

# Sīdhu (Śīdhu): The Sugar Cane “Wine” of Ancient and Early Medieval India

James McHugh 

Volume 8, 2020

URI: <https://id.erudit.org/iderudit/1116064ar>

DOI: <https://doi.org/10.18732/hssa.v8i.58>

[See table of contents](#)

Publisher(s)

University of Alberta Library

ISSN

2369-775X (digital)

[Explore this journal](#)

Cite this article

McHugh, J. (2020). Sīdhu (Śīdhu): The Sugar Cane “Wine” of Ancient and Early Medieval India. *History of Science in South Asia*, 8, 36–56.  
<https://doi.org/10.18732/hssa.v8i.58>

Article abstract

This article considers the nature of one particular drink made from sugar cane called sīdhu (usually m., also śīdhu), exploring the evidence from textual sources. Other drinks were made with sugar cane products, such as āsavas, medicinal ariṣṭas, and the drink called maireya, but I will not consider those here. As I argue, sīdhu was the basic fermented sugar cane drink, not strongly characterized by additives—“plain” sugar-wine as it were. Though in a manner typical of premodern Indic alcohol culture, even this one drink was a complex and variable affair. Rather than consider this drink in medical sources alone—important as that evidence may be—my methodology here is to examine the history of this drink in the light of a wide range of textual evidence, placing this drink in the broad context of pre-modern South Asian drinking culture.

© James McHugh, 2020



This document is protected by copyright law. Use of the services of Érudit (including reproduction) is subject to its terms and conditions, which can be viewed online.

<https://apropos.erudit.org/en/users/policy-on-use/>

**érudit**

This article is disseminated and preserved by Érudit.

Érudit is a non-profit inter-university consortium of the Université de Montréal, Université Laval, and the Université du Québec à Montréal. Its mission is to promote and disseminate research.

<https://www.erudit.org/en/>

# History of Science in South Asia

# *Sīdhu* (Śīdhu): the Sugar Cane “Wine” of Ancient and Early Medieval India

James McHugh

University of Southern California

MLA style citation form: James McHugh. "Śīdhu (Śīdhu): the Sugar Cane "Wine" of Ancient and Early Medieval India." *History of Science in South Asia*, 8 (2020): 36–56. DOI: 10.18732/hssa.v8i1.58.

Online version available at: <http://hssa-journal.org>

## HISTORY OF SCIENCE IN SOUTH ASIA

A journal for the history of all forms of scientific thought and action, ancient and modern, in all regions of South Asia, published online at <http://hssa-journal.org>

ISSN 2369-775X

### *Editorial Board:*

- Dominik Wujastyk, University of Alberta, Edmonton, Canada
- Kim Plofker, Union College, Schenectady, United States
- Dhruv Raina, Jawaharlal Nehru University, New Delhi, India
- Clemency Montelle, University of Canterbury, Christchurch, New Zealand
- Fabrizio Speziale, School of Advanced Studies in the Social Sciences (EHSS), Paris, France
- Michio Yano, Kyoto Sangyo University, Kyoto, Japan
- Gudrun Bühnemann, University of Wisconsin-Madison, USA

### *Publisher:*

History of Science in South Asia

### *Principal Contact:*

Dominik Wujastyk, Editor, University of Alberta

Email: [wujastyk@ualberta.ca](mailto:wujastyk@ualberta.ca)

### *Mailing Address:*

History of Science in South Asia,  
Department of History and Classics,  
2–81 HM Tory Building,  
University of Alberta,  
Edmonton, AB, T6G 2H4  
Canada

This journal provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge.

Copyrights of all the articles rest with the respective authors and published under the provisions of [Creative Commons Attribution-ShareAlike 4.0](https://creativecommons.org/licenses/by-sa/4.0/) License.

The electronic versions were generated from sources marked up in [L<sup>A</sup>T<sub>E</sub>X](https://www.latex-project.org/) in a computer running GNU/LINUX operating system. PDF was typeset using [X<sub>Y</sub>T<sub>E</sub>X](https://www.xetex.org/) from [T<sub>E</sub>XLive](https://www.texlive.org/). The base font used for Latin script and oldstyle numerals was [T<sub>E</sub>X Gyre Pagella](https://www.gust.com.pl/) developed by [gust](https://www.gust.com.pl/), the Polish T<sub>E</sub>X Users Group.

# *Sīdhu* (*Śīdhu*): the Sugar Cane “Wine” of Ancient and Early Medieval India

James McHugh

*University of Southern California*

## 1 INTRODUCTION

FERMENTED ALCOHOLIC DRINKS MADE FROM SUGAR CANE are a distinctive feature of the alcohol culture of ancient South Asia, being mentioned in texts that date, most likely, from several centuries BCE. By the early first millennium CE sugar cane-based drinks were consumed along with cereal-based drinks called *surā*, (mostly) imported grape wine, and another preparation that we now classify as a drug: betel.<sup>1</sup> Appearing on the scene quite early, sugar cane-based alcoholic drinks have thus been a major and distinctive component of the alcohol culture of South Asia in the long term, especially when compared to other Old World regions such as China, the Middle East, and Europe where there was no sugar cane liquor at such early periods.

This article will consider the nature of one type of drink made from sugar cane, called *sīdhu* (usually m., also *śīdhu*), exploring the evidence from textual sources. Other drinks were made with sugar cane products, such as *āsavas*, medicinal *ariṣṭas*, and the drink called *maireya*, but I will not consider those here.<sup>2</sup> As I argue below, *sīdhu* was probably the basic fermented sugar cane-juice drink, not strongly characterized by additives—“plain” sugar-wine, as it were. In a manner typical of premodern Indic alcohol culture, however, even this one type of drink was a complex and variable affair. Rather than consider this drink in medical sources alone—important as that evidence may be—my methodology here is to examine the history of this drink in the light of a wide range of textual evidence, placing this drink in the broader context of pre-modern South Asian drinking culture.

