, it often denotes the yellow flag iris, *Iris pseudacorus* L. (My thanks are due to Gabriela Krämer for pointing this out.).

[7] Cf. Frédéric 1988: 16a; Arber 2003: 38.

[8] Syed 1990: 614: "Blüten und Blattwerk der Nelumbo werden von den Künstlern sorgfältig und unverkennbar wiedergegeben (Abb. 25.1., 25.4.) und die botanischen Unterschiede zwischen Nelumbo und Nymphaea sind deutlich dargestellt (Abb. 25.6., 25.10., 25.11. und 25.29.)."

[9] The same obviously holds good for other works as well.

[10] E.g., Smith 2000 (cf. fn. 12, below); Basu 2002 (cf. ibid.); Beer 2004: 38a (see fn. 70) and, regarding the lotus in Egyptian art, Roşu 1961: 185f.

[11] Cf. e.g., the wrong labelling of pictures in Frédéric 1988 referred to in fn. 37. Hanneder (2002 and 2007), on the other hand, clearly distinguishes lotus and water lily.

[12] Such an inclusive use of the term 'lotus' has been adopted for instance by Basu (2002: 16: "To avoid complication the word 'lotus' has been used in the following pages in general for both lotus as well as water lily"; ibid.: 83, fn. 123: "Lotus is the blanket term used here for lotus and water lily both.") and Smith (2000: 211, fn. 3: "By the term lotus I mean Nymphea pubescens, Nymphea caerulea{sic; see below}, and Nelumbium speciosum." Smith's "understanding of the lotus as plant and visual form owes much to Mireille Bénisti, *Le Médaillon Lotiforme dans la Sculpture Indienne*" (ibid.: 211f., fn. 3), which is problematic. Bénisti indeed refers to these plants as the white, blue and pink lotus respectively (1952: 1-2). She moreover equates *Nymphaea caerulea* and *Nymphaea stellata* (ibid.: 1), although the former designates a species that is not endemic in South Asia (a fact that has also been overlooked e.g., in MW: 180c, s.v. *'utpala'*, Schmidt 1913: 468 and Hanneder 2002: 297, 302), and terms *Nymphaea* and *Nelumbium* 'species' ("espèce") instead of 'genera' (Bénisti 1952: 1). Syed 1990 was not available to Smith (Smith 2000: 212, fn. 3).

[13] Cf. Woenig 1886: 334ff.; Herzhoff 1984; Genaust 2005: 350a-351b, s.v. 'Lótus'.

[14] Already around 200 CE the word 'λωτός' was used by the Greek author Athenaeus to refer to the Indian lotus (Conard 1905: 13-14; Amigues 2003-04: 61).

In South Asia, where lotuses and water lilies were presumably equally common, Sanskrit nomenclature is less ambiguous.[15] The modern scholar, in his attempt to find translations for the large number of terms (to a large extent synonyms) he is confronted with, however faces a serious challenge, since the Sanskrit dictionaries usually consulted cannot be relied upon for this purpose.[16] Hanneder rightly points out that the standard reference article should be Rau 1954, "a collection of references for 101 names for lotuses and water lilies in the main works of Classical Sanskrit poetry in the first millennium of our era" (Hanneder 2002: 296).[17] Rau comes to the conclusion that the flower of the Indian lotus is designated by the Sanskrit terms *abja*,[18] *aravinda*, *kamala*,[19] *nalina*, *padma*,[20] *puṣkara*, *puṇḍarīka*,[21] etc., whereas *utpala*, *kumuda* and *kuvalaya* refer to the flowers of different species of water lilies.[22] The whole plant is denoted by derivative forms (e.g., *padminī*, *kumudinī*, etc.).[23] When it came to choose a botanical name for the Indian lotus, western botanists did not resort to any of these names or their derived forms in contemporary use. Instead, they fell back on names for the lotus current in South India, i.e., *tāmarai* (Tamil) or *tāmara* (Malayalam, Kanada, Telugu)[24] (cf. Skt. *tāmarasa*), and Ceylon, i.e., *neḷuṁbu* (Sinhala).[25] The latter name was eventually adopted more

[15] Regarding designations in New Indo-Aryan languages, cf. fn. 19. – Although Dravidian names are not taken into account here, it should be noted that a Dravidian origin has been postulated for several Sanskrit terms for lotus or water lily, i.e., *aravinda*, *kamala*, *kumuda*, *kuvalaya*, *tāmarasa*, *puṇḍarīka* and *puṣkara*. Cf. Burrow 1943: 135; Burrow 1946: 9; Burrow 1948: 366, 370, 385f. (*Roşu 1961: 167; *Basu 2002: 86-87). Although Mayrhofer equally considers a Dravidian origin for *aravinda*, *kamala*, *kuvalaya* and *tāmarasa* (KEWA I: 48, 160, 243f., 495; EWA I: 305: EWA III: 13, 113, 241), he doubts such an origin for the terms *kumuda* and *puṇḍarīka* (KEWA I: 233; EWA I: 369; EWA II: 141) and argues against it in the case of *puṣkara* (KEWA II: 317; EWA II: 152).

[16] Cf. Rau 1954: 505; Hanneder 2002: 305.

[17] Although Rau's identification should be relied upon in most cases, Hanneder emphasizes that "words denoting 'blue lotus' should be translated as 'blue water-lily'" (2002: 305f.).

[18] As well as by a large number of similar names signifying 'born' (°*ja*, °*janman*), 'sprung' (°*udbhava*) or 'grown' (°*ruh*, °*ruha*) from 'water' (*ap*°, *ambu*°, *ambhas*°, *uda*°, *kam*°, *jala*°, *toya*°, *nīra*°, *payas*°, *pāthas*°, *vāri*°, *saras*°, *sarasi*°, *salila*°), 'a pond/lake' (*saras*°, *sarasi*°, *sarasī*°) or 'mud' (*paṅka*°) (e.g., *ambhojanman*, *salilodbhava*, *saroruha*, *paṅkaja*).

[19] In New Indo-Aryan languages as for instance Hindi, *'kamal'* is nowadays often employed to denote water lilies as well.

[20] According to Basu, the Pali form of *'padma'*, i.e., *'paduma'*, is often used as a generic term in the Pali Canon, including water lilies in its semantic range (2002: 93).

[21] This term denotes the white variety of the Indian lotus. Basu's argumentation, according to which *'puṇḍarīka'* is used in the Maitrāyaṇīsaṃhitā and the Pañcaviṃśabrāhmaṇa as a class name encompassing both lotuses and water lilies (2002: 89) appears inconclusive.

[22] Rau 1954: 512 (cf. also Hanneder 2002: 300f.). This accords with the arrangement of names of flowers and plants in AmKo 12.37A-42B. – It should be noted that, within the botanical family Nymphaeaceae, water lilies not only denote species belonging to the genus *Nymphaea*, but sometimes species in the genera *Nuphar*, *Euryale* and *Victoria* as well. Whereas plants in the latter genus are native to South America, *Nuphar* species and the single *Euryale* species are commonly found in South Asia. Since their flowers differ rather clearly from *Nymphaea* flowers, it is likely that they were also differentiated by distinctive indigenous names, which would still need to be identified.

[23] Cf. Schmidt 1913: 468f.; Rau 1954: 512; Hanneder 2002: 300.

[24] This latter name is used in the Hortus Malabaricus. See van Rhede tot Drakestein 1692: 59-61.

[25] Geiger gives the meanings 'lotus, water lily' for *neḷun*, *neḷum*, *neḷuṁbu*, and relates these names to Prakrit *ṇaliṇī*, Pali *nalina* and Sanskrit *nalina, °nī* (1941: 92, no. 1360). – The adoption of indigenous names for the lotus did not come about without some resistance. The English botanist James Edward Smith (1759-1828), founder of the Linnean Society of London, for instance, writes in Rees's

widely and has been used since the 17th century in the latinized forms *'Nelumbo'* and *'Nelumbium'*.[26] It appears for instance in the botanical names *Nymphaea nelumbo* L. and *Nelumbium speciosum* Willd., as well as in the currently used name *Nelumbo nucifera* Gaertn.[27]

Apart from the lotus found in Asia there is also an American lotus (see fn. 34). Whereas both have long been considered separate species (cf. Borsch/Barthlott 1994: 439), Borsch and Barthlott have produced data to "support a new systematic concept: {The genus} *Nelumbo* comprises only one species with two geographically separated subspecies" (ibid.: 440).[28] *Nelumbo nucifera* is moreover not regarded anymore as belonging to the genus *Nymphaea* of the family Nymphaeaceae (to which latter the different species of water lily belong), but is now placed in a genus (*Nelumbo*) and family (Nelumbonaceae) of its own.[29]

In the present study 'lotus' always refers to the species *Nelumbo nucifera*[30] and mostly to its subspecies *nucifera*. The latter is sometimes specified by using the common name 'Indian lotus',[31] whereas the 'American lotus' refers to the yellow subspecies *lutea*.[32]

Botanically speaking, the lotus is a "perennial, large and rhizomatous aquatic herb" (Sridhar/Bhat 2007: 144). The rhizome or "root-like stem [...] throws off flowers and leaves at intervals, but there is no branching stem, and the stalk of each flower or leaf rises directly from the rhizome" (Coomaraswamy 2001: 58). Even though Frédéric names the similarity of their flowers as one of the causes for the confusion between lotuses and water lilies (1988: 16a), these flowers are actually very distinct. The Indian lotus produces a large fragrant flower with a diameter of 10-25 cm

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Cyclopædia (published 1802-1820): "We wish to adhere, as much as possible, to the Linnæan rejection of barbarous generic names, and have no desire to establish either *Nelumbo* or *Tamarà*, greatly preferring *Cyamus* {derived from the Greek 'κύαμος αίγύπτιος'; see later}. It is to be wished that botanists not totally illiterate and tasteless, would advert a little to the propriety of keeping their nomenclature under some regulations of sense and uniformity, which those who read the writings of Linnæus, will find already established, and abundantly supported by reason and convenience" (quoted in Dawson 1888: 121). However, as the author of the binomial '*Cyamus nelumbo* Sm.' (cf. IPNI-2010), Smith kept *'nelumbo'* as a species name.

[26] Cf. the section on nomenclature in Borsch/Barthlott 1994: 441-443.

[27] Note that, contrary to what Hanneder states (2007: 162f.), *Nymphaea nelumbo* does not designate a water lily. For a list of further synonyms of *Nelumbo nucifera*, see Borsch/Barthlott 1994: 442f.

[28] They arrived at this conclusion since "{t}here are no significant differences in the vegetative morphology of the Old and New World plants, and there are also no differences in anatomy. [...] *N. lutea* and *N. nucifera* only differ in a few weak characters in the flower as perianth colour and morphology of stamen appendages" (ibid.: 439f.).

[29] Cf. Borsch et al. 1996: 410, 412f. The older taxonomical model is however still adhered to in some recent publications (cf. e.g., Basu 2002: 13; Lahiri 2005: 49).

[30] As is the practice even adopted in botanical publications (e.g., Borsch/Barthlott 1994: 422, 437-439; cf. Hanneder 2002: 298).

[31] This is merely a convention, since, as we will see later, its habitat is not restricted to India.

[32] The term 'sacred lotus', regularly used to refer to the Indian lotus (e.g., in Borsch/Barthlott 1994: 422; Phillips/Rix 1995: 16; Barthlott/Neinhuis 1997; Arber 2003: 272; Rai et al. 2006), has not been adopted here since it frequently denotes the blue water lily of ancient Egypt, *Nymphaea caerulea* Savigny (cf. also fn. 46). Equally misleading is the common designation 'Chinese water lily'.

(ca. 4-10 inches)[33] with mostly pinkish white petals,[34] that "are elliptical or obovate-elliptical and slightly boat shaped" (Borsch/Barthlott 1994: 425; cf. fig. 1). In the centre of the flower, surrounded by numerous stamens, is its most characteristic morphological feature, which water lilies lack: a large receptacle (Skt. *karṇikā*)[35] shaped like an inverted cone (see ibid.). This specific morphological part of the lotus plays a major role in Purāṇic cosmography, where it represents the World Mountain Meru standing in the centre of the World Lotus (*bhūpadma*).

Fig. 1 Lotus flower, Botanical Garden of the University of Vienna, Austria © Thomas Kintaert.

[33] Flowers of the Nymphaeaceae family are usually smaller, with those belonging to the South American genus *Victoria* a notable exception.

[34] The Nāṭyaśāstra, while dealing with the mixture of paints to be used in the make-up of actors, names the secondary colour consisting of the mixture of white and red (i.e., pink) *'padmavarṇa'* (lotus colour) (NŚ 21.81B: *sitaraktasamāyoge padmavarṇaḥ prakīrtitaḥ*). The Indian lotus exhibits many varieties, with petals ranging from pure white (e.g., *puṇḍarīka*) to deep pink (cf. *raktakamala*). The American lotus, *Nelumbo nucifera* subsp. *lutea*, on the other hand, is characterized by pale yellow petals. Such a yellow lotus is not endemic in India, contrary to what Syed (1990: 672f.) and Basu (2002: 92) suggest. They have obviously been misled by literary references to a 'golden lotus' (*kanakakamala*, *hemāmbuja*, etc.), which however must be considered "a convention among poets (*kavisamaya*)" (Hanneder 2002: 302; cf. also Rau 1954: 512). Regarding the so-called 'blue lotus', see Hanneder 2002.

[35] Couture rightly points out that the term *'karṇikā'* when used in this sense should not be translated, as is often done, by 'pericarp' (2003-04: 78, n. 6).

Unlike the flowers of water lilies, which mostly float on the water surface,[36] the lotus flower is raised on its stalk (peduncle) up to 2 m (ca. 6.5 feet) above the water.[37] In South Asia it produces its flowers during the summer months, from the end of the dry until the end of the wet season, during which the flowers open each morning for several days before withering. Night-bloomers, on the other hand, are only to be found among water lilies.[38]

Apart from their flowers, the leaves of lotuses and water lilies differ strongly as well, as will be described in 1.2.

The lotus flourishes in calm freshwater. Fossil finds indicate that its ancestors had a cosmopolitan distribution during the Cretaceous and Tertiary periods (ca. 145-1.8 million years ago).[39] The contemporary range of the Indian lotus extends from the region surrounding the Caspian Sea in the west, across South, South-East and East Asia, reaching far eastern Russia, Papua New Guinea and northern and eastern Australia. It has also become widely naturalized across the Pacific (cf. PIER-2010), in parts of northern South America, the Caribbean and the USA. In the latter, as well as in several states of Central America, the yellow-petalled American lotus, *Nelumbo nucifera* subsp. *lutea*, is endemic.[40]

Around the middle of the first millennium BCE, most probably in the wake of the invasion of the Achaemenids, the Indian lotus found its way to Egypt.[41] It flourished there for many centuries, as can be gathered from numerous literary references,[42] a large number of Nilotic representations (mosaics, paintings, etc.) preserved across the Roman Empire,[43] as well as from archaeo-botanical finds.[44] Around the end of

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[36] Exceptions are *Nymphaea nouchali* Burm.f., syn. *N. stellata* Willd. (Conard 1905: 140; Slocum 2005: 88b) and flowers classified by Conard (1905: 192ff.) under his subgenus *'Lotos'*, e.g., *Nymphaea lotus* L.