1 For these other drinks and their chronology see McHugh (*forthcoming a*).

2 I explore those other drinks in McHugh

(*forthcoming a*), in the chapter on wine and other drinks not made from grains.



Throughout the paper I shall repeatedly refer to some contemporary and/or traditional methods of processing and fermenting sugar cane products. Such comparisons can help elucidate technical points of texts—such as sugar processing or the colours of drinks—that might otherwise remain obscure. These comparisons can also help us better appreciate why certain distinctions mattered culturally and economically in ancient India, such as the difference between drinks made from raw sugar cane juice versus cooked juice. This method is not unlike the practice of ethnoarchaeology, only here the study of contemporary materials and techniques, as opposed to ancient artifacts, supplements research into ancient texts. I do not, however, suggest that these more recent processes and drinks are in any way connected with, or survivals of, ancient Indian *sīdhu*.

## 2 SUGAR CANE PRODUCTS IN INDIA

UNLIKE IN EUROPE, where sugar and sugar cane products have only been known from a comparatively recent period, sugar cane was well known in ancient India from well before the Common Era.<sup>3</sup> Processing sugar was well developed too. For example, we see an array of sugar cane products in the *Arthaśāstra*.<sup>4</sup> This variety of sugars can be confusing, particularly as most people who only speak a European language do not possess words for some of these products (though sugar specialists do have a good vocabulary for this).<sup>5</sup> Yet these many words, quite often encountered in Sanskrit texts, attest to a complex sugar culture in India, much of which survives to this day, as examination of the sugars on sale in any Indian market will demonstrate.

The most basic form of consuming sugar cane is to chew the cane itself. If people process the sugar in the cane, however, they can do other things with it, such as making drinks. And people can store and transport sugar cane products if they produce a stable, less perishable form of sugar. In the process of making these other forms of sugar, various physical forms, colours, and flavours are produced.

<sup>3</sup> On sugar in ancient India see Ray 1918; Gopal 1964; Hinüber 1971. Christian Daniels has reviewed this material and synthesized it, comparing it with early Chinese sources (including one Dunhuang text on Indian sugar manufacture) to produce a thorough account of early sugar in Asia (Daniels 1996: 276–411). For a useful table of translations see Daniels 1996: 374. Also see Ray's tables of Sanskrit words and types of sugar (1918: 441). For the origins of words for sugar cane in Sanskrit, which

have possible links with Dravidian words, see Southworth 2005: 217–18. On cane sugar in Europe see Mintz 1986: ch. 3.

<sup>4</sup> *Arthaśāstra* 2.15.14 (Kangle 1960: I, 63): फाणितगुडमत्त्यण्डिकाखण्डशर्कराः क्षारवर्गः।

“syrup, jaggery, massecuite, soft brown sugar, crystal sugar – the class of processed sugar cane products.” For my explanation of these translations, see below.

<sup>5</sup> I use the word “sugar” in a very broad sense, hiding considerable chemical complexity which need not concern us here.

Before looking at fermented drinks, let us first briefly examine the ways people processed sugar cane in ancient India (I will annotate my description with the terminology given in the *Suśrutasaṃhitā*).<sup>6</sup> Our evidence here is limited, and it is, of course, quite possible that the processes of sugar production varied in early India along with the manner in which these stages were conceptualized and named, such that the translations into modern English terminology given below are most likely only an approximation. The first stage in processing sugar cane is to extract the juice, which can be done by chewing (*dantaṣpīḍito rasaḥ*),<sup>7</sup> or by using a mechanical device (*yāntrikaḥ*).<sup>8</sup> The fresh, sweet juice (*ikṣurasa*) can be drunk as it is, or it can be fermented to make an alcoholic drink. Nowadays this fresh juice is fermented and distilled to make *rhum agricole* of Martinique, and also Brazilian *cachaça*, which drinks are quite different in flavour to rums made from molasses. Thus it is clear that, for making liquor, the base sugar cane product used makes an important difference to the final product, and this may have been even more noticeable for the non-distilled drinks of ancient India. Sugar cane juice, especially the uncooked type, is unstable and ferments easily. The boiled juice, *pakvaḥ rasaḥ*,<sup>9</sup> which should not be confused with a reduced syrup, was evidently prepared and, like pasteurized liquids, was no doubt more stable. This liquid is now used to make a drink called *basi* in the Philippines—so it is by no means always the case that a liquor based on the juice has to be made from raw, spontaneously fermenting juice—evidently the cooked, but not reduced, juice can make a good fermented drink.<sup>10</sup>

To preserve the juice for transport or later use people can reduce its water content by boiling, or evaporation in the sun, to produce a syrup (*phāṇitam*).<sup>11</sup> For making a liquor this syrup would need to be diluted at a later point, for fermentation cannot take place in too concentrated a sugar solution. If people cook the syrup down still more they will obtain several other products as the syrup loses water. Jaggery (*guda*)<sup>12</sup> is a brown, solid mass of evaporated sugar, sometimes in the form of a ball. It can be harder or softer depending on the process used. If the reduced sugar cane juice is beaten vigorously a very fine-grained sugar is produced, syrup included: a soft brown sugar (*khaṇḍa*).<sup>13</sup> So far all these

6 I base my account here on the sources in note 3 above.

7 *Suśrutasaṃhitā*, Sūtrasthāna (henceforth Su.sū.) 45.157 (Ācārya 2013: 209).