[37] Cf. e.g., Woenig 1886: 38. Floating lotus flowers are erroneously mentioned in Coomaraswamy/Horner 2000: 31 and implied in Badiee 2000: 12-13 and Capelin 1988: 40, 42. The two latter articles deal with the Bahá'í House of Worship in New Delhi, which shares the image of a floating lotus flower with Purāṇic cosmography. – The lack of awareness of this difference between lotuses and water lilies seems to be the cause for identifying *Nymphaea* flowers in some pictures as lotuses (Frédéric 1988: 11f., 25, 47) and the labelling of one picture showing a lotus flower with 'Fleur de nénuphar' (ibid.: 106). Since the proverbs stating that the water depth is equal to the height of the *kamala* (stalk) (Sternbach 1974-87, vol. 2, p. 575f., no. 2591 [*Syed 1990: 631]: *ambhasaḥ parimāṇena unnataṃ kamalaṃ bhavet*; Subhāṣ. 85 as quoted in Böhtlingk 1863-65, vol. 2, p. 28, no. 2355 [*Syed 1990: 631]: *jalapramāṇaṃ kamalasya nālaṃ*) cannot, as Syed assumes, imply a floating lotus flower (1990: 631: "Die *kamala*'s schwimmen auf der Wasseroberfläche"), they have to be interpreted in a different way. Perhaps they are based on a belief that the length of the peduncle raised above the water surface is equal to the length of its submerged part.

[38] Cf. Skt. *kaumudī*, 'moonlight', from its reputedly causing the *kumuda*, i.e., the white night-blooming water lily *Nymphaea esculenta* Roxb., to bloom.

[39] Cf. e.g., Borsch/Barthlott 1994: 440; Hayes et al. 2000: S183b; Sharma/Goel 2000: 407; Arber 2003: 38-39; Gandolfo/Cuneo 2005.

[40] For a more comprehensive overview of the geographical distribution (chorology) of *Nelumbo nucifera*, see Borsch/Barthlott 1994: 428-432, 435-437. See also GRIN-2010.

[41] See e.g., Woenig 1886: 44-45; Conard 1905: 6; Weidner 1985: 34; Ryhiner 1986: 2; Amigues 2003-04: 61; Genaust 2005: 168b, 351a.

[42] E.g., in works by Herodotus, Theophrastus, Strabo and Pedanius Dioscorides (cf. Woenig 1886: 36ff.; Darby et al. 1977: 634ff.; Amigues 2003-04: 61; Genaust 2005: 351a).

[43] Mostly belonging to the period between the 1st century BCE and the 6th century CE. See e.g., Turnheim 2002 and Versluys 2002.

the 1st millenium CE its Egyptian population seems to have declined and the Indian lotus, now mostly known as the 'Egyptian Bean' (Greek κύαμος αἰγύπτιος, Latin *faba aegyptia*)[45] after its large nutlets (the so-called 'seeds'), eventually vanished.[46] It made its comeback in the Old World at the end of the 18th century as a cultivated plant (Sridhar/Bhat 2007: 144) and has today become naturalized for instance in several lakes of Italy.[47] Its adaptability[48] and fast growth have earned the lotus the reputation of an invasive weed.[49]

The Indian lotus can be found in fresh water ponds and lakes across the whole of South Asia (Mitra 1990: 9). In India its population is however shrinking rapidly due to the deterioration of its natural habitats as a result of urbanization, pollution, etc.[50]

1.2. The lotus leaf

1.2.1. Colour and texture

The leaf (Skt. *parṇa*, *palāśa*, *pattra* [mostly written *'patra'*], *dala*) of the Indian lotus[51] is dark-green on the upper and paler green on the lower side.[52] Its upper sur-

[44] Cf. e.g., Darby et al. 1977: 635, fig. 16.10.

[45] Another current name was *'Colocasia'* (cf. Woenig 1886: 211; Darby et al. 1977: 638-40; Genaust 2005: 168).

[46] Cf. Woenig 1886: 42-44, 51. Frédéric's general statement that the *Nelumbium*, i.e., the lotus, is nowadays to be found "everywhere in Asia as well as in Egypt" (1988: 17a) therefore has to be rejected. – Already a century ago Conard noted that "{i}n spite of a complete unanimity among scholars, considerable confusion exists in the popular mind as to the identity of the so-called Sacred Lotus of Egypt. In America, at least, Nelumbo nucifera is commonly styled Sacred or Egyptian Lotus. But Pickering, Pleyte, Joret and Schweinfurth from the botanical side, and Wilkinson, at least, among archaeologists, unite in the opinion that Nelumbo is never found on the ancient monuments, and that it was not known in Egypt before the advent of the Persians. Not until the Roman period did it find a place in Egyptian art; it does become more or less prominent at this time" (1905: 6).

[47] Cf. Mastrantuono/Mancinelli 1999; Brescia-turismo-2010.

[48] Sanskrit literature regularly refers to the fact that the Indian lotus cannot withstand freezing temperatures (cf. the examples given in Syed 1990: 632, 654, 657). However, as long as its rhizome does not freeze, the plant can survive even in cold climates. This is particularly evident from the populations flourishing in periodically cold regions as Far East Russia (cf. Nijman-2010) and Beijing (cf. Sims 1809, p. 4 after plate 903; Borsch/Barthlott 1994: 438f.).

[49] Cf. TOI-2010 and, regarding the American lotus, Huyser-Honig-2008.

[50] Sharma/Goel 2000: 405; Goel-2010. Already in the middle of the 19th century the lotus population in India reportedly dwindled (L. Becker, Ausland. Jahrg. 1855, p. 741, as quoted in Woenig 1886: 34f.). The National Botanical Research Institute, Lucknow, has meanwhile taken up a project for the collection, documentation and preservation of the racial variants of the Indian lotus (see Sharma/Goel 2000; Goel et al. 2001). – Notwithstanding the threat posed by polution, "{l}otus plants can tolerate acidic and alkaline water in a pond. [...] Investigations have also revealed that lotus can absorb heavy metals and may be recommended for plantation in the ponds used for discharging the industrial effluents for water purification in a most natural manner. Further, the lotus can be planted in large tubs/pots and placed in swimming pools which provides an attractive feature and purifies the water naturally without the use of harmful chlorides" (Goel et al. 2001: 54a).

[51] In the older Vedic literature only the term *'puṣkaraparṇa'* is found, whereas in later works the terms *'puṣkarapalāśa'* and *'puṣkarapattra'* appear as well (Staal 1983: 715). The term *'dala'*, which can also mean 'petal', generally signifies 'leaf' in compounds whose first member denotes the lotus plant (e.g., *kamalinīdala*, *nalinīdala*).

[52] The Abhijñānaśākuntala mentions lakes that are green (*harita*) due to [the abundance of] lotus plants (AbhŚāk 4,11A [p. 587]: *kamalinīharitaiḥ sarobhiś* [*Syed 1990: 631, 634, n. 1]). The Jāta-

face has a smooth texture,[53] which Kālidāsa compares to [the soft plumage of] a parrot's belly.[54] This quality is due to the leaf's micro- and nanostructured waxy surface, which renders it ultrahydrophobic. This aspect of the lotus leaf will be taken up in Kintaert forthcoming/b.

1.2.2. Position relative to the water surface and size

Some authors only mention lotus leaves floating on the surface of the water[55] just like the leaves of water lilies.[56] Others, on the contrary, distinguish them from *Nymphaea* leaves by pointing out that they are raised above the water,[57] some even emphasizing that they do not float.[58] In reality, however, the first leaves to emerge float on the water surface, whereas most of the later leaves will rise out of the water on stiff green stalks (cf. fig. 2).[59] In contrast to the floating leaves, which lie flat on the water surface, the aerial leaves are slightly funnel-shaped and have a wavy edge.[60] They are mostly raised between 50 and 80 cm (Borsch/Barthlott 1994: 423), i.e., approx. between 1.5 and 2.5 feet above the water surface on leaf stalks (petioles) that are as thick as a finger[61] and scattered with small prickles. The blades

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kamālā compares the colour of lotus leaves with that of green emeralds (Jāmā 19, prose after 8B [p. 111, l. 11]: *marakataharitaprabheṣu padminīpattreṣu*), as does the Kādambarī, which likens female attendants, having a greenish hue due to the reflection of the emerald vases they are carrying, to lotus plants (*nalinī*) with their leaf cups (*patrapuṭa*) (Kād, *pūrvabhāga*, p. 32, l. 4f.: *kāścin*[v.l.: *kāścana*] *marakatakalaśa*[v.l.: *śakala*]*prabhāśyāmāyamānā nalinya iva mūrtimatyaḥ patrapuṭaiḥ*). The same text (ibid., p. 36, l. 8f.) furthermore speaks of old *āmalakī* fruits (the Indian gooseberry, *Phyllanthus emblica* L., syn. *Emblica officinalis* Gaertn.) that are as green as lotus leaves (*nalinīdalaharit*).

[53] It is described as glabrous (Mitra 1990: 9; Kirtikar et al. 2004: 116) and, although no hairs are visible on it to the naked eye, velvety (Biswas/Calder 1984: 23; Basu 2002: 84) and pubescent (Woenig 1886: 37 and Micholitsch 1908: 12: "weich behaart"; Bénisti 1952: 2: "duvet blanchâtre"). The lotus leaf's smooth appearance is not retained on a microscopic scale (cf. Kintaert forthcoming/b).

[54] AbhŚāk 3, prose after 14B (p. 569, l. 11), Skt. *chāyā* of the original Prakrit: *śukodarasukumāre nalinīpatre* (*Syed 1990: 650).

[55] E.g., Coomaraswamy 1927: 309, fn. 45.

[56] Water lily leaves are occasionally slightly raised above the water surface, yet seldom more than a few inches.

[57] E.g., Bénisti 1952: 2; Helck/Westendorf 1980: 1091a (s.v. 'Lotos'); Ryhiner 1986: 2; Hayes et al. 2000: S183a; Kirtikar et al. 2004: 116.

[58] E.g., Micholitsch 1908: 12; Germer 1985: 39a; EB 2001, s.v. 'Nelumbonaceae'; Basu 2002: 83f.; Genaust 2005: 168b, s.v. 'Colocásia'.

[59] According to Biswas/Calder, even younger leaves are sometimes raised above the water "in very shallow water before the rains" (1984: 23). – In describing the position of lotus leaves, Beer confuses the latter with the leaves of water lilies (2004: 38a; see fn. 70, below).

[60] In that way they are not unlike the large speakers of old gramophones. One of the gramophones by the French inventor Léon Gaumont (1864-1946), the 'Gaumont Lotus' (1925) indeed has a speaker shaped like a lotus leaf (see RPMA-2010).

[61] In spite of its stiff stalk the aerial lotus leaf is quite unsteady, affording a reasonably stable seat only to small birds (cf. seven-rainbow-2010). It is therefore unlikely that the representations in which one or even two larger birds are standing or sitting in the cup of an emersed lotus leaf (cf. lotus-leaf-2010) are based on actual observation. Cf. also the allusion to the stalk (*nāḍa*) of a lotus (*śatapatra*) bent under the weight of a *kāraṇḍava* duck in Buddhacarita 5.53, as quoted in Syed 1990: 676.

themselves can reach impressive sizes, with diameters from 20 to 80 cm (ca. 0.5 to 2.5 feet).[62]

Fig. 2 Lotus pond, Hōkongō-in, Kyoto, Japan © Gudrun Melzer.

Fig. 3 Lotus leaves, Botanical Garden of the University of Vienna, Austria © Thomas Kintaert.

[62] Borsch/Barthlott 1994: 423f. A diameter of up to 90 cm or about 35 inches (Subramanyam 1974: 8; Basu 2002: 84) or more (Syed 1990: 612; Ross 2001: 353a; Sridhar/Bhat 2007: 144) is occasionally reported. The large size of lotus leaves is already noted by Strabo (see fn. 84; *Micholitsch 1908: 12).

Fig. 4 Lotus leaf veins, Botanical Garden of the University of Vienna, Austria © Thomas Kintaert.

1.2.3. Symmetrical shape

Just like the leaves of some *Nymphaea* species, *Nelumbo* leaves are orbicular, i.e., circular, and centrally peltate, i.e., with the petiole connected to the center of the leaf. The place where the leaf is attached to the petiole is visible on its upper side as a whitish round spot.[63] A major element of their astounding symmetry, which differentiates them from the leaves of most common water lilies, is the fact that *Nelumbo* leaves do not possess a radial cleft.[64] From the central spot of each leaf around 20 veins, more prominent on the lower side of the leaf, radiate towards the edge, branching out along the way (see fig. 4).[65] Although orbicular and peltate

[63] Cf. fig. 3; Wigand/Dennert 1888: 8f. & plate I, fig. 10.

[64] Goodyear observed "that the cleft lotus leaf found most often on Egyptian art is identical to the leaf shape of *nymphaea lotus*, whereas the funnel-shaped leaves of *nelumbium speciosum* in no way resemble those leaf shapes, no matter how hard one may try to rationalize them as the eccentric products of the ancient Egyptian conception of form." (Riegl 1992: 55, referring to W. G. Goodyear, *The Grammar of the Lotus.* A New History of Classic Ornament as a Development of Sun Worship. London 1891, p. 25ff.). Beer, who fails to distinguish lotus from water lily, states that lotus leaves "often have splits" (2004: 38a; see fn. 70). Unlike the leaves of water lilies belonging to the genera *Nymphaea* and *Nuphar*, young *Victoria* leaves have no cleft, whereas later leaves merely have two short clefts on opposing sides in their upturned margin. The cleft in the floating leaves of *Euryale ferox* Salisb., furthermore, is only minimal. – Although fish find shelter underneath lotus leaves, the absence of a cleft in the latter can under certain circumstances prove life-threatening, as the following report by Steve Christman reveals: "When fishing, I love to come upon a quiet cove filled with lotus because I know I can cast my lure amongst the floating leaves and not worry about getting hung up in the V-shaped cleft that water lilies use to warn fish of my presence" (Christman-2010).

[65] The uniformity of these radiating veins is slightly disrupted by a median vein, which imparts an axial or reflective symmetry to the leaf rather than a rotational one (cf. fig. 3). For a detailed description of the lotus leaf's venation, see Wigand/Dennert 1888: 8f. & plate I, fig. 9. The characteristic pattern of branching lotus leaf veins provides the prototype and designation for one of several kinds

leaves without a cleft are not unique to *Nelumbo nucifera*,[66] the symmetry of the latter's leaves is perhaps more conspicuous due to their great size and smooth surface and edge. The symmetry, especially that of the first floating leaves, is moreover heightened by their aquatic surroundings, which provide a kind of neutral frame.[67] Given the nearly perfect symmetry of the lotus leaf described above, it does not appear implausible that this feature has contributed to the symbolical value of the Indian lotus as a whole.[68]

Considering the prominence of symmetrical shapes in Indian religious art and ritual (cf. especially the *maṇḍala*), it is surprising that the highly symmetrical shape of the *Nelumbo* leaf is so seldom referred to in literature on lotus symbolism. Several reasons can be proposed to account for this omission. For one, the focus is mostly on the lotus flower, which of course figures much more prominently in Asia's visual arts. Moreover, even when lotus leaves *are* represented their symmetrical shape is often concealed, since in most cases only the raised, cup-shaped leaves with their wavy edge are shown, and that almost invariably in profile.[69] Furthermore, although the earliest representations of lotus leaves (e.g., on the railings and gateways of the Bharhut and Sanchi *stūpa*s resp.) are markedly realistic, lotus leaves have over the centuries been increasingly depicted inaccurately, or have even been substituted by the leaves of other plants.[70] This must be partly due to a lack of first-hand knowledge of the Indian lotus (cf. Hanneder 2007: 163, fn. 4), partly to artistic freedom.