8 Su.sū.45.158ab (Ācārya 2013: 209).

9 Su.sū.45.158bc (Ācārya 2013: 209).

10 Steinkraus 1996: 369–76.

11 Su.sū.45.159 (Ācārya 2013: 209).

12 Su.sū.45.160 (Ācārya 2013: 209).

13 According to Daniels (1996: 374). At Su.sū.45.162, *khaṇḍa* is given in the com-

pound *matsyaṇḍikākhaṇḍaśarkarā*, which might seem to imply this is a semi-refined sugar, *matsyaṇḍikā* being the first stage, and *śarkarā* being the more refined version. Watt's comments on “country sugar” perhaps help clarify this somewhat ambiguous situation, and these comments are consistent with Daniels's explanation. Watt (1893: vol. 6, pt. 2, 253) says: “In its preparation the cane juice is boiled a little

sugars contain everything that was in the sugar cane juice at the start—they are what we nowadays call *unrefined* sugars. Refining sugar is a matter of separating sucrose crystals from a syrup matrix in which they have formed (the “mother liquor”), which contains impurities. To make sucrose crystals you boil the juice to produce what is called *massecuite* (*matsyaṇḍikā*),<sup>14</sup> which contains sugar crystals of a desirable size in the mother liquor. These crystals can be separated by draining off the syrup, which results in two products: sugar crystals (*śarkarā*)<sup>15</sup> and the darker mother liquor that has been drained away. This latter substance (called *kṣāra*) is analogous to molasses in modern sugar refining.<sup>16</sup> Most rum nowadays is made from molasses, a by-product of sugar refining, which is also used to make some Indian “country liquor” today, but I am not aware of the leftovers of refining, *kṣāra*, being used to make alcoholic drinks in ancient India. The sugar crystals can be washed to produce whiter sugars, and they can also be re-crystallized to make large pieces of sugar candy (e.g. *sitopalā*). I urge scholars to translate words for sugar products in Sanskrit more carefully in future as arguably the differences they express—economic, technical, even aesthetic—are just as significant as “milk,” “butter,” “cheese,” and “whey” are in understanding and interpreting English language texts.

longer than is the case with *gur* [jaggery], and on cooling it is stirred till it thickens. It is not, however, a refined sugar, though it is fairly well drained. It may, therefore, be regarded as the Indian equivalent of the muscovado sugars” (my emphasis). Thus, as separate grains of sugar *khaṇḍa* resembles more refined, loose sugars, yet it is mostly unrefined.

<sup>14</sup> Su.sū.45.162 (Ācārya 2013: 209). *Matsyaṇḍikā* might seem to suggest “fish eggs” though the form has a short “-a-” and is not \**matsyaṇḍikā*. The Pali form is *macchandiya* and the Sanskrit form may well be an example of folk etymology from a Middle Indic form, as suggested by v. Hinüber (1971: 107).

<sup>15</sup> Su.sū.45.162 (Ācārya 2013: 209). In India in the nineteenth century sugar crystals were washed to produce whiter sugars by placing dripping wet waterweed on top of vessels containing the draining crystal-molasses. The waterweed slowly dripped through the crystals, washing them whiter (see Watt 1893: vol. 6, pt. 2, 254). I am not aware of how refining was done in very early periods.

<sup>16</sup> Thus at Su.sū.45.165 (Ācārya 2013: 209) the increasingly refined and high quality refined *śarkarā* is said to be increasingly pure and free from molasses (*suvalmalā niḥkṣārā*). Of course, as with all these products, ancient Indian *kṣāra* may have been somewhat different to molasses produced by modern industrialized methods of refining sugar. *Kṣāra* as a noun also means an alkaline, caustic substance or potash among other things, so why is the term used for this sugar-product? v. Hinüber (1971: 95–7) mentions descriptions of the addition of ash to the juice even in early Indian Buddhist accounts of sugar cane processing. An ash solution is alkaline, as one sees in the traditional manufacture of lye. v. Hinüber (1971: 104) proposes that a term for “alkali-related” products was thus a useful term for processed sugars as a whole (hence also the *kṣāravarga* at *Arthaśāstra* 2.15.14, which, notably, does not include the juice or the cane—see above). I quite agree with this suggestion. Thus it appears *kṣāra* can apply to the whole class of processed sugar cane products, as well as to the molasses-analogous liquor separated from crystallized sugars.

Several sugar products were made into alcoholic drinks in South Asia. Anyone who knows the different flavours of fresh sugar cane juice and brown sugar will know that the resulting drinks would vary in flavour, colour, and other qualities. Also, from the above it should be clear that the work and skills involved in making different sugar-based alcoholic drinks would likewise have varied, as also would the possibility of making them at times and places removed from a field of sugar cane. In that respect uncooked fresh juice is the most spatio-temporally limiting raw material for making alcoholic drinks. By contrast, a drink made from sugar crystals (*śarkarā*) would absorb, literally crystallize, the most time and labor.

### 3 THE NATURE OF *SĪDHU*

A DRINK CALLED *SĪDHU* (SOMETIMES ALSO *ŚĪDHU*) IN SANSKRIT is the most important liquor made primarily from sugar cane.<sup>17</sup> *Sīdhu* is not rum as it was not distilled, and it is perhaps best translated as “sugar cane wine” though there is no perfect equivalent in English.<sup>18</sup> This drink appears in the textual record quite early. It is mentioned in the epics, in early medical texts, and also in the Śvetāmbara Jain *Uttarādhyāyanasūtra*.<sup>19</sup> Although there is an early list of drinks in the *Arthaśāstra* along with their ingredients, and many of these drinks contain sugars, only what may be a soured form of *sīdhu* (*amlaśīdhu*) is mentioned in that text, at the very end of the chapter on liquor in a passage on taxation.<sup>20</sup>

<sup>17</sup> Mayrhofer believes the origin of this word is unclear, perhaps a foreign word (KEWA, s.v. *sīdhuh*; EWA, s.v. *sīdhu*-). There is also the Middle Indic form *sī(d)hu*, also m. (CDIAL, s.v. *sīdhū*). Buddhist sources in Pali do not, as far as I am aware, contain evidence of *sīdhu*. Rather there the main liquors are *surā*, *maireya* (Pali: *meraya*), and *āsavas*. See McHugh (forthcoming a; submitted) on these drinks and for what early Buddhist sources teach us alcohol in South Asia.

<sup>18</sup> I am sceptical about the supposed evidence of early distillation in India, as I explain elsewhere (McHugh forthcoming c).

<sup>19</sup> For the epics see below. At *Uttarādhyāyanasūtra* XIX.70 (Charpentier 1922: 149), in a description of previous hell-birth experience, there is a list of liquors, which are presumably thought to cause the hell torments mentioned here, of drinking burning fat and blood. The drinks are, in Prakrit: “*surā sīhū*

*merao ya mahūṇi ya*.” In Sanskrit these are *surā*, *sīdhu*, *maireya*, and *madhu*. As noted above *madhu* means wine in later texts, but in Jain texts *madhu* may well imply honey, which is forbidden because of the harm collecting it causes bees. Thus honey may be implied here, not grape wine. On honey in Jainism see Williams 1963: 55. *Maireya* is first prominent in texts from several centuries BCE, such as the Pali *Vinaya* and Pāṇini. On *maireya* see McHugh (submitted). Presumably the list of drinks given in this Jain text belongs to a similarly early period, though an exact dating for this text eludes me. Of course, such details as lists of drinks may themselves be of use to scholars interested in assigning dates to texts.

<sup>20</sup> *Arthaśāstra* 2.25.39. See Olivelle’s note on this and the next line (Olivelle 2013: 566). The previous member of the compound, -*phalāmla*- is a category of unfermented sour



Sadly, we do not have, as far as I am aware, any ancient recipes, detailed lists of ingredients, or instructions for making *śīdhu*. Early medical texts, however, contain good evidence of the principal composition and nature of *śīdhu*, though not about the brewing process.

The *Suśrutasaṃhitā* lists varieties of what are explicitly called *śīdhu* in a list of various alcoholic drinks, the *Madyavarga*, in the *Sūtrasthāna*.<sup>21</sup> Here *śīdhu* is described after grape wine, date wine, and a number of grain-based drinks (= types of *surā* in the narrow sense of the word). *Śīdhu* in this text is evidently used as a generic name for all primarily sugar (-cane) liquors, and the variants are qualified by adjectives that indicate precisely which particular type of sugar is the base. Thus we read of jaggery-based *śīdhu* (*gauḍa*); crystal-sugar-based one (*śārkara*), cooked-juice *śīdhu* (*pakvarasa*), and a cold, i.e. uncooked juice one (*śītarasika*).<sup>22</sup> There follow two herbal *śīdhūs*.<sup>23</sup> Then the list has the *surā-āsava* (grain liquor refermented with sugar), and a honey-*āsava*, evidently drinks conceptually not considered to be dominated by or primarily characterized by sugar cane products.<sup>24</sup> Remaining in the world of more complex sugar-based drinks the next drink is *maireya*,<sup>25</sup> followed by sugar cane-juice *āsava*.<sup>26</sup> The final sugary drink in this list is “*śīdhu* produced from mahua flowers,” which is placed at the end of the list of alcoholic drinks, suggesting it was perhaps not the most highly regarded liquor (nor a highly regarded “sugar”), or that it was somehow seen as peripheral to the category.<sup>27</sup> Although there is some variety here, in this text at least, *śīdhūs* are primarily intoxicating fermented drinks made from a sugar base, prototypically from sugar cane. Sugar may be present in other drinks, but in those cases

juices at *Arthaśāstra* 2.15.18, e.g., tamarind. One might expect –*śukta*- here (like *Arthaśāstra* 2.15.17), rather than this sour *śīdhu*. Of course one could also read this as –*āmla*-, so tamarind *śīdhu*.

<sup>21</sup> In Su.sū.45 (Ācārya 2013: 210–13).

<sup>22</sup> Su.sū.45.182–185 (Ācārya 2013: 210).

<sup>23</sup> *Ākṣika* which the late twelfth-century commentary of Ḍaḷhaṇa explains to be the decoction of *vibhītaka* (*Terminalia bellerica* Roxb. – there is a *surā* based on this too), and one made from *jambū* fruit, the java plum (*Syzigium cumini* (L.) Skeels). Su.sū.45.186–187ab (Ācārya 2013: 211).

<sup>24</sup> Su.sū.45.187cd–189ab (Ācārya 2013: 211).

<sup>25</sup> Su.sū.45.189cd–190ab (Ācārya 2013: 211). I discuss *maireya*, as well as *āsavas* and *aṛiṣṭas* in McHugh (forthcoming a). On these drinks, especially as discussed in medical literature, see

also the pertinent entries in Meulenbeld 1974: Appendix 3.