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of line shaping in traditional Chinese painting (*hé yè cūn*, 'like the veins of lotus leaves'; cf. van Briessen 1998: 50f., 76f. [figs. 22-25]).

[66] See e.g., among terrestrial plants, the leaves of *Cotyledon umbilicus* L. (kidneywort) and species in the genus *Tropaeolum* (commonly called 'Nasturtium'), among marsh plants those of *Hydrocotyle vulgaris* L. (marsh pennywort) and among aquatic plants the leaves of *Euryale ferox* (foxnut, makhana) and *Brasenia schreberi* J.F.Gmel., syn. *B. peltata* Pursh (the watershield, with oval leaves). Regarding the leaves of *Victoria* species, see fn. 64, above.

[67] Although symmetrically shaped lotus leaves are the norm, deviations from this symmetry do occur. The young lotus leaf is rolled up inwards on two sides, parallel to the median nerve. When fully unfolded, one can sometimes observe a tiny tip at one end of this median nerve (which is the upper side of the rolled up leaf emerging from the water) and a small notch at the opposite end. In some cases the edges of a leaf grow faster than these two opposite points, which leads to a leaf shaped like two overlapping discs (personal communication from Prof. Anton Weber, University of Vienna). Such lotus leaves have been favored by the Indian painter S. Dhinakara Sundar as the canvas for some of his paintings (see Ashvita-2010).

[68] This assumption has already been made in the 19th century by Sullivan, who writes regarding the *Nelumbium* that its (presumably floating) "leaves, which are from one to two feet in circumference, are so perfectly circular that this may have been one of the causes of its veneration, as the circle was looked upon as the most perfect figure" (1859: 175). – Commenting on the symbolism of Harpocrates (the Hellenistic form of the Egyptian god Horus as a child) seated on a *Nelumbo* flower, the Syrian neoplatonist Iamblichus of Chalcis (c. 240-325 CE) writes that "everything pertaining to the lotos, both the forms in the leaves and the appearance of the seed, is observed to be circular" (Wilder 1911: 240f.; see also El-Khachab 1971: 136).

[69] Cf. e.g., fig. 5; Frédéric 1988: 73, 75. The few exceptions I have come across include two representations of a small floating lotus leaf on the southern pillar of the eastern gateway of Sanchi's Stupa no. 1 (eastern face [see Vajracharya 2002: 10, fig. 1 & Dhavalikar 2003: 36, fig. 3.11] and northern face [see Dhavalikar 2003: 38, fig. 3.13]) and the depiction of the upper side of an aerial lotus leaf in an 18th century miniature painting (Kramrisch 1981: 237, painting 62). In Nilotic representations lotus leaves are mostly shown in profile as well (cf. lotus-leaf-2010).

[70] Cf., regarding Tibetan paintings, Beer 2004: 38a: "hybrid multifoliate leaves, derived from the peony and chrysanthemum, replace the circular leaves of the true lotus." Beer (ibid.) however con-

Fig. 5 Gajalakṣmī in front of lotus pond, entrance to cave temple no. 16, Ellora, Maharashtra, India © Gudrun Melzer.

2. USES OF THE LOTUS LEAF

The characteristic shape of the *Nelumbo* leaf described above has occasioned a large variety of mostly secular uses. The examples presented below, without being exhaustive in any way, attempt to convey the wide diversity of applications, as well as the broad range of literary and visual sources in which these are found.

2.1. The use of the lotus leaf as a receptacle

The Abhiniṣkramaṇasūtra, which has survived in a Chinese version, relates how the Bodhisattva once used a (presumably aerial) lotus leaf as a substitute for an alms-

fuses the leaves of lotus and water lily: "Many innovative liberties are taken by artists in their portrayal of heavenly lotuses. [...] Lotus leaves are circular; veined from their centre, they often have splits, and usually float like discs on the water's surface. Yet stylised leaves are often depicted rising on stems above the water, with convoluted or folded forms."

bowl.[71] In the Jātakamālā we learn of a maid-servant who evenly distributes edible lotus rhizomes (*bisa*) on large lotus leaves (*padminīparṇa*).[72] In this instance, flat, floating lotus leaves are likely to be meant, whereas the lotus leaf (*padmapatra*) in which a magical soot is to be collected according to the Garuḍapurāṇa[73] and the lotus leaf vessel (*nalinīpatrapuṭa*) in which red lotus flowers are placed as an offering in the Kādambarī[74] are more likely again aerial, funnel-shaped ones. The use of the lotus leaf as a receptacle is known from Ptolemaic Egypt as well,[75] and is reported for more recent times from India and other Asian countries.[76]

The funnel shape of the large aerial leaves of the Indian lotus turns the latter into ideal vessels for holding liquids as well. In the Atharvaveda myth of Virāj, who, as the Cosmic Cow, is milked by different beings, a lotus leaf (*puṣkaraparṇa*) functions as the vessel (*pātra*) in which, for the sake of the *gandharva*s and *apsaras*es, Vasuruci catches Virāj's milk and from which he draws a pleasant fragrance.[77] The

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[71] "Now Bôdhisatwa [...] proceeded from Mount Pandava towards Râjagriha to beg his food [...]. Then he remembered that he had no alms-bowl (Patra) in which to receive his food; wherefore looking around him in every direction for some substitute, he suddenly saw a place where there was a pond covered with great flowers; seeing which he forthwith addressed himself to a certain man who was passing by, and said, 'Respectable sir! may I ask you the favour of picking me one of those leaves (fn. 2: Patra. This seems to intimate the origin of the word *pâtra*, an alms-bowl.) of the lotus flower growing in yonder pond?' Having heard the request, the man immediately entered the pond and procured the leaf, and presented it respectfully to Bôdhisatwa, having received which he went forward to the city of Râjagriha to beg his food" (Beal 1985: 178; *Soon 2003: 65). – For visual examples of lotus leaf bowls, see lotus-leaf-2010.

[72] Jāmā 19, prose after 7B (p. 110, l. 22f.): saraso bisāny uddhṛtya mahatsu padminīparṇeṣu śucau tīrapradeśe samān vinyasya.

[73] This soot, resulting from the burning of a mixture of the blood of a wild cat and the oil of *karañja* seeds, is to be applied on the body to render it invisible (GarPur 1.178.9A-C).

[74] Kād, *pūrvabhāga*, p. 75, l. 9f.: *raktāravindair nalinīpatrapuṭena bhagavate savitre dattvārgham*(v.l.: °*arghyam*) *udatiṣṭhat*. Cf. also the reference in the same text to the leaf cups (*patrapuṭa*) of *nalinī*s (see fn. 52).

[75] Robertson 1857: 228b: "Strabo says, the leaves [...] were used as goblets and plates, and the shops were supplied with them" (cf. fn. 84).

[76] Levrault 1818: 239: "les feuilles, grandes et rondes, peuvent servir de plats"; Robertson 1857: 230a: "It is the soldering of the lobes which gives the lotus leaves their singular form, – the resemblance to basins or flat hats which makes them serviceable as vessels in India." (On p. 228b, however, the author confuses plants belonging to the *Nymphaea* and *Nelumbo* genera.); Bird 1883: 201: "[...] Malays brought pierced cocoa-nuts, buffalo milk, and a great bouquet of lotus blossoms and seed-vessels, out of which they took the seeds, and presented them on the grand lotus leaf itself." (cf. the passage from the Kādambarī in fn. 74); Watt 1891: 345: "the LEAVES are used as plates on which offerings are placed"; Balfour 1967-68: 1081: "the broad leaves are used as dishes to eat from"; Frédéric 1988: 20a: "Les feuilles de lotus servent souvent à confectionner des plats"; Goel et al. 2001: 53b: "The leaves are used as plates for offering food, during festivities in rural areas." (cf. also Sharma/Goel 2000: 407). – Plates and receptacles in other materials have sometimes been modelled on leaves of *Nelumbo nucifera* as well, both in Asia, as well as in the United States. See lotus-leaf-2010. – The use of the lotus leaf as a writing support (cf. AbhŚāk 3, prose after 14B [p. 569, l. 10-12]) will be dealt with in Kintaert forthcoming/b.

[77] AVŚ 8.5.6.5-7: *sodakrāmat sā gandharvāpsarasa āgacchat tāṃ gandharvāpsarasa upāhvayanta puṇyagandha ehīti* ‖ *5* ‖ *tasyāś citrarathaḥ sauryavarcaso vatsa āsīt puṣkaraparṇaṃ*(v.l.: *dārupātraṃ*) *pātram* ‖ *6* ‖ *tāṃ vasuruciḥ sauryavarcaso dhok tāṃ puṇyam eva gandham adhok* ‖ *7* ‖ See also the Epic and Purāṇic adaptations of this myth, in which the Earth is substituted for Virāj (cf. Bailey 1981). – In Vedic texts the term *'puṣkara'* also appears in a technical sense, denoting the bowl of an offering spoon (cf. KEWA I: 316, s.v. *'púṣkaram'* [*Syed 1990: 672]; Aitareyabrāhmaṇa 7.5.7, as quoted in Syed 1990: 669: *srucaṃ prāgdaṇḍāṃ pratyakpuṣkarāṃ*). Although Syed's as-

Varāhapurāṇa prescribes a shower of jewel water poured from an uninjured lotus leaf (*acchidrapadmapatra*) to free oneself from all sins.[78] Lotus leaves furthermore appear as very convenient means for fetching and carrying water[79] and are even used as cups to drink water from directly.[80]

Lotus stalks are hollow, as is well-known to readers of Sanskrit poetry "where birds are often said to drink up water through lotus-stems".[81] The combination of the hollow lotus petiole and the cup shaped aerial leaf is put to use in a remarkable Japanese tradition. "Some Japanese believe that life-giving juices may be extracted from the lotus by cutting mature leaves with 12-18 inches {i.e., ca. 30-45 cm} stems, piercing the center of the leaf, filling with wine, and holding it overhead to draw the wine through the stem" (Zickrick-2010: 1).[82] A Chinese witness of this practice reports having heard of an identical Chinese custom, which he considers to be the origin of the Japanese one (Huixuan-2010). A South Asian origin of both these traditions should however be considered, since a similar practice is described in the Mahāsutasomajātaka.[83]

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sumption that the oval and cupped *Nelumbo* petal provided the model for the *puṣkara* spoon bowl (1990: 672f.) appears plausible, it cannot be completely ruled out that, in disregard of the actual size of the plant, the spoon bowl was actually modelled on the vessel-like *Nelumbo* leaf. For a set of silver spoons with lotus leaf-shaped bowls and petiole handles from Japan (ca. 1900), but most likely without any relation to the Vedic offering spoon, see Fairley-2010.

[78] VarPur 209.25A-B: *acchidrapadmapatreṇa sarvaratnodakena tu | triṃśo yas tu naraḥ snāyāt sarvapāpaiḥ pramucyate ‖*

[79] Cf. Rām 3.69.11A-12B: [...] *pampāyāḥ* [...] | *padmagandhi śivaṃ vāri sukhaśītam anāmayam ‖ 11 ‖ uddhṛtya sa tadākliṣṭaṃ rūpyasphaṭikasaṃnibham | atha puṣkaraparṇena lakṣmaṇaḥ pāyayiṣyati ‖ 12 ‖*; Devadhammajātaka: Jā 1.128.12 (*paduminipaṇṇa*, v.l.: °*panna*); Godhājātaka: Jā 3.107.12 (*paduminipaṇṇa*); the stage direction for the impersonator of the *vidūṣaka* in Svap 4, prose after 6B (p. 86, l. 2): *nalinīpatreṇa jalaṃ gṛhītvā*; and, in Tamil literature, Śilappadikāram 11.201: "Carrying water in a lotus-leaf to the weary women he relieved them of their distressing thirst" (Dikshitar 1939: 179).

[80] Cf. MBh 14, App. 4, 946f.: *dvijapādodakaklinnā yāvat tiṣṭhati medinī | tāvat puṣkaraparṇena*(v.l.: °*patreṇa*; °*pātreṣu*) *pibanti pitaro jalam ‖* – Strabo (cf. fnn. 75, 84) and Pliny report the use of lotus leaves as goblets in Egypt. Cf., regarding Pliny, Darby et al. 1977: 640: "the knowledgeable French traveller Belon […] wrote, in the sixteenth century A.D. '[…] to clarify what Pliny said, namely, that the Egyptians make various kinds of vessels with its leaves one must understand that these leaves are broad, and that the Egyptians twist them into cones in order to draw and drink Nile water for, after having drunk, they throw them away.' (author's translation from: Sauneron, 1970, p. 99b)" (The reference to twisting, however, is rather suggestive of the leaves of water lilies featuring a radial cleft.). Cf. also Genaust 2005: 155a s.v. 'Cibória', 168b s.v. 'Colocásia'.

[81] Smith 2000: 216. Cf. also the example taken by Smith from Ānandavardhana's Dhvanyāloka (no further reference given): "[...] *parasparam unmukhā nayananalinīnālānītaṃ pibanti rasaṃ priyāḥ ‖* [...] facing each other [...] the lovers drink the nectar of love through the hollow stems of their eye-lotuses" (ibid.).

[82] Cf. e.g., photo-jhassy-2010 and lotus-leaf-2010.

[83] Jā 5.466ff., esp. 466.7-24. In this story a brahmin boy is made to drink an alcoholic beverage (*sura*) hid in a lotus leaf (*paduminipaṇṇa*; *paduminipatta*, v.l.: *paduminipattapuṭa*) by making him believe it is 'lotus honey' (*pokkharamadhu*).

2.2. … as a parasol

Due to their large size aerial lotus leaves can provide welcome shade for those sojourning in their midst.[84] The round leaves, held high on stiff stalks, indeed have the appearance of parasols (*ātapatra*, *chattra*), as which they regularly appear in poetic compositions.[85] The same use of the lotus leaf can be observed in bas-reliefs of the goddesses Gaṅgā and Yamunā on the door-frames of Hindu temples,[86] as well as in representations of the primordial Boar, Bhūvarāha, during his geogonic act.[87] In these visual examples, however, the leaf invariably hangs upside down above the

[84] "Strabo says, the ancient Egyptians used to sail in barks over the lakes which were covered with the beans {i.e., the Egyptian bean, *Nelumbo nucifera* subsp. *nucifera*; cf. 1.1.}, and shade themselves with the leaves" (Robertson 1857: 228b; likewise Micholitsch 1908: 12). The reference is to Strabo's Geography (Γεωγραφικά) 17.1.15. For the original Greek, see Radt 2005: 442. The whole section on the Egyptian bean is given here in Radt's German translation (2005: 443): "In den ägyptischen Seen und Sümpfen wachsen der Papyrus und die Ägyptische Bohne (von der das Kiborion kommt); beide treiben ungefähr gleich hohe, etwa zehn Fuß lange Stengel, aber der Papyrus ist ein nackter Stengel, der an der Spitze einen Schopf trägt, die Bohne dagegen treibt an vielen Stellen Blätter und Blüten und eine Frucht die unserer Bohne ähnlich ist und sich nur durch ihre Größe und ihren Geschmack von ihr unterscheidet. Die mit Bohnen bestandenen Flächen bieten daher einen angenehmen Anblick und Genuss für die die darin einen Schmaus veranstalten wollen: sie halten den Schmaus auf Hausbooten, mit denen sie tief in das Bohnendikkicht hineinfahren, wo die Blätter ihnen Schatten bieten; diese sind nämlich sehr groß, so dass man sie auch als Trinkgefäße und als Schalen gebraucht (sie haben nämlich auch eine dafür geeignete Höhlung); daher sind in Alexandrien auch die Werkstätte voll davon – wo man sie als Gefäße benutzt –, und ein Teil der Einkünfte der Landbewohner kommt auch aus dem Verkauf dieser Blätter. So ist die Bohne beschaffen."

[85] The lotus (leaf) parasols are described as keeping away the sun's rays (BṛSam 56.4A: *saraḥsu nalinīchatranirastaraviraśmiṣu*), in this way offering shade to birds (Śiśu 4.6A-B: *chāyāṃ* [...] *kurvāṇam utpiñjalajātapatrair vihaṅgamānāṃ jalajātapatraiḥ*; *Syed 1990: 646). The Kādambarī provides an instance of the latter by describing how a feeble young parrot (the rebirth of Vaiśampāyana) is laid down in the cool shadow of a young lotus leaf (Kād, *pūrvabhāga*, p. 75, l. 7f.: *navanalinīdalasya*(v.l.: *nalinīpalāśasya*) *jalaśiśirāyāṃ chāyāyāṃ nidhāya*). The Uttararāmacarita tells us of an elephant holding up a lotus leaf parasol with a straight stem (UttCa 3.16B: *anarālanālanalinīpatrātapatraṃ dhṛtam*) above his mate. As a substitute for a lacking lotus leaf, an elephant has no choice but to hold high one of its large ears (ViddhŚā 1.43A: *dhatte padmalatādalepsur upari svaṃ karṇatālaṃ dvipaḥ* [Dīxit's commentary: *padmalatāyā dalaṃ patram*]). In the Raghuvaṃśa lotus (leaves) and *kāśa* grass (*Saccharum spontaneum* L.) are compared to the royal emblems parasol (*ātapatra*) and yak-tail chowrie (*cāmara*) respectively (Ragh 4.17A-B [p. 171]: *puṇḍarīkātapatras taṃ vilasat*[v.l.: *vikasat*]*kāśacāmaraḥ | ṛtur viḍambayām āsa na punaḥ prāpa tacchriyam* ‖ [*Syed 1990: 664]). The disc of shadow (or alternatively the circle of light surrounding it) (*chāyāmaṇḍala*) above Raghu is attributed to the *padmātapatra* held above him by Padmā, i.e., Lakṣmī, herself invisible (Ragh. 4.5A-B [p. 170]: *chāyāmaṇḍalalakṣyeṇa*[v.l.: °*lakṣeṇa*; *sitacchāyānumānena*] *tam adṛśyā kila svayam | padmā padmātapatreṇa bheje sāmrājyadīkṣitam* ‖ [*Kulshreshtha/Ghosh 2003: 99]), whereas in the Kumārasambhava Lakṣmī is said to hold a *kamalātapatra* by its long stalk above Śiva and Pārvatī (Kum 7.89A-B [p. 126]: *patrāntalagnair jalabindujālair ākṛṣṭamuktāphalajālaśobham | tayor upary āyatanāladaṇḍam ādhatta lakṣmīḥ kamalātapatram*[v.l.: *kaladhautapatram*] ‖). It should be noted that among the examples given above, some might equally be understood as referring to lotus *flower* parasols. Cf. fn. 86. – The resemblance of a raised *Nelumbo* leaf with a parasol has prompted Bosch to assume a relation between the lotus leaf and the sunshade (*chattra*) on ancient *stūpa*s (1994: 161).

[86] Cf. Viennot 1964: passim (e.g., plates 40a, 41a, 41b & explanations pp. 59-61). In some cases a lotus flower assumes the role of a parasol (e.g., ibid.: plates 34d, 67).

[87] Cf. e.g., fig. 6. The use of a lotus leaf as a parasol for these deities seems to be related to their aquatic nature. The relation of Bhūvarāha with water will be addressed in Kintaert forthcoming/a.

head of the deity at the end of its long stalk.[88] According to Syed the use of lotus leaves for protection against the sun is still met with in Kashmir and other places.[89]

Fig. 6 Bhūvarāha, North India, ca. 1000 CE (Desai/Mason 1993: fig. 26, cat. no. 71).

[88] The upturned lotus leaf can also be used to offer protection from a light-source present underneath it. Cf. the shades of Tiffany lamps, modelled after the leaves of the American lotus.
[89] Syed 1990: 646. For a different use of the lotus leaf in Kashmir, see fn. 91.

The lotus leaf lacks the stability necessary to shelter from the pouring rain when held by its stalk as one would hold an umbrella.[90] It can, however, still be used for this purpose by holding the upturned leaf directly at the rim, as is demonstrated in a Pahari miniature painting (see fig. 7), or by fastening it to one's head.[91] This brings us to the next use of the lotus leaf.

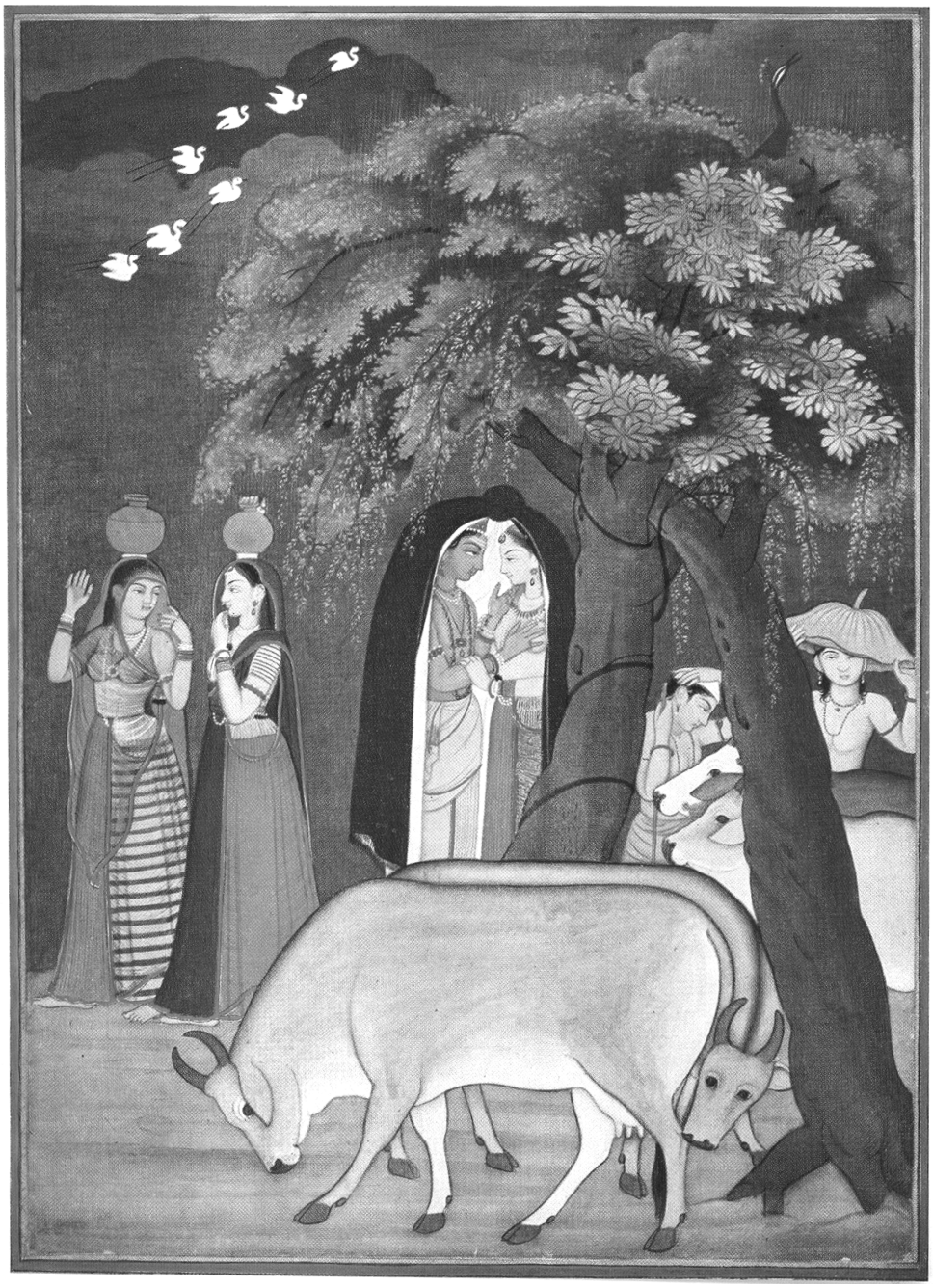

Fig. 7 "Sheltering from rain", Kangra, ca. 1800, Punjab Museum, Patiala (Randhawa 1994: 180, plate xvii).

[90] A futile attempt to use a lotus leaf for this purpose can be seen in a music video from Myanmar (Kyaw-2010). See especially the key scene starting at 2:38.

[91] Cf. cameraschool-2010 ("The rain came, so he made a hat from a lotus leaf"). It is not clear from the picture how the lotus leaf is fastened to the boy's head.

2.3. … as a head covering

The inverted aerial leaf of the Indian lotus recalls a broad-rimmed hat and is therefore often used as such.[92] Already Theophrastus likened *Nelumbo* leaves to Thessalian hats (Robertson 1857: 228b). The dwarves or Pygmies of Nilotic mosaics and paintings are moreover frequently depicted wearing lotus leaf hats.[93] Returning to Asia, we come across the use of the lotus leaf as a means of concealing one's head while hiding in a lotus pond in several Pali Jātakas.[94]

2.4. … as a fan

Since the large lotus leaf would make an excellent fan, it should be considered whether the lotus fan (*padmavyajana*) in the hand of Lakṣmī, mentioned in the Raghuvaṃśa[95] is not actually a lotus *leaf* fan, as also surmised by Syed (1990: 659). The mention of fans (*tālavṛnta*) made of *nalinīdala* in Abhijñānaśākuntala[96] and Daśakumāracarita[97] most likely do not denote fans made from lotus petals either (for which latter the term *'nalinadala'* would be more appropriate), but fans that are fashioned out of a single lotus leaf (cf. fn. 51). A blooming lotus flower in any case hardly meets the requirements of a fan, since it easily loses its petals when shaken.[98] A Pahari painting from a Rāmāyaṇa manuscript (Kangra, ca. 1800-1825) at least unambiguously depicts Sītā fanning Rāma with a *Nelumbo* leaf (see fig. 8).

2.5. … as wrapping material

The shape of lotus leaves also turns them into ideal wrapping material.[99] A Vedic source tells us of lumps of rice or flour (*piṇḍī*), to be used in a ritual to conjure rain, that are packed in *puṣkara* leaves.[100] In the Rohantamigajātaka a lotus leaf (*padumi-nipatta*) is used to carry along hair from the Bodhisatta in the shape of a Golden Deer (Jā 4.419.16), whereas the Kādambarī mentions moist sandalpaste kept in a lotus leaf wrapping or basket (*nalinīpatrapuṭa*), with a cover fastened with a string

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[92] Cf. the illustrations given in lotus-leaf-2010.

[93] Versluys 2002: 277. For illustrations, see ibid.: 184 (fig. 113), 191 (fig. 119) and lotus-leaf-2010.

[94] Kusajātaka: Jā 5.287.25 (*paduminipaṇṇa*, v.l.: *paduminippatta*), ibid.: 288.3 (*paduminipaṇṇa*); Mahāsutasomajātaka: Jā 5.476.10 (*paduminipatta*, v.l.: *padumapatta*); Vessantarajātaka: Jā 6.545.17 (*pokkharapatta*), ibid.: 546.10 (*id.*).

[95] Ragh 10.62B (p. 231): *lakṣmyā ca padmavyajana*(v.l.: *paryupāsyanta*; *padmavyañjana*)*hastayā* (*Syed 1990: 659; *Kulshreshtha 2003: 48).

[96] AbhŚāk 3.20A (p. 572): *kiṃ sīkaraiḥ klamavinodibhir ārdravātaṃ saṃcārayāmi nalinīdala-tālavṛntam*? (*Syed 1990: 615, 650); see also AbhŚāk 3, prose after 7B (p. 564, l. 17), Skt. *chāyā* of the original Prakrit: *halā śakuntale*! *api sukhayati te nalinīpatravātaḥ*?

[97] DaśCa 1.5 (p. 48, l. 13f.): *nalinīdalamayāni tālavṛntāni ca santāpaharaṇāni* (*Kirfel 1958: 159; *Syed 1990: 615, 650).

[98] Cf. MBh 7.28.42A-B: *śirasas tasya vibhraṣṭaḥ* (v.l.: *vibhraṣṭaṃ*) *papāta ca varāṅkuśaḥ* (v.l.: *va-rāṃśukaṃ*) | *nālatāḍanavibhraṣṭaṃ palāśaṃ nalināḍ iva* ‖ (*Syed 1990: 650). For Syed, this fragility of the *nalina* indicates that it denotes the *Nelumbo* flower (ibid.: 651): "Daß die Blütenblätter des *nalina* beim Schüttel{n} des Stengels herabfallen, weist eher auf Nelumbo, deren Blütenblätter sich im Stadium des vollständig Erblühtseins bei der leisesten Erschütterung ablösen."

[99] For the use of lotus leaves as compresses, see 2.8. below. For the lotus leaf as the model for drum skins (cf. NŚ 34.4A-9B), see Kintaert forthcoming/a.