<sup>26</sup> Su.sū.45.190cd (Ācārya 2013: 211). Ḍaḷhaṇa gives another reading here: मृद्विकेशुरसासवः, so an *āsava* made of grapes/raisins and sugar cane juice.

<sup>27</sup> Su.sū.45.191 (Ācārya 2013: 211): शीधुर्मधुकपुष्पोत्थः। Ḍaḷhaṇa notes that some people think this should not contain jaggery, and some think it should contain jaggery on account of its nature as a type of *śīdhu* (i.e., *śīdhu* has to contain a sugar cane product). Thus, the boundaries of what counts as *śīdhu* are somewhat contested: do the mahua flowers alone count as “*śīdhu*-making-sugar,” or do we need jaggery? (Jaggery is used in making mahua liquor today.) On mahua liquor see the chapter on wines and other drinks not based on grains in McHugh (forthcoming a).

other materials are also intrinsic to and characteristic of their nature. Possibly “plain” *sīdhu*, as made from cooked-juice and uncooked-juice, was the primary version of the drink, and the medical literature uses the term in a somewhat expanded manner for the larger category of sugar cane-based drinks.

I shall not consider all the medical literature on medical drinks here as I wish to explore this drink in its wider cultural contexts. It is notable, however, that although the *Carakasamhitā* lists the following sugar drinks that are very similar to those in the *Suśrutasamhitā* they are *not* called *sīdhu* in this text, and the drinks are simply named after their main ingredient. The commentator Cakrapāṇidatta, writing in the late eleventh century,<sup>28</sup> calls the first of these drinks an *āsava*, showing how the distinction between *sīdhu* and *āsava* is vague at times. Thus, *sīdhu*, *āsavas*, *ariṣṭas*, and *maireya* are all sugar-based fermented alcoholic drinks, often with additions, and how particular drinks were classified probably varied somewhat, especially as local drink culture, “recreational” or pharmacological, as well as vernacular terminologies must have varied over the centuries and in different regions. I have added some of the comments of Cakrapāṇidatta in parentheses:<sup>29</sup>

- Muscovado based, *śārkara* (an *āsava* that has the nature of crystal sugar, *śārkārā*).
- Cooked-juice, *pakvarasa* (which is made with boiled sugar cane juice).
- Cold-juice, *śītarasika* (made with cold sugar cane juice) .
- Jaggery-based, *gauḍa* (with the nature of jaggery).

Early medical texts, that offer some of the best evidence for the variety of sugar wines, name and describe several *sīdhu*-like drinks, sometimes all listed together and called *sīdhus*, and sometimes not. The distinction of cooked versus uncooked base ingredients (or cooked/uncooked juice) was evidently important to note. Fresh sugar cane juice is quite unlike other such drinks, as it would spontaneously ferment and would only be available just after the cane was crushed, whereas a jaggery drink could be made at any time and might need some sort of starter.<sup>30</sup> Prototypical *sīdhu*, however, was probably made from sugar cane

<sup>28</sup> Cakrapāṇidatta was a Hindu who lived in the Bengal area and composed his works in approximately the third quarter of the eleventh century CE (HIML: IIA, 92–3).

<sup>29</sup> *Carakasamhitā*, Sūtrasthāna (henceforth Ca.sū.) 27.183–186 (Ācārya 1941: 162–3). The comments translated here are, respectively: शार्करः शर्कराप्रकृतिक आसवः; पक्वरसः यः कथितेनेक्षुरसेन क्रियते; शीतरसिकस्तु शीतेक्षुरसकृतः; गौडः गुडप्रकृतिकः.

<sup>30</sup> Śārṅgadharma wishes to simplify and rationalize the number of sugar-based drinks,

explaining that something prepared with “uncooked sweet substances” is called cold-juice *sīdhu*, and a drink is called cooked-juice *sīdhu* when made with “cooked sweet substances,” thus grouping anything made from a sugar in one of these two categories. Again juice- (*rasa*) based *sīdhu* appears to be the primary model. *Śārṅgadharasamhitā* II (= *Madhyama*) 10.4. (Srikantha Murthy 1984: 137): ज्ञेयः शीतरसः सीधुर् अपक्रमधुरद्रवैः सिद्धः पक्वरसः सीधुः संपक्रमधुरद्रवैः ।

products, possibly even from sugar cane juice above all other products, and other usages of the word are quite possibly extensions, as we see with mahua-flower *sīdhu*. Compare, perhaps, to English “wine” where the word is assumed to mean grape wine unless otherwise qualified (e.g. “rice wine”). Not every type of sugar cane product is mentioned as being used in these drinks. Sugar cane juice is used, as are jaggery and *śarkarā*-sugar—the former being the simplest sugar cane product and the latter two being processed, stable, and tradeable products. Drinks made from refined sugars like *śarkarā* may have been more costly and prestigious. Juice based drink can be made abundantly where sugar cane is grown, and the others can be made easily all over South Asia. We cannot know from these sources exactly how the drink was made, nor all the ingredients and it is possible that, as with the sugar-based drinks described in the *Arthaśāstra*, and as with Philippino *basi* today, there were various essential additives involved.<sup>31</sup>

Although we do not know exactly how *sīdhu* was made, it does appear that people aged *sīdhu*. The poet Kālidāsa, writing in the fourth century CE mentions old/aged sugar cane liquor in the *Raghuvamśa*:<sup>32</sup>

All the troubles of lovers were wiped away by the end of the hot season which supplied fragrance, mangos breaking bud, old sugar-cane wine (*purāṇasīdhum*), and fresh *pāṭala* flowers.