[100] ĀpŚrSū 19.26.1: *tisraḥ piṇḍīḥ kṛtvā puṣkarapalāśaiḥ saṃveṣṭya* (*Syed 1990: 668, 672).

or strings of rhizome fibres (*bisasūtra*) and a seal made of a ring of the fibres of young lotus stalks (*bālamṛṇālavalayamudrā*).[101]

In Chinese cuisine "the big mature leaves {of the lotus}, 2 feet in diameter, are used to wrap steamed food. These leaves are dried. They are soaked in boiling water, drained and the food to be steamed (dim-sum, sticky rice parcels) is wrapped in it."[102] During this steaming procedure, which is common in other East and South-East Asian countries as well, the enveloped food adopts the subtle fragrance of the leaf.[103]

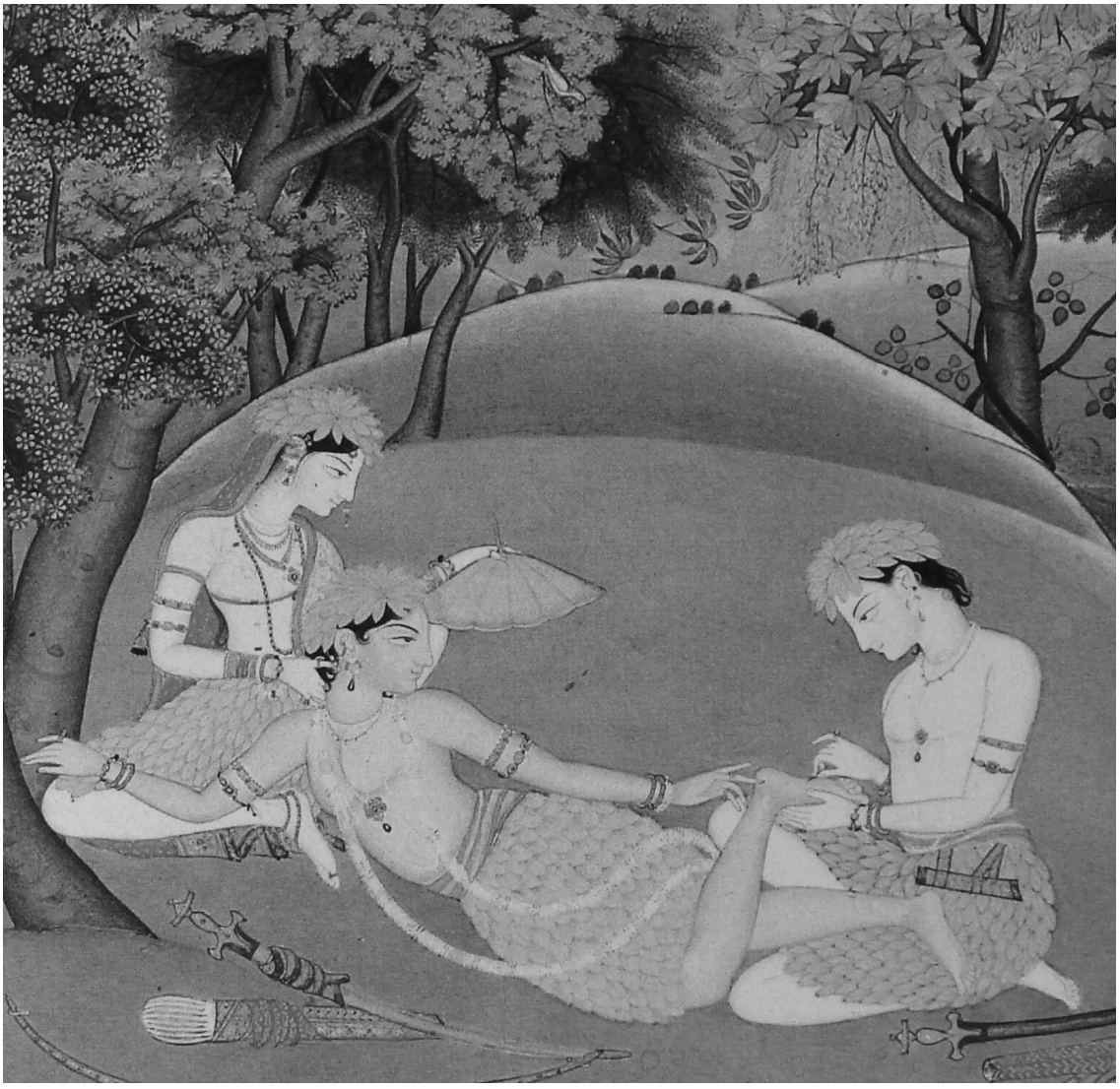

Fig. 8 "Rama, Sita and Lakshmana in the forest" (detail from Lerner 1984: 173, plate 65).

[101] Kād, *pūrvabhāga*, p. 374, l. 12f. (*Syed 1990: 650). – In the present article the terms *'bisa'* and *'mṛṇāla/mṛṇālī'* are rendered by 'lotus rhizome' and '(fibre of) lotus stalk' respectively. The exact meanings however still need to be ascertained in each case, especially since they occasionally appear to be interchangeable.

[102] Tropilab-2010. Cf. also Smith/Stuart 1985: 280.

[103] Cf. Pou 2005: 82: "[…] les belles feuilles du Lotus constituent une matière d'emballage dans la cuisson des aliments, pareilles à celles du bananier, sinon meilleures, car à la chaleur elles dégagent un parfum subtil et distingué qui imprègne délicieusement ces aliments. Qui n'apprécie pas le riz gluant plus ou moins assaisonné, enveloppé dans une feuille de Lotus, et cuit à la vapeur!"

2.6. … as a source of food

The *Nelumbo* leaf is not merely used to hold food, but is itself edible,[104] as are many other parts of the plant.[105] The young leaves are consumed by people across Asia as a vegetable,[106] as is the leaf stalk,[107] and both are fed to animals as well (Goel-2010). In India, young lotus leaves are for instance eaten in parts of Chhattisgarh (Oudhia-2010) and by tribals of the northeastern States (Gupta 1981: 101). Similarly, the young leaves and leaf stalks of the North American lotus (*Nelumbo nucifera* subsp. *lutea*) were part of the diet of Native Indians.[108]

2.7. … in the preparation of beverages

Lotus leaf also appears as the ingredient of some beverages. According to the Yājñavalkyasmṛti a drink made of water and the leaves of the *rājīva*[109] is drunk as part of a certain act of penance.[110] In present-day Korea a traditional lotus liquor called Yunyupju is made from the blossoms and the leaves of the lotus (Lee et al. 2005), whereas a medicinal tea made of a mixture of lotus leaf and green tea is consumed in China.[111] This leads us to other medicinal uses of the lotus leaf.

2.8. … as a cooling agent

In the Kādambarī freshly cut lotus leaves (*kamalinīpalāśa*) covered with drops of water are used as a cool surface to sleep on.[112] The cooling effect, however, might

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[104] Cf. Hanelt 2001: 141; Sridhar/Bhat 2007: 143, 146.

[105] Cf. Watt 1891: 345; Simoons 1990: 112-115; Pou 2005: 81f.

[106] E.g., Simoons 1990: 114 (China); Phillips/Rix 1995: 16 ("The young leaves can be eaten raw or cooked"); Goel et al. 2001: 53b ("Young leaves, petioles and flowers are eaten raw or cooked as vegetables"); Hanelt 2001: 141 (India, China, Korea and Japan); Yamaguchi-2010.

[107] Watt 1891: 345 (Sind); Goel et al. 2001: 53b; Hanelt 2001: 141; Sridhar/Bhat 2007: 146, referring to M. Ogle, H. T. A. Dao, G. Mulokozi, L. Hambraeus, *Micronutrient composition and nutritional importance of gathered vegetables in Vietnam.* International Journal of Food Science and Nutrition 52 (2001) 485-499 ("as a vegetable used in salads at{sic} Vietnam"). Leichhardt reports the consumption of lotus leaf stalk by Chinese and indigenous Australians alike (1996: 328): "When the {Australian} natives became hungry, they ate the lower part of the leaf-stalks of Nelumbium, after stripping off the external skin. They threw a great number of them over to us, and I could not help making a rather ridiculous comparison of our situation, and our hosts, with that of the English ambassador in China, who was treated also with Nelumbium by its rich Mandarins."

[108] Christman-2010: "The young leaves, before they unroll, can be steamed or boiled like spinach."; Fernald et al. 1996: 201: "The young leaf-stalks and unrolling leaves are said to form a palatable potherb."

[109] This is a *Nelumbo* according to Rau (1954: 512) and Syed (1990: 674), whereas Schmidt identifies it as a blue lotus (1913: 466, 468), which suggests a blue water lily (cf. Hanneder 2002). The Mitākṣarā commentary glosses *'rājīva'* with *'aravinda'* (YājSm, p. 443).

[110] YājSm 3.317A-B: *parṇodumbararājīvavilva*{i.e., °*bilva*°}*patrakuśodakaiḥ* | *pratyekaṃ pratyahaṃ pītaiḥ parṇakṛcchra udāhṛtaḥ* ‖ (*Syed 1990: 674).

[111] Zong/Liscum 1996: 113f.: "Lotus Leaf Tea (*He Ye Cha*)
Folium Nelumbinis Nuciferae (*He Ye*) 10 grams
Green Tea, *i.e.*, Folium Camelliae Theae (*Lu Cha*) 10 grams
Method of administration: Soak these two ingredients in boiled water. Drink this whenever thirsty.
Functions: Clears heat and cools the blood, fortifies the spleen and disinhibits water.
Indications: This tea is suitable for the treatment of obesity and high cholesterol."

[112] Kād, *pūrvabhāga*, p. 237, l. 7f.: *pratyagrabhagnaśiraiś*(v.l.: *śiśiraiś*) *ca samṛṇālakair jalakaṇikācitaiḥ kamalinīpalāśair latāmaṇḍapaparikṣipte*(v.l.: *maṇḍalaparikṣipta*) *śilātale srastaram*(v.l.: *saṃ-*

not have resulted solely from the water drops, since a cooling property is attributed to lotus leaves themselves, as well as to other parts of the plant (cf. fn. 124). The use of this quality to reduce the fever of lovesick heroines is mentioned in similar terms in different Sanskrit literary works (cf. Kirfel 1958). In the Abhijñānaśākuntala it is Śakuntalā, yearning for Duṣyanta, who is made to lie down on a bed of flowers (*kusuma*, *puṣpa*) arranged on a stone,[113] wear a bracelet made of lotus stalk fibres[114] and have her breast covered with one or more lotus leaves.[115] A similar therapy is applied by Susaṅgatā to treat Sāgarikā, suffering from her separation from Udayana, in the Ratnāvalī. Here, however, the bed (*śayanīya*) consists of lotus leaves (*nalinīpatra*).[116] In the Daśakumāracarita Avantisundarī wears clothes made of lotus rhizome fibres (*bisatantu*) to alleviate her fever caused by her separation from Rājavāhana.[117] The Kathāsaritsāgara furthermore relates how Kaliṅgasenā wears a bracelet for the upper arm (*aṅgada*) made of lotus stalk fibres (*mṛṇāla*) to get relief from her burning desire for the ruler of the Vatsas[118] and how a bed of

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staram, *prastaram*) *āstīrya nidhāya śirasi piṇḍīkṛtam uttarīyaṃ niṣasāda* (*Syed 1990: 632); see also ibid., p. 238, l. 2: *kamalinīdalasaṃstarād*(v.l.: *patrasrastarād*) *utthāya*. Since lotus leaves are ultrahydrophobic (see Kintaert forthcoming/b), the water drops (*jalakaṇika*) must be considered to have been sprinkled on the leaves after they were laid on the stone slab (*śilātala*). The mention of humid wind (*ārdravāta*) caused by a lotus leaf fan in AbhŚāk 3.20A (see fn. 96) appears to indicate that such fans were wetted as well in order to increase their cooling effect. In view of the strong water-repellency of the lotus leaf mentioned above this conclusion is however problematic.

[113] AbhŚāk 3.17A-B (p. 570): *saṃdaṣṭakusumaśayanāny āśu vivarṇita*(v.l.: *vimardita*)*mṛṇālavalayāni* (v.l.: *klāntabisabhaṅgasurabhīṇi*) | *guruparitāpāni* [...] *te gātrāṇy* [...] ‖ (*Kirfel 1958: 158); ibid.: 21A (p. 572): *kusumaśayana*; ibid. 25A (p. 576): *tasyāḥ puṣpamayī śarīralulitā śayyā śilāyām iyaṃ*.

[114] AbhŚāk 3.8A (p. 564): *mṛṇālaikavalaya* (*Kirfel 1958: 158; *Syed 1990: 615); ibid.: 17A (see fn. 113): *mṛṇālavalaya*. Cf. also ibid.: 25B (p. 576): *bisābharaṇa* (rhizome [fibre] ornament]) (*Kirfel 1958: 158).

[115] AbhŚāk 3.21A (p. 572): *nalinīdalakalpitastanāvaraṇa* (*Kirfel 1958: 158; *Syed 1990: 650). Cf. also the allusion to this practice in Kād, *pūrvabhāga*, p. 237, l. 5f.: *anaṅgaśaraprahārātura ivorasi nidhāya* (v.l.: *pidhāya*) *nalinīdalottarīyam*. – Regarding the use of a lotus leaf fan as an additional way of providing relief to women suffering from love fever, see fnn. 96 and 97. The KathSS mentions a banana leaf (*kadalīpattra*, °*dala*) used for the same purpose (55.63A, 64A [p. 278]).

[116] Rat 2, p. 34f. Cf. e.g., the stage direction for Susaṅgatā's character: *nāṭyena nalinīpatraiḥ śayanīyaṃ mṛṇālair valayāni ca racayitvā pariśiṣṭāni nalinīpatrāṇi sāgarikāyā hṛdaye nikṣipati* (ibid., p. 34, 1. 7f.). King Udayana and the attending *vidūṣaka* later on find the remains of this lotus leaf bed (*nalinī*[v.l.: *bisinī*]*patraśayana*) (Rat 2, p. 48-50). The king notices the faded contours of Sāgarikā's feverish body, which has left faded imprints on the lotus leaves (*kamalinīdala*, *nalinī*[v.l.: *bisinī*]*patra*, *padminīpatra* [p. 48f.]): "This bed of the lotus-leaves, withered on both sides owing to the contact of her stout breasts and hips, green (in the middle), not having come in close touch with her slender waist [...] This large lotus-leaf, that had lain on her bosom, does not, by its two circular parts parched by excessive heat, so much indicate her inward love-affection, as it does the expanse of her two breasts" (ibid., p. 141). The tender garland of lotus stalk fibres (*komalamṛṇālahāra*), picked up by the *vidūṣaka*, provokes the following comment by Udayana: "Insentient by nature that you are, why do you, O garland of lotus-stalks, undergo pining, being dislodged from between her huge breasts? There is no room there even for a slender fibre of thine; how could there be any for you then?" (ibid.). This latter comment is perhaps a reference to the practice of placing cooling lotus stalk fibres (*mṛṇālī*) between the breasts, as mentioned for a guardian of a rice field (*śāligopī*) in Subh 11.22: *hāracchāyāṃ vahati kucayor antarāle mṛṇālī* (*Syed 1990: 641; Syed [ibid.] assumes that this *mṛṇālī* belongs to a *kuvalaya* plant, i.e., a water lily.). Cf. also Sinha et al. 2000.

[117] DaśCa 1.5 (p. 48, l. 13): *bisatantumayāni vāsāṃsi* (*Kirfel 1958: 159; *Syed 1990: 615).

[118] KathSS 33.165B-166A (p. 149): *kaliṅgasenā vatseśaṃ dṛṣṭvā dṛṣṭvā sma tāmyati* ‖ *tanmanāḥ smarasaṃtaptā mṛṇālāṅgadahāriṇī* | (*Kirfel 1958: 158).

lotus leaves (*bisinīpattraśayyā*) and a necklace of lotus stalk fibres (*mṛṇālahāra*) are used as cooling agents for Madanasundarī.[119] Kanakamañjarī's feverish longing for Nandivardhana is finally treated in the same way in the Upamitibhavaprapañcā.[120] Such a treatment of love fever is however not restricted to women. In the Kādambarī, Mahāśvetā finds the dying Puṇḍarīka with traces of cooling substances on his body, which include lotus rhizome (fibres) on his shoulders and a lotus leaf (*kamalinīpalāśa*) covering his heart.[121] This therapy indeed loses its effect when desire has grown too strong, in which case the bed of lotus leaves on the contrary feels like burning the body of the lovelorn person.[122]

Although the specific use of the lotus leaf described above is apparently not mentioned in Ayurvedic texts,[123] the Carakasaṃhitā does mention the application of lotus and water lily leaves (*padmotpalapalāśa*) as cooling covers for the eyes during sweat therapies.[124]

The refrigerating property of lotus leaves is still part of the traditional medicinal knowledge of India[125] and other parts of Asia.[126] Modern medical research has meanwhile shown that the "embryos within lotus seeds possess an alkaloid isoquinoline, which [...] dispels pathogenic heat from the heart and spontaneous bleeding

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[119] KathSS 55.62A-B (p. 278): *tatrāpaśyam ahaṃ tāṃ ca candanārdravilepanām | mṛṇālahārāṃ bisinīpattraśayyāvivartinīm ‖* (*Kirfel 1958: 158f.; *Syed 1990: 615).

[120] Upam 3, p. 377: *atiśītalanalinīdalapallavaśayanīyaṃ* [...] *mṛṇālanālavalayāni* (*Kirfel 1958: 159).

[121] Kād, *pūrvabhāga*, p. 10, l. 2f.: *karatalena* [...] *nihitasarasabisayoś cāṃsayor* [...] °*kamalinīpalāśāvaguṇṭhite ca hṛdaye spṛśantī*(v.l.: *parāmṛśantī*).

[122] Cf. KathSS 55.65A (p. 278): *ete hi mandapuṇyāṃ māṃ dahanti śiśirā api*; Upam 3, p. 377: *dahati mām eṣa nalinīdalasrastaraḥ* (*Kirfel 1958: 159); DaśCa 1.5 (p. 48, l. 15f.) *tad api śītalopacaraṇaṃ salilam iva taptataile tadaṅge dahanam eva samantād āviś cakāra*; Kāvyādarśa 2.177 as quoted in Böhtlingk 1863-65, vol. 1, p. 103, no. 557: *ayaṃ mama dahaty aṅgam ambhojadalasaṃstaraḥ | hutāśanapratinidhir dāhātmā nanu yujyate ‖* (*Syed 1990: 620). Syed here explains the likeness (*pratinidhi*) of lotus leaf and fire by pointing to their identical colour, since she believes '*ambhojadala*' to denote a lotus petal. However, since *dala* can also stand for the (green) lotus leaf I would rather understand the saying as referring to the intimate relation between the lotus leaf and Agni, the deified sacrificial fire (*hutāśana*), first expressed in Vedic cosmological texts (cf. Kintaert forthcoming/a).

[123] Cf. Kirfel 1958: 157: "Auch in Indien scheint man an eine ähnliche Wirkung des Lotos geglaubt und ihn als eine Art Antiaphrodisiacum betrachtet zu haben, wenn auch die medizinischen Lehrbücher dies mit keinem Worte erwähnen."

[124] CarSam 1.14.11A-12B: *suśuddhair naktakaiḥ piṇḍyā godhūmānām athāpi vā | padmotpalapalāśair vā svedyaḥ saṃvṛtya cakṣuṣī ‖* 11 *‖ muktāvalībhiḥ śītābhiḥ śītalair bhājanair api | jalārdrair jalajair hastaiḥ svidyato hṛdayaṃ spṛśet ‖* 12 *‖* (*Syed 1990: 616). – A refrigerating quality is also attributed to other parts of the Indian lotus, as well as to different parts of *Nymphaea* species. Cf. e.g., SuSam 1.38.52-53: *utpalaraktotpalakumudasaugandhikakuvalayapuṇḍarīkāṇi madhukaṃ ceti ‖* 52 *‖ utpalādir ayaṃ dāhapittaraktavināśanaḥ | pipāsāviṣahṛdrogacchardimūrcchāharo gaṇaḥ ‖* 53 *‖* (*Syed 1990: 615f.); Kirfel 1958: passim; Syed 1990: 641.

[125] These leaves are used to treat fevers both in Ayurvedic and Unani medicine (Oudhia-2010) and are traditionally used in the form of a leaf paste which "can be applied to the body during fever and inflammatory skin conditions" (Sridhar/Bhat 2007: 147). Cf. also Kirtikar et al. 2004: 118; Goel-2010 ("The milky, viscid juice of leaves is useful medicine for [...] sun stroke").

[126] Cf. Smith/Stuart 1985: 280f. ("The medicinal virtues of the leaf are considered to be antifebrile [...] and useful as an application in eruptive fevers"); Sridhar/Bhat 2007: 146 ("As home remedy, lotus leaves are useful to treat summer heat syndrome in Japan and China") and ibid.: 147, referring to *Chinese Materia Medica*, Jiangsu New Medical College, Shanghai 1977 ("Leaves [...] help to treat fever, sweating").

due to heat" (Sridhar/Bhat 2007: 148) and that extract of lotus stalk has an antipyretic potential.[127]

2.9. … as medicine

The leaves, together with four other parts of the lotus plant, are used in an Ayurvedic recipe for rejuvenation, longevity and fertility.[128] They are moreover traditionally used internally and externally to treat haemorrhoids.[129] The tribal Mundas furthermore apply a paste made from young lotus leaves and lime in a ratio of 3:2 as a plaster on bone fractures (Pal/Jain 1998: 188), whereas the milky viscid juice of the leaf and flower stalks is a traditional Indian remedy against diarrhoea.[130]

Among the long list of medicinal virtues of the lotus leaf that have been brought to light by modern research (see e.g., Ross 2001), its antioxidant effect[131] and anti-HIV properties[132] may be noted.

BIBLIOGRAPHY AND ABBREVIATIONS

Primary sources

AbhŚāk	Abhijñānaśākuntala: See KG, pp. 527-657.
AmKo	Amarakośa: *Amarakośa*, ed. A. A. Ramanathan. With the Unpublished South Indian Commentaries *Amarapadavivṛti* of Liṅgayasūrin and the

[127] R. N. Chopra, I. C. Chopra, K. L. Handa, *Indigenous Drugs of India.* 2nd ed. Calcutta 1958, as quoted in Sridhar/Bhat 2007: 151 ("Chopra *et al.* [1958] have reported the antipyretic potential of *N. nucifera*."); Sinha et al. 2000 (*Sridhar/Bhat 2007: 148, 151). Cf. the use of *mṛṇālī* mentioned in fn. 116. It seems therefore that the cooling property attributed to lotus and water lilies in Indian literature is not merely based on the aquatic origin of these plants, as assumed by Syed (1990: 611: "Und wegen ihrer Herkunft aus dem Wasser gelten die Pflanzen als 'kühlend'"), but is part of their medicinal qualities.

[128] Goel-2010: "In Ayurveda the panchang (5 parts of the plant – rhizomes, leaves, flowers, stamens and seeds) of lotus have been prescribed for rejuvenation, longevity and fertility."

[129] Oudhia-2010; Goel et al. 2001: 54a ("The powder made of leaves and rhizomes is prescribed for the treatment of piles").

[130] Watt 1891: 344; Kirtikar et al. 2004: 118. – In Traditional Chinese Medicine lotus leaves are used for similar and other indications. Cf. e.g., Smith/Stuart 1985: 280f.: "The caulicle of the seeds {i.e., the rudimentary stem seen in their embryo} […] is bitter in taste, relieves the sense of thirst after hemorrhages, and is used in the treatment of cholera, hemoptysis, and spermatorrhoea. […] The medicinal virtues of the leaf are considered to be [...] antihemorrhagic, constructive to the blood, promotive of labor and the expulsion of the afterbirth, antidotal to poisonous fungi, and useful as an application in […] skin diseases. Some of these properties are attributed to the leaf stalk, and it is said to have the special quality of quieting the pregnant uterus"; Sridhar/Bhat 2007: 147: "Young leaves with sugar are useful to treat rectal prolapse and the leaves boiled with *Mimosa pudica* in goat's milk can be used to treat diarrhea. [...] Leaves are used as effective drug for hematemesis, epistaxis, hemoptysis, hematuria and metrorrhagia [...]. Hyperlipidaemia in rodents can be treated with lotus leaves [...]. Leaves also possess diuretic and astringent properties and help to treat [...] strangury and as styptic {sic} [...]. The leaves and flowers are useful to treat many bleeding disorders [...]." Additionally, they are used in a Chinese home remedy to treat obesity (ibid.: 146; cf. also fn. 111). This latter property has been confirmed by a recent study (Ono et al. 2006 [*Sridhar/Bhat 2007: 152]).

[131] Cf. Wu et al. 2003 (*Sridhar/Bhat 2007: 148); Lee et al. 2005. Cf. also Rai et al. 2006.

[132] Kashiwada et al. 2005 (*Sridhar/Bhat 2007: 151f.).

	Amarapadapārijāta of Mallinātha. Critically edited with Introduction by A. A. Ramanathan. Vol. 1. Madras 1971.
ĀpŚrSū	Āpastambaśrautasūtra: *The Śrauta Sūtra of Āpastamba belonging to the Taittirīya Saṃhitā with the Commentary of Rudradatta*, ed. R. Garbe. With new appendix containing corrections and emendations to the text by C. G. Kashikar. Vol. 3. Praśnas 16-24. New Delhi 2nd ed. 1983 (1st ed. Calcutta 1882-1902).
AVŚ	Atharvaveda (Śaunakīya): *Atharvaveda (Śaunaka).* With the Pada-pāṭha and Sāyaṇācārya's Commentary edited and annotated with text-comparative data from original manuscripts and other Vedic works by Vishva Bandhu in collaboration with Bhīmdev, Vidyānidhi and Munīshvar-dev. Part II (Kāṇḍas VI-X). Hoshiarpur 1961.
BhāgPur	Bhāgavatapurāṇa: *Bhāgavata Purāṇa of Kṛṣṇa Dvaipāyana Vyāsa*. With Sanskrit Commentary Bhāvārthabodhinī of Śrīdhara Svāmin. Containing Introduction in Sanskrit and English and an Alphabetical Index of Verses, ed. J. L. Shastri. Repr. Delhi 1999.
BṛSam	Bṛhatsaṃhitā: M. R. Bhat, *Varāhamihira's Bṛhat Saṃhitā with English Translation, Exhaustive Notes and Literary Comments.* 2 parts. Repr. Delhi, etc. 1992 (1st ed. Delhi 1981).
CarSam	Carakasaṃhitā: *The Charakasaṃhitā of Agniveśa*. Revised by Charaka and Dṛidhabhala. With the Āyurveda-Dīpikā Commentary of Chakrapāṇidatta, ed. J. Trikamji. New Delhi 4th ed. 1981 (1st ed. Bombay 1941).
DaśCa	Daśakumāracarita: M. R. Kale, *Daśakumāracarita of Daṇḍin.* Text with Sanskrit Commentary, Various Readings, A Literal English Translation, Explanatory and Critical Notes, and an Exhaustive Introduction. Repr. Delhi, etc. 1979 (4th ed. Delhi 1966).
GarPur	Garuḍapurāṇa: *Garuḍapurāṇam of Maharṣi Vedavyāsa*. Edited With Introduction, Indexes and Textual Criticism (in Hindi), ed. R. B. Bhattacharya. Varanasi 1964.
Jā	Jātaka: *The Jātaka together with its commentary*. Being tales of the anterior births of Gotama Buddha. For the first time edited in the original Pāli by V. Fausbøll. 7 vols. Repr. London 1962-64 (1st ed. London 1877-97). This reprint has been published for the Pali Text Society. Quotations (e.g., Jā 1.128.12) refer to volume, page and line.
Jāmā	Jātakamālā: *The Jataka-Mala*. Stories of Buddha's former incarnations. Otherwise entitled Bodhisattva-avadāna-mālā by Ārya-Çūra. Critically edited in the original Sanskrit by H. Kern. Repr. Cambridge, Massachusetts 1943.
Kād	Kādambarī: *The Kâdambarî of Bâṇabhatta and his son (Bhûshaṇabhatta) with the commentaries of Bhânuchandra and his disciple Siddhachandra*, ed. K. P. Parab. Revised by W. L. Sh. Pansikar. Bombay 3rd ed. 1908.
KathSS	Kathāsaritsāgara: *The Kathâsaritsâgara of Somadevabhatta*, ed. Durgâprasâd, K. P. Parab. Revised by W. L. Ś. Paṇśîkar. Bombay 1930.
KG	*Kālidāsa-Granthāvalī. Complete Works of Kālidāsa*, ed. R. Dwivedī. Varanasi 2nd rev. ed. 1986.
Kum	Kumārasambhava: See KG, pp. 67-138.
MBh	Mahābhārata: *The Mahābhārata.* For the First Time Critically Edited by V. S. Sukthankar, S. K. Belvalkar, P. L. Vaidya with the Co-operation of B. P. Pratinidhi [and others] and illustrated from ancient models by B. P. Pratinidhi. 19 vols. Poona 1927-66.
NŚ	Nāṭyaśāstra: *Nāṭyaśāstra of Bharatamuni*. With the Commentary Abhinavabhāratī by Abhinavaguptācārya. Vol. 1(4th rev. ed.), 2(2nd rev. ed.)-4, ed. M. Ramakrishna Kavi, J. S. Pade, K. S. Ramaswami Sastri, K. Krishnamoorthy. Baroda 1934-92.
Ragh	Raghuvaṃśa: See KG, pp. 139-322.
Rām	Rāmāyaṇa: *The Vālmīki-Rāmāyaṇa*. Critical Edition. Vol. III. The Araṇyakāṇḍa. The Third Book of the Vālmīki Rāmāyaṇa, The National Epic of India, ed. P. C. Divanji. Baroda 1963.