Here the drink is associated with the final part of the hot season. In the *Aṣṭāṅgahrdaya* Vāgbhaṭa writes that in the rainy season one takes “aged (*cirantana*) wine (*madhu*) and *ariṣṭa*,” and the commentator Aruṇadatta explains that this is because of the dangers of sluggish digestion (*agnimāndyabhayāt*) in that season, so it seems aged drinks are easier to digest.<sup>33</sup> Or maybe given the production schedule of certain drinks they were inevitably somewhat aged by this time, like grape wine in Europe by the spring. In the *Bālarāmayāṇa* of Rājaśekhara (c. 900 CE) another poetic reference to old sugar cane wine evokes

<sup>31</sup> For example, see the herbal additive mixture (*saṃbhāra*) for jaggery drinks at *Arthaśāstra* 2.15.23. In brewing one type of *basi* it is made by boiling sugar cane juice, infusing some herbs into this liquid for colour and flavour, placing the cooked, filtered juice in a jar and inoculating with a previously made complex fermentation starter made of inoculated rice and herbs. After one week another starter is added, and after one month's fermentation the jar is thoroughly sealed and aged for one year. For the full, rather complex processes, involving additives, of brewing and aging *basi*, which is nonetheless primarily a sugar cane wine, see

Steinkraus (1996: 369–76).

<sup>32</sup> *Raghuvamśa* 16.52 (Pandit 1874: 482–3):

मनोज्ञगन्धं सहकारभङ्गं  
पुराणशीधुं नवपाटलं च।  
संबध्ना कामिजनेषु दोषाः

सर्वे निदाघाविधिना प्रमृष्टाः॥ *Pāṭala* flowers may well be *Stereospermum suaveolens* (Roxb.) DC = *S. Chelonoides* (L.f.) DC.

<sup>33</sup> *Aṣṭāṅgahrdaya*, sū.3.45cd (Kumṭe et al. 1939: 48). Both Aruṇadatta and Hemādri take this as grape wine (*madhu* = *mārdvika*) and *ariṣṭa*. The slowing of digestive fire in this season is stated at the start of this section (3.42) (Kumṭe et al. 1939: 47).

its apparently distinctive colour, in a description of the dawn where the eastern sky: “has a delightful colour like aged *sīdhu*”.<sup>34</sup> The compound *purāṇasīdhu* here is the same as in Kālidāsa, and we should thus be open to the idea that this may be more of a textual echo than a reflection of contemporaneous drinking culture – something that applies to many of our references to drinks and drinking culture in early India, making writing this sort of history even more difficult.

From the above it seems quite possible that aged *sīdhu* was drunk at a certain season and had a notable colour. This colour would not have been from wooden barrels as there are no references to them in early India.<sup>35</sup> The colour might, though, have been there from the start because of the ingredients used, or it could come from storage vessels and seals, or from oxidation and heating (as one sees with Madeira). By way of comparison, modern aged sugar cane *basi* from the Philippines is more or less the colour of Madeira, partly from the herbs added, and possibly also from the aging process.

We also read that aged drink had a reputation for being potent, perhaps from having fermented longer. A satirical one-actor play called *The Lotus Gift* (*Padma-prābhṛtaka*), of uncertain date, probably from the first millennium CE, introduces an old man who has gone to great lengths to look young, with hair dyes, plucking out white hairs, and using cosmetics. This man defends the general charms of old things by referring to the proverbial intoxicating qualities of old wine: “Verily, old wine (*madhu*) is intoxicating!”<sup>36</sup>

Medical literature gives a technical explanation of the respective qualities of new/fresh and old/aged drinks. In the *Carakasamhitā* and *Suśrutasaṃhitā* there are references to aged intoxicating drinks.<sup>37</sup> In the *Suśrutasaṃhitā* we read the following:<sup>38</sup>

<sup>34</sup> *Bālarāmāyaṇa*, Act 7, stanza 1. (Bhaṭṭācāryya 1884: 398): पुराणसीधुमधुरच्छायं. Also given in the *Subhāṣitaratnaśoṣa* (Kosambi and Gokhale 1957: 174, verse 963).

<sup>35</sup> In his translation of the above line from the *Subhāṣitaratnaśoṣa* Ingalls (1965: 537, verse 963) suggests that the colour of the *sīdhu* is yellow from the following simile, and gives some observations on how white, unaged rum becomes yellow in the keg, all of which mistakenly assumes a similarity between rum aging and Indian *sīdhu* sugar-wine.

<sup>36</sup> “*Purāṇamadhū*”, my translation. *Padma-prābhṛtaka* (Ingalls 1965: 254–5). This could

refer to old honey, but I think that less likely, especially in the context of this bawdy play. Also old *madhu*-as-wine is attested later, see note 33.

<sup>37</sup> Ca.sū.27.193 (Ācārya 1941: 163) has *abhinava* versus *jīrṇa madya*.

<sup>38</sup> Su.sū.45.192bc–94ab (Ācārya 2013: 211): नवं मद्यमभिष्यन्दि गुरु वातादिकोपनम्॥ १९२ अनिष्टगन्धि विरसमहृद्यं च विदाहि च।

Commentary: नवत्वमजातरसप्रसादत्वेन, अन्ये तु अनतीतसंवत्सरं इत्याहुः।

सुगन्धि दीपनं हृद्यं रोचिष्णु कृमिनाशनम्॥ १९३

स्फुटस्रोतस्करं जीर्णं लघु वातकफापहम्।

Commentary: पुराणत्वं जातरसप्रसादनत्वेन गन्धादिसंपत्त्या; अतीतसंवत्सरं जीर्णम् इत्यन्ये वदन्ति।

New intoxicating drink (*navam madyam*) is laxative,<sup>39</sup> heavy, irritates wind and the rest, has an unpleasant smell, is flavourless, disagreeable, and burning.