Rat	Ratnāvalī: *The Ratnāvalī of Śrī Harṣa-Deva*. With an exhaustive introduction, a new Sanskrit comm., various readings, a literal English translation, copious notes and useful appendices, ed. M. R. Kale. Repr. Delhi 1995 (1st ed. Bombay 1921).
Śiśu	Śiśupālavadha: māgha, *śiśupālavadham. mallināthakṛta 'sarvaṅkaṣā' vyākhyāyutaṃ 'maṇiprabhā' nāmaka hindīṭīkāsahitam. hindīṭīkākāraḥ: haragovinda śāstrī.* Varanasī 2nd ed. 1961.
Subh	Subhāṣitaratnakoṣa: *The Subhāṣitaratnakoṣa compiled by Vidyākara*, ed. D. D. Kosambi, V. V. Gokhale. Cambridge, Massachusetts 1957.
SuSam	Suśrutasaṃhitā: *Suśrutasaṃhitā of Suśruta*. With the Nibandhasaṅgraha Commentary of Śrī Dalhanāchārya and the Nyāyachandrikā Pañjikā of Śrī Gayadāsāchārya on Nidānasthāna, edited by J. Trikamji from the beginning to the 9th Adhyāya of Chikitsāsthāna and the rest by N. Rām. Repr. Varanasi 2003.
Svap	Svapnavāsavadattā: T. K. R. Aiyar, *Svapnavasavadattam of Bhasa.* With a valuable Introduction, lucid English Translation and explanatory notes in English and Sanskrit. Kalpathi, Palghat 1978.
Upam	Upamitibhavaprapañcā: *The Upamitibhavaprapancha Katha of Siddharshi*, ed. P. Peterson. Fasc. 1. Calcutta 1899.
UttCa	Uttararāmacarita: M. R. Kale, *The Uttararāmacharita of Bhavabhūti.* Edited with the Commentary of Vīrarāghava, various Readings, Introduction, a Literal English Translation, Exhaustive notes and Appendices. Repr. Delhi, etc. 1982 (4th ed. Poona 1934).
VarPur	Varāhapurāṇa: *The Varāha Purāṇa*. Part II. Containing chapters 144-215 and Appendices. Critically ed. by A. S. Gupta. Varanasi 1981.
ViddhŚā	Viddhaśālabhañjikā: *Viddhaśālabhañjikā-Nāṭikā of Mahākavi Rājśekhar*. Edition with N. Dīxit's Sanskrit commentary and own Hindi commentary 'Dīpti', Introduction and Index, ed. B. Shukla. Varanasi 1976.
YājSm	Yājñavalkyasmṛti: *Yâjñavalkyasmṛiti or The Institutes of Yajnavalkya.* With the commentary: Mitâksharâ of Vijnâneshvara, ed. B. Sh. Moghe. Bombay 3rd ed. 1892.

Secondary sources[133] *and abbreviations*

Amigues 2003-04	S. Amigues, Du jujubier des lotophages à l'arbre sacré du temple d'or. *Studia Asiatica* 4-5 (2003-04) 51-68.
Arber 2003	A. Arber, *Water Plants. A Study of Aquatic Angiosperms.* With a Preface by W. T. Stearn. Repr. Dehra Dun 2003 (repr. of New York 1968; 1st ed. Cambridge 1920).
Ashvita-2010	Ashvita Art Objects & Artifacts. "Paintings > S. Dhinakara Sundar." Fine Art. Ashvita. http://www.ashvita.com/Fine%20Art/Artists/DhinakaraSundar/index.htm (accessed January 24, 2010).
Badiee 2000	J. Badiee, The Image of the Mystic Flower. Exploring the Lotus Symbolism in the Bahá'í House of Worship. *The Journal of Bahá'í Studies* 10, 1-2 (2000) 11-26.
Bailey 1981	G. M. Bailey, Brahmā, Pṛthu and the Theme of the Earth-Milker in Hindu Mythology. *Indo-Iranian Journal* 23 (1981) 105-116.
Balfour 1967-68	E. Balfour, *The Cyclopaedia of India and of Eastern and Southern Asia, Commercial, Industrial, and Scientific; Products of the Mineral, Vegetable, and Animal Kingdoms, Useful Arts and Manufactures.* 3 vols. Repr. Graz 1967-68 (3rd ed. London 1885).
Basu 2002	S. Basu, *The Lotus Symbol in Indian Literature and Art.* Delhi 2002.

[133] Regarding the electronic sources listed here, see fn. 4.

Beal 1985	S. Beal, *The Romantic Legend of Śākya Buddha*. A Translation of the Chinese Version of the Abhiniṣkramaṇasūtra. Repr. Delhi 1985 (1st ed. London 1875).
Beer 2004	R. Beer, *The Encyclopedia of Tibetan Symbols and Motifs*. London 2004.
Bénisti 1952	M. Bénisti, *Le Médaillon Lotiforme dans la Sculpture Indienne*. Paris 1952.
Bird 1883	I. L. Bird, *The Golden Chersonese and the Way Thither*. New York 1883.
Biswas/Calder 1984	K. Biswas, C. C. Calder, Family – Nymphaeaceae. In: *Hand-Book of Common Water and Marsh Plants of India & Burma.* 2nd ed. revis. & enlarg. by K. Biswas. Dehra Dun 1984, 19-24.
Böhtlingk 1863-65	O. Böhtlingk, *Indische Sprüche*. Sanskrit und Deutsch. 3 vols. St. Petersburg 1863-65.
Borsch/Barthlott 1994	Th. Borsch, W. Barthlott, Classification and Distribution of the Genus Nelumbo Adans. (Nelumbonaceae). *Beiträge zur Biologie der Pflanzen* 68 (1994) 421-450.
Borsch et al. 1996	Th. Borsch, Ch. Neinhuis, W. Barthlott, *Nelumbo*: Biology and systematics of an exceptional plant. In: *Floristic characteristics and diversity of East Asian plants.* Proceedings of the first international symposium of floristic characteristics and diversity of East Asian plants. Beijing, Berlin 1998, 408-416.
Bosch 1994	F. D. K. Bosch, *The Golden Germ.* An Introduction to Indian Symbolism. New Delhi 1994 (1st ed. 's Gravenhage 1960).
Brescia-turismo-2010	Brescia in Vetrina, Turismo. "Il lago di Garda. Laghi di Sovenigo." http://www.bresciainvetrina.it/bresciaturismo/lagodigarda_sovenigo.htm (accessed January 24, 2010).
BSOAS	Bulletin of the School of Oriental and African Studies.
Burrow 1943	T. Burrow, Dravidian Studies III. *BSOAS* 11, 1 (1943) 122-139.
Burrow 1946	T. Burrow, Loanwords in Sanskrit. *Transactions of the Philological Society* (1946) 1-30.
Burrow 1948	T. Burrow, Dravidian Studies VII. *BSOAS* 12, 2 (1948) 365-396.
cameraschool-2010	cameraschool. "Kashmiri Boat Boy." flickr. Uploaded June 21, 2007. http://www.flickr.com/photos/diddlysquat/584096548/ (accessed January 24, 2010).
Capelin 1988	Capelin Communications, Baha'i House of Worship, New Delhi. *Mimar: Architecture in Development* 29 (1988) 40-44.
Christman-2010	S. Christman. "#558 Nelumbo lutea". Floridata. Created July 13, 1999, updated August 8, 2003, February 26, 2005. http://www.floridata.com/ref/N/nelu_lut.cfm (accessed January 24, 2010).
Conard 1905	H. S. Conard, *The Waterlilies. A Monograph of the Genus Nymphaea*. Washington 1905.
Coomaraswamy 1927	A. K. Coomaraswamy, The Origin of the Buddha Image. *The Art Bulletin* 9, 4 (1927) 287-329.
Coomaraswamy 2001	A. K. Coomaraswamy, *Yakṣas*. Repr. New Delhi 2001 (1st ed. 1928-31).
Coomaraswamy/Horner 2000	A. K. Coomaraswamy, I. B. Horner, *The Living Thoughts of Gotama the Buddha.* Repr. Mineola 2000 (1st ed. London 1948).
Couture 2003-04	A. Couture, Variations sur le thème du lotus dans le *Puṣkaraprādurbhāva* du *Harivaṃśa*. *Studia Asiatica* 4-5 (2003-04) 69-83.
Crowe-2010	Y. Crowe. "From lotus to Lotto - Trials and tribulations of the lotus. Forthcoming in: *Presentation volume for Nurhan Atasöy*." Dated January 26, 2007. http://74.125.155.132/scholar?q=cache:7c_jNWreiRsJ:scholar.google.com/+crowe+lotto&hl=de&as_sdt=2000 (accessed January 27, 2010; html version of the currently unavailable PDF file accessed at http://doc.rero.ch/lm.php?url=1000,42,23,20070126085622-VS/lotus.pdf on October 24, 2008).
Darby et al. 1977	W. J. Darby, P. Ghalioungui, L. Grivetti, *Food: The Gift of Osiris.* London, New York, San Francisco 1977.
Dawson 1888	G. Dawson, On the Nymphæaceæ. *Proceedings and Transactions of the Royal Society of Canada* 6 (1888) 97-123.

Desai/Mason 1993 *Gods, Guardians, and Lovers*. Temple Sculptures from North India A.D. 700-1200, ed. V. N. Desai, D. Mason. New York, Kansas City 1993.

Dhavalikar 2003 M. K. Dhavalikar, *Sanchi.* New Delhi 2003.

Dikshitar 1939 V. R. R. Dikshitar, *The Śilappadikāram.* Translated with an Introduction and Notes. London, etc. 1939.

EB 2001 Encyclopaedia Britannica 2001 Deluxe Edition CD-ROM.

El-Khachab 1971 A. M. El-Khachab, Some Gem-Amulets depicting Harpocrates seated on a Lotus Flower. To the memory of my great friend Dr. Alexandre Piankoff. *The Journal of Egyptian Archaeology* 57 (1971) 132-145.

EWA Etymologisches Wörterbuch des Altindoarischen: M. Mayrhofer, *Etymologisches Wörterbuch des Altindoarischen*. Vols. I-III. Heidelberg 1992-2001.

Fernald et al. 1996 M. L. Fernald, A. Ch. Kinsey, *Edible Wild Plants of Eastern North America*. Revised by R. C. Collins. New York 1996 (1st ed. New York 1943).

Frédéric 1988 L. Frédéric, *Le Lotus*. Paris n.d. (The French Union Catalogue gives "1988?").

Gandolfo/Cuneo 2005 M. A. Gandolfo, R. N. Cuneo, Fossil Nelumbonaceae from the La Colonia Formation (Campanian-Maastrichtian, Upper Cretaceous), Chubut, Patagonia, Argentina. *Review of Palaeobotany and Palynology* 133, 3-4 (2005) 169-178.

Geiger 1941 W. Geiger, *An Etymological Glossary of the Sinhalese Language.* Colombo 1941.

Genaust 2005 H. Genaust, *Etymologisches Wörterbuch der botanischen Pflanzennamen.* Dritte, vollst. überarbeitete u. erweiterte Ausgabe. Hamburg 2005.

Germer 1985 R. Germer, *Flora des pharaonischen Ägypten*. Mainz am Rhein 1985.

Goel-2010 A. K. Goel. "Lotus: Food for the Body". Hinduism Today. Ayurveda. http://www.hinduismtoday.com/modules/smartsection/item.php?itemid=4412 (accessed January 24, 2010; previously accessed at http://www.aquaticgardens.org/Aquatic/index.php?option=com_content&task=view&id=156&Itemid=93 on February 15, 2007; page currently inaccessible).

Goel et al. 2001 A. K. Goel, S. C. Sharma, A. N. Sharga, The conservation of the diversity of Nelumbo (Lotus) at National Botanical Research Institute, Lucknow (India). *Botanic Gardens Conservation News* 3, 6 (2001) 52-54.

GRIN-2010 United States Department of Agriculture, Agricultural Research Service, Beltsville Area, National Genetic Resources Program. "Germplasm Resources Information Network - (GRIN) [Online Database]. Taxon: Nelumbo nucifera Gaertn." National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?25110 (accessed January 24, 2010).

Gupta 1981 R. Gupta, Native Food Plants of the North-Eastern Tribals. In: *Glimpses of Indian Ethnobotany*, ed. S. K. Jain. New Delhi, Bombay, Calcutta 1981, 91-106.

Hanelt 2001 *Mansfeld's encyclopedia of agricultural and horticultural crops (except ornamentals)*, ed. P. Hanelt / Institute of Plant Genetics and Crop Plant Research. Berlin, New York 2001.

Hanneder 2002 J. Hanneder, The Blue Lotus. Oriental Research between Philology, Botany and Poetics? *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 152 (2002) 295-308.

Hanneder 2007 J. Hanneder, Some common errors concerning water-lilies and lotuses. *Indo-Iranian Journal* 50 (2007) 161-164.

Hayes et al. 2000 V. Hayes, E. L. Schneider, S. Carlquist, Floral development of Nelumbo nucifera (Nelumbonaceae). *International Journal of Plant Sciences* 161, suppl. 6 (2000) 183-191.

Helck/Westendorf 1980 *Lexikon der Ägyptologie*. Begründet von W. Helck & E. Otto, ed. W. Helck & W. Westendorf. Vol. III. Horhekenu – Megeb. Wiesbaden 1980.

Herzhoff 1984 B. Herzhoff, Lotos. Botanische Beobachtungen zu einem homerischen Pflanzennamen. *Hermes. Zeitschrift für Klassische Philologie* 112 (1984) 257-271.

Huixuan-2010 J. Huixuan. "'Mono no yorokobi' and 'Mono no aware': Thoughts Inspired at the Lotus Appreciation Gathering." Minpaku Anthropology Newsletter Number 6 (June 1998). http://www.minpaku.ac.jp/english/publication/newsletter/6_04.html (accessed January 24, 2010).

Huyser-Honig-2008 S. Huyser-Honig. "American Lotus: endangered or invasive?" Great Lakes For All. Great Lakes environmental news and book reviews. http://www.greatlakesforall.com/2007/08/american-lotus-.html (accessed October 24, 2008).

IPNI-2010 The International Plant Names Index. "*Cyamus nelumbo* Sm." Plant Name Details. http://www.ipni.org/ipni/idPlantNameSearch.do?id=605343-1&back_page=%2Fipni%2FeditSimplePlantNameSearch.do%3Ffind_wholeName%3DCyamus%2Bnelumbo%26output_format%3Dnormal (accessed January 24, 2010).

Kashiwada et al. 2005 Y. Kashiwada, A. Aoshima, Y. Ikeshiro, Y.-P. Chen, H. Furukawa, M. Itoigawa, T. Fujioka, K. Mihashi, L. M. Cosentino, S. L. Morris-Natschke, K.-H. Lee, Anti-HIV benzylisoquinoline alkaloids and flavonoids from the leaves of *Nelumbo nucifera* and structure-activity correlations with related alkaloids. *Bioorganic Medicinal Chemistry* 13 (2005) 443-448.

KEWA Kurzgefaßtes etymologisches Wörterbuch des Altindischen: M. Mayrhofer, *Kurzgefaßtes etymologisches Wörterbuch des Altindischen. A Concise Etymological Sanskrit Dictionary*. Vols. I-IV. Heidelberg 1956-80.

Kintaert forthcoming/a & b Follow-up articles on two further aspects of the leaf of the Indian lotus (see the introduction to this paper).

Kirfel 1958 W. Kirfel, Galt der weiße Lotos in Indien als Antiaphrodisiacum? *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 108 (1958) 155-160.

Kirtikar et al. 2004 K. R. Kirtikar, B. D. Basu, I. C. S., *Indian Medicinal Plants.* In 4 vols. Edited, revised, enlarged, and mostly rewritten by E. Blatter, J. F. Caius and K. S. Mhaskar. Vol. I. Repr. Dehra Dun 2004 (2nd ed. Allahabad 1936).

Kramrisch 1981 S. Kramrisch, *Manifestations of Shiva*. Philadelphia Museum of Art, March 29 to June 7, 1981. Philadelphia 1981.

Kulshreshtha 2003 S. Kulshreshtha, Sixty-four Lotus Blossoms in Kālidāsa. In: *Vanajyotsnā-Sahasrasaumanasī. Flora & Plant Kingdom in Sanskrit Literature.* Jyotsnamoy Chatterjee Festschrift, ed. A. Kulshreshtha, A. Bala, J. Nath, S. Kulshreshtha, J. Sahai. Delhi 2003, 40-58.