*Commentary of Ḍalhaṇa:*

“Newness” because of flavour (*rasa*, also possibly the technical pharmacological term here) and clarity (*prasādatva*) not yet arising. Other people say “new is that which is less than a year old.”

The aged one (*jīrṇam*) is fragrant, stimulates digestion, agreeable, excites appetite, destroys worms, expands the channels, is light, and extinguishes wind and phlegm.

*Commentary of Ḍalhaṇa:*

“Oldness,” because flavour and clarity have arisen and it has developed fragrance and the other qualities. Other people say “old is that which is more than a year old.”

Aged drink, possibly aged at least a year according to Ḍalhaṇa (writing in the late twelfth century but perhaps reflecting an older tradition), was coloured, perfumed, and easier to digest.

All considered, we have specific references to several aged alcoholic drinks: sugar-cane wine, grape wine, and also *ariṣṭas*, medicinal-herbal wines. Thus in ancient and early medieval India, in addition to a large variety of alcoholic drinks, one could also choose between the newer and older versions of some of these drinks. As is demonstrated by modern yet traditional production of Filipino *basi* and Chinese *huangjiu* (“yellow wine” made primarily from rice and wheat) one can age non-distilled drinks quite well without pasteurization, sterilization, and distillation, though the presence of aged drinks may imply there were cellars of some sort where they could be stored for long periods. The aging of drinks implies a complex economy of alcohol in these periods and complex tastes among consumers.

#### 4 THE STATUS AND CONNOTATIONS OF *SĪDHU*

IN OUR OWN SOCIETY drinks such as champagne and lager are associated with quiet different manners of production, prices, histories, patterns of consumption, legal status, and socio-cultural connotations, both in practice and in representations, such as in films and literature. There were many drinks available in

---

<sup>39</sup> Or “oozing/trickling.”

ancient India and presumably these differed in many respects beyond their material base and pharmacological properties. What was the place of *sīdhu* in this world? Was *sīdhu* an elite drink or a “common” one? A rare, exotic drink? Was it archaic or obsolete by a certain period, as the word “hock” is today, and the drink Falernian wine is?

Let us now examine some representations of *sīdhu* as embedded in the drinking culture of ancient periods. Already we saw a reference to old *sīdhu* in Kālidāsa, so perhaps that drink was worth celebrating in poetry in that period as it was seen as especially desirable. Or maybe it was simply evocative of something else, such as a particular season? Or perhaps the metrical properties of “*sīdhu*” were useful? (Such are the difficulties that attend the study of alcohol history in ancient India.) Yet *sīdhu* is quite prominent earlier than Kālidāsa, in the epics, which are also most probably earlier than in the earliest medical texts, at least in the manner they discuss alcohol (the epics do not mention grapes and grape-wine, whereas early medical texts do and thus may represent, at least in their current form, a later alcohol culture).<sup>40</sup>

In the *Rāmāyaṇa* the *rākṣasas* have a taste for *sīdhu*. In the description of what Hanumān sees when he enters the abode of Rāvana, we hear of the amazing food and drink of the drinking place (*pānabhūmi*), including “...vessels made of gold, gems, and silver filled with *sīdhu*”.<sup>41</sup> A wind blew there too, diffusing beautiful smells, of cooling sandalwood and garlands, and also that “...of sweet-tasting *sīdhu*...”.<sup>42</sup> Later, in the great battle, when Hanumān burns down the citadel of Lankā the *rākṣasa* inhabitants are said to “have tremulous eyes from drinking *sīdhu*.”<sup>43</sup> Although *rākṣasas* are fierce and bloodthirsty, *rākṣasa* aesthetics in the *Rāmāyaṇa* are far from “common” or repulsive, so we should not read these references to *sīdhu* and other alcoholic drinks as indicating that the drink is deemed lowly. Rāvaṇa’s palace is hyper-lavish, more Trump Tower than dive-bar. Though, notably, *sīdhu* does appear to be limited to *rākṣasa* drinking in this text, whereas a drink such as *maireya* is found in other, human, luxurious contexts.<sup>44</sup> The full list of drinks in Rāvaṇa’s sensual drinking hall is most impressive—a fantastic, large array of drinks available to someone fabulously wealthy and mor-

<sup>40</sup> On grapes and wine in medical texts see McHugh (forthcoming b).

<sup>41</sup> *Rāmāyaṇa* 5.9.22 (Jhala 1966: 106):

सोऽपश्यच्छातकुम्भानि शीघोर्मणिमयानि च ।

राजतानि च पूर्णानि भाजनानि महाकपिः ॥

<sup>42</sup> *Rāmāyaṇa* 5.9.29b (Jhala 1966: 108):

शीघोर्मधुरसस्य.

<sup>43</sup> *Rāmāyaṇa* 6.62.8c (Vaidya 1971: 475):

सीधुपानचलाक्षाणां.

<sup>44</sup> E.g., when Rāma offers *maireya* to Sītā

just before he banishes her (*Rāmāyaṇa* 7.41.13 (Shah 1975: 282)). For more on *maireya* in the epics see McHugh (forthcoming a). Was “plain” *sīdhu*, perhaps made from sugar cane juice (uncooked or cooked), literally a less refined drink than something like the relatively complex *maireya* or a *śarkarā*-based drink—somewhat “commoner” or more rustic, almost like a sugar cane toddy-analog?



ally unrestrained in this early period. This luxurious drinking takes place in the security and privacy of Rāvaṇa's palace:<sup>45</sup>

Various divine clear *surās* (*prasannā*) and prepared *surās* (?*kṛta-surā*),<sup>46</sup>

Sugar (*śarkarā*-) *āsavas* and honey mead (*mādhvika*),<sup>47</sup> flower *āsavas* and fruit *āsavas*, each one sprinkled with various scented powders.

Rāvaṇa is able to drink and offer to others a large range of drinks: several types of *surā* and *āsava*. The list begins with types of *surā*, presumably here in the narrower sense of a grain-based drink, including "clear" *prasannā* (*surā*).<sup>48</sup> This line shows also how the class of *āsavas* was especially flexible, and by no means limited to medicinal contexts. Here there is one made from *śarkarā*, soft brown sugar, and ones made from flowers and fruit. *Sīdhu* itself is not mentioned in this list, but *śarkarā-āsava* was no doubt made with sugar cane (though of literally the *most refined* variety). At the very least this indicates the prestige of a refined-sugar based drink and that of drinks based on various sugars, including honey (though not, apparently, grapes at this period).<sup>49</sup>

In the *Mahābhārata*, *sīdhu* is associated with a foreign people of loose morals. In the *Karṇa Parvan*, during the great battle of the epic, the warrior Karṇa is berating another man, Śalya, and describes what he considers to be Śalya's degenerate people from a place called Madra where, amongst other things, people "drink *sīdhu* with beef and roar and laugh".<sup>50</sup> Later, Karṇa provides a description of another people, the Bāhlikas (Bactrians), who are likewise beyond the pale of morality/law (*dharmabāhyān*).<sup>51</sup> These people get drunk on *sīdhu*,<sup>52</sup> and also

45 *Rāmāyaṇa* 5.9.19 (Jhala 1966: 106):

दिव्याः प्रसन्ना विविधाः सुराः कृतसुरा अपि ।  
शर्करासवमाध्विकाः पुष्पासवफलासवाः ।  
वासचूर्णेश्च विविधैर्मृष्टास्तैस्तेः पृथक्पृथक् ॥

46 My translation of *kṛtasurā* is conjectural. It seems to be contrasted with the clear variety. There are quite a few variants noted here in the critical edition.

47 On the several rather confusing and quite similar words that appear to be related to "*madhu*" in Sanskrit see McHugh (forthcoming b). Tellingly, the critical edition of the *Rāmāyaṇa* here provides the readings of several commentators who understand *mādhvika* here as honey mead or grape wine (one suggesting a reading of *mārdvika*). Evidently this word has long been considered ambiguous. For the flower *āsava*, commentaries have a drink made of mahua

flowers (*madhūkapuṣpa*). Given the chronology here I am cautious of reading *mādhvika* as a reference to grape wine. There are many textual variations for the final lines here.

48 On the varieties of grain-based *surās*, including the type called *prasannā*, see McHugh (forthcoming a).

49 On the chronology of references to grapes and grape-wine in Sanskrit texts see McHugh (forthcoming b).

50 *Mahābhārata* 8.27.77cd (Sukthankar, Belvalkar, et al. 1933–59: vol. 8, 229): पीत्वा सीधुं सगोमांसं नर्दन्ति च हसन्ति च. The word *sīdhu* here is well attested in the critical edition.

51 *Mahābhārata* 8.30.11 (Sukthankar, Belvalkar, et al. 1933–59: vol. 8, 259).

52 *Mahābhārata* 8.30.33 (Sukthankar, Belvalkar, et al. 1933–59: vol. 8, 262).

*āsavas* made from grain and jaggery (*dhānāgaudāsave*) along with beef cooked with garlic.<sup>53</sup>

There is also a reference to *sīdhu* as a distinctive regional drink in the *dharmasūtra* of Baudhāyana, which probably dates from some time after the mid-second century BCE.<sup>54</sup> This text notes regional differences in conduct: actions that are acceptable in one region but not beyond. In the North (*uttara*), one of the accepted customs is drinking *sīdhu*.<sup>55</sup>

*Sīdhu* in two of these texts explicitly evokes regional practices associated with certain peoples, the sorts of conventional knowledge of regional commodities seen elsewhere with any number of substances.<sup>56</sup> Even in the *Rāmāyaṇa*, *sīdhu* is mentioned in association with a peripheral region, *Laṅkā* and the community of *rākṣasas*. Although *sīdhu* seems relatively prestigious in the *Rāmāyaṇa* (despite being associated with *rākṣasas*), and has more explicitly dubious associations in the *Māhābhārata*, in all three of the texts above *sīdhu* is what *the other* drinks: it is the drink of choice for people/creatures who are unlike us, socially, morally, and who live elsewhere. This may point to the fact that *sīdhu* was indeed associated with a particular group (or groups) that were culturally, morally, or geographically distinct, at least as defined in the eyes of those who produced the texts above. Maybe these were certain people of the North, and their habits were transferred to the imagined *rākṣasas*, or maybe there were several areas, North and South, where sugar cane liquor was a prominent local drink. Given the meagre textual evidence, it is difficult to move beyond such broad questions and vague hypotheses.

## 5 LATER SĪDHU AND RELATED DRINKS

WHAT OF SĪDHU AND RELATED DRINKS IN LATER SOURCES? In the chapter on drinking in the *Delight of the Mind* of Someśvara III (*Mānasollāsa*, twelfth

<sup>53</sup> *Mahābhārata* 8.30.15 (Sukthankar, Belvalkar, et al. 1933–59: vol. 8, 259). *