Kulshreshtha/Ghosh 2003 S. Kulshreshtha, I. Ghosh, Līlākamala in Sanskrit Literature. In: *Vanajyotsnā-Sahasrasaumanasī. Flora & Plant Kingdom in Sanskrit Literature.* Jyotsnamoy Chatterjee Festschrift, ed. A. Kulshreshtha, A. Bala, J. Nath, S. Kulshreshtha, J. Sahai. Delhi 2003, 96-103.

Kyaw-2010 P. Th. Kyaw. "Myanmar song 'Lotus Leaf'". YouTube. http://www.youtube.com/watch?v=IFO6R4Yfc84 (accessed January 24, 2010).

Lahiri 2005 J. Lahiri, Lotus in Art and Culture. *Journal of the Asiatic Society* 47, 2 (2005) 49-57.

Lee et al. 2005 H. K. Lee, Y. M. Choi, D. O. Noh, H. J. Suh, Antioxidant effect of Korean traditional lotus liquor (Yunyupju). *International Journal of Food Science and Technology* 40, 7 (2005) 709-715.

Leichhardt 1996 L. Leichhardt, *Journal of an Overland Expedition in Australia, from Moreton Bay to Port Essington, a distance of upwards of 3000 miles, during the years 1844-1845*. Adelaide 1996 (facsimile of 1st ed. London 1847).

Lerner 1984 M. Lerner, *The flame and the lotus.* Indian and Southeast Asian art from the Kronos Collections. New York 1984.

Levrault 1818 *Dictionnaire des Sciences Naturelles* […] suivi d'une biographie des plus célèbres naturalistes. […] par plusieurs professeurs du Jardin du Roi, et des principales écoles de Paris. Vol. 12, ed. F. G. Levrault. Strassbourg, Paris 1818.

Loret 1892 V. Loret, *La Flore Pharaonique d'après les documents hiéroglyphiques et les spécimens découverts dans les tombes.* Deuxième édition, revue et augmentée, suivie de six index. Paris 1892.

lotus-leaf-2010 Th. Kintaert. "On the cultural significance of the leaf of the Indian lotus." Google Sites. http://sites.google.com/site/lotusleafinfo/ (accessed January 24, 2010).

Mastrantuono/Mancinelli 1999 L. Mastrantuono, T. Mancinelli, Long-term changes of zoobenthic fauna and submerged vegetation in the Shallow Lake Monterosi (Italy). *Limnologica* 29, 2 (1999) 160-167.

Fairley-2010 Malcolm Fairley Ltd. "3014 – Shoami Katsuyoshi. A set of six silver spoons, each in the form of a lily leaf, the stem forming the handle. Each signed Shoami zo. With original wood box inscribed Renyo saji (lotus leaf spoon) and on reverse of lid jungin sei (made of pure silver), Shoami zo with red seal. Length 10 cm (4 in). Circa 1900." Japanese Works of Art. Metalwork. http://www.malcolmfairley.com/x/collection.html?cid=3 (accessed January 24, 2010).

Micholitsch 1908 A. Micholitsch, *Die Lotosblume*. Eine Studie. Krems 1908.

Mitra 1990 R. L. Mitra, Nelumbonaceae. In: *Fascicles of Flora of India.* Fasc. 20, ed. M. P. Nayar, K. Thothathri, M. Sanjappa. Calcutta 1990, 8-10.

Morenz/Schubert 1954 S. Morenz, J. Schubert, *Der Gott auf der Blume.* Eine ägyptische Kosmogonie und ihre weltweite Bildwirkung. Ascona 1954.

MW M. Monier-Williams, *A Sanskrit-English Dictionary.* Etymologically and philologically arranged with special reference to cognate Indo-European languages. New edition, greatly enlarged and improved with the collaboration of E. Leumann, C. Cappeller and other scholars. Repr. Delhi 1990 (4th ed. Delhi 1976).

Nijman-2010 A. Nijman. "Saving the World's Coldest Growing Lotus". Water Gardeners International Online Journal 1, 2 (2006). http://www.watergardenersinternational.org/journal/1-2p/an/page1.html (accessed January 24, 2010).

Ono et al. 2006 Y. Ono, E. Hattori, Y. Fukaya, S. Imai, Y. Ohizumi, Anti-obesity effect of *Nelumbo nucifera* leaves extract in mice and rats. *Journal of Ethnopharmacology* 106, 2 (2006) 238-244.

Oudhia-2010 P. Oudhia. "Kamal (Nelumbo nucifera syn. Nelumbium speciosum; family Nymphaeaceae) as medicinal herb in Chhattisgarh, India. Research note." © 2001, 2002, 2003 Pankaj Oudhia. http://botanical.com/site/column_poudhia/128_kamal.html (accessed January 24, 2010).

Pal/Jain 1998 D. C. Pal, S. K. Jain, *Tribal Medicine.* Calcutta 1998.

Phillips/Rix 1995 R. Phillips, M. Rix, *Vegetables.* London 2nd ed. 1995 (1st ed. London 1993).

photo-jhassy-2010 photo.jhassy. "*kanrenkai* {lotus-viewing party}." flickr. Uploaded August 4, 2007. http://www.flickr.com/photos/jhassy/1013932180/ (accessed January 24, 2010).

Photosynth-Nelumbo-2010 TeeKay. "Lotus pond, Vienna Botanical Garden" Photosynth. Microsoft Live Labs. Uploaded August 28, 2008. http://photosynth.net/view.aspx?cid=06382459-8cd8-4e6d-8e78-e0677c86c47d (accessed January 24, 2010).

PIER-2010 Pacific Island Ecosystems at Risk (PIER). "Nelumbo nucifera Gaertn., Nelumbonaceae". Institute of Pacific Islands Forestry. Created September 9, 2002, last updated February 18, 2007. http://www.hear.org/pier/species/nelumbo_nucifera.htm (accessed January 24, 2010).

Pou 2005 S. Pou, Les Fleurs dans la Culture Khmere. *Journal Asiatique* 293, 1 (2005) 45-98.

Radt 2005 S. Radt, *Strabons Geographika.* Mit Übersetzung und Kommentar herausgegeben von S. Radt. Band 4. Buch XIV-XVII: Text und Übersetzung. Göttingen 2005.

Rai et al. 2006 S. Rai, A. Wahile, K. Mukherjee, B. P. Saha, P. K. Mukherjee, Antioxidant activity of *Nelumbo nucifera* (sacred lotus) seeds. *Journal of Ethnopharmacology* 104 (2006) 322-327.

Randhawa 1994 M. S. Randhawa, *Kangra Paintings on Love*. Repr. New Delhi 1994 (1st ed. New Delhi 1962).

Rau 1954	W. Rau, Lotusblumen. In: *Asiatica. Festschrift Friedrich Weller.* Zum 65. Geburtstag gewidmet von seinen Freunden, Kollegen und Schülern, ed. J. Schubert, U. Schneider. Leipzig 1954, 505-513.
Riegl 1992	A. Riegl, *Problems of Style. Foundations for a History of Ornament.* Transl. E. Kain. Annotations, Glossary, and Introduction by D. Castriota. Princeton, New Jersey 1992.
Robertson 1857	J. Robertson, Sepoy Symbols of Mutiny. *Household Words* 16 (1857) 228-232.
Ross 2001	I. A. Ross, Nelumbo nucifera *Gaertn.* In: *Medicinal Plants of the World. Chemical Constituents, Traditional and Modern Medicinal Uses.* Vol. 2. Totowa, New Jersey 2001, 353-362.
Roşu 1961	A. Roşu, Pūrṇaghaṭa et le Symbolisme du Lotus dans l'Inde. *Arts Asiatiques* 8, 3 (1961) 163-194.
RPMA-2010	Radio and Phono Museum Archives. "Phonographs and Gramophones". TSF36. http://pagesperso-orange.fr/jlf/earchive.htm (accessed January 24, 2010).
Ryhiner 1986	M.-L. Ryhiner, *L'offrande du lotus dans les temples égyptiens de l'époque tardive.* Bruxelles 1986.
Schmidt 1913	R. Schmidt, Beiträge zur Flora Sanscritica III. Der Lotus in der Sanskrit-Literatur. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 67 (1913) 462-470.
seven-rainbow-2010	7rainbow. "afternoon tea party." flickr. Uploaded June 10, 2007. http://www.flickr.com/photos/7rainbow/539693646/ (accessed January 24, 2010).
Sharma/Goel 2000	S. C. Sharma, A. K. Goel, *Environmental degradation and ex-situ conservation of Nelumbo nucifera.* In: *Environmental Stress: Indications, Mitigation and Eco-conservation*, ed. M. Yunus, N. Singh, L. J. de Kok. Dordrecht, Boston 2000, 405-409.
Simoons 1990	F. J. Simoons, *Food in China.* A Cultural and Historical Inquiry. Boca Raton 1990.
Sims 1809	J. Sims (ed.), Nelumbium Speciosum. Sacred Bean of India. *Curtis's Botanical Magazine or Flower-Garden Displayed* 23 (1809) plate 903 & accompanying text.
Sinha et al. 2000	S. Sinha, P. K. Mukherjee, K. Mukherjee, M. Pal, S. C. Mandal, B. P. Sahal, Evaluation of antipyretic potential of *Nelumbo nucifera* stalk extract. *Phytotherapy Research* 14 (2000) 272-274.
Skt.	Sanskrit.
Slocum 2005	P. D. Slocum, *Waterlilies and Lotuses: Species, Cultivars, and New Hybrids*. Portland 2005.
Smith 2000	D. Smith, An Alternative Poetics of the Lotus. In: *Pandanus 2000: Natural Symbolism in Indian Literatures*, ed. J. Vacek. Prague 2000, 211-229.
Smith/Stuart 1985	F. P. Smith, G. A. Stuart, *Chinese Materia Medica. Vegetable Kingdom.* Extensively revised from F. P. Smith's work by G. A. Stuart. Repr. Dehra Dun 1985 (1st ed. Shanghai, London 1911).
Soon 2003	T. E. Soon, *The Lotus in the Buddhist Art of India*. Singapore 2003.
Sridhar/Bhat 2007	K. R. Sridhar, R. Bhat, Lotus – A potential nutraceutical source. *Journal of Agricultural Technology* 3, 1 (2007) 143-155.
Staal 1983	*Agni, The Vedic ritual of the fire altar*, ed. F. Staal. With the assistance of P. MacFarland. Vol. 2. Berkeley 1983.
Sternbach 1974-87	L. Sternbach, *Mahā-Subhāṣita-Saṃgraha*. Being an extensive collection of wise sayings and entertaining verses in Sanskrit with Introduction, English Translation, Critical Notes and Indices, ed. S. Bh. Nair. 6 vols. Hoshiarpur 1974-87.
Sullivan 1859	W. K. Sullivan, On the influence which the Physical Geography, the Animal and Vegetable Productions, etc., of different regions exert upon the Languages, Mythology, and early Literature of Mankind, with reference to its employment as a test of Ethnological Hypotheses. *The Atlantis: A Register of Literature and Science* 2, 3 (1859) 125-203.

Syed 1990 R. Syed, *Die Flora Altindiens in Literatur und Kunst.* Diss. München 1990.

TOI-2010 The Times of India. "Lotus plays havoc in Tamil Nadu." Flora & Fauna. 26 Sep 2008. http://timesofindia.indiatimes.com/articleshow/msid-3530431, prtpage-1.cms (accessed January 24, 2010).

Tropilab-2010 Tropilab. "NELUMBO NUCIFERA – SACRED LOTUS." Tropilab Inc, Exporter and wholesaler of medicinal plants, herbs and tropical seeds. http://www.tropilab.com/nelum.html (accessed January 24, 2010).

Turnheim 2002 Y. Turnheim, Nilotic Motifs and the Exotic in Roman and Early Byzantine Eretz Israel. *Assaph: Studies in Art History* 7 (2002) 17-40.

Vajracharya 2002 G. V. Vajracharya, *Watson Collection of Indian Miniatures at the Elvehjem Museum of Art.* A detailed study of selected works. Madison 2002.

van Briessen 1998 F. van Briessen, *The Way of the Brush: Painting Techniques of China and Japan*. Boston 1998 (1st ed. Rutland 1962).

van Rhede tot Drakestein 1692 H. van Rhede tot Drakestein, *Horti Malabarici pars undecima*. Amstelædami 1692, 59-61.

Versluys 2002 M. J. Versluys, *Aegyptiaca Romana. Nilotic Scenes and the Roman Views of Egypt.* Leiden, Boston 2002.

Viennot 1964 O. Viennot, *Les divinités fluviales Gaṅgā et Yamunā aux portes des sanctuaires de l'Inde*. Paris 1964.

Watt 1891 Nelumbium. In: *Dictionary of the Economic Products of India*, ed. G. Watt. Vol. V., Linum to Oyster. London, Calcutta 1891, 343-345.

Weidner 1985 S. Weidner, *Lotos im alten Ägypten*. Vorarbeiten zu einer Kulturgeschichte von Nymphaea lotus, Nymphaea coerulea und Nelumbo nucifera in der dynastischen Zeit. Pfaffenweiler 1985.

Wigand/Dennert 1888 A. Wigand, *Nelumbium speciosum. Eine monographische Studie.* Vollendet und herausgegeben von E. Dennert. Mit 6 Tafeln. Cassel 1888.

Wilder 1911 A. Wilder (transl.), *Theurgia or The Egyptian Mysteries By Iamblichos.* Reply of Abammon, the Teacher to the Letter of Porphyry to Anebo together with Solutions of the Questions Therein Contained. Translated from the Greek by A. Wilder. London 1911.

Woenig 1886 F. Woenig, *Die Pflanzen im alten Aegypten*. Ihre Heimat, Geschichte, Kultur und ihre mannigfache Verwendung im Sozialen Leben, in Kultus, Sitten, Gebräuchen, Medizin und Kunst. Nach den eigenen bildlichen Darstellungen der Alten Aegypter, Pflanzenresten aus Gräberfunden, Zeugnissen alter Schriftsteller und den Ergebnissen der neuen Forschungen. Leipzig 1886.

Wu et al. 2003 M. J. Wu, L. Wang, C. Y. Weng, J. H. Yen, Antioxidant activity of methanol extract of the lotus leaf (Nelumbo nucifera Gertn.). *American Journal of Chinese Medicine* 31, 5 (2003) 687-698.

Yamaguchi-2010 M. Yamaguchi. "Asian Vegetables." http://www.hort.purdue.edu/newcrop/proceedings1990/V1-387.html (accessed January 24, 2010). (Published in printed form as: M. Yamaguchi, Asian vegetables. In: *Advances in new crops*. First National Symposium. New Crops: Research, Development, Economics. Indianapolis, Indiana, USA, October 23-26, 1988, ed. J. Janick, J. E. Simon. Portland, Oregon 1990, 387-390.)

Zickrick-2010 M. Zickrick. "Genus Nelumbo – The Lovely Lotus." Water Works. Newsletter of the North Texas Water Garden Society. December 2005, p. 1. www.ntwgs.org/articles/dec05ntwgs.pdf (accessed January 24, 2010).

Zong/Liscum 1996 X. Zong, G. Liscum, *Chinese Medicinal Teas: simple, proven, folk formulas for common diseases & promoting health.* Boulder 1996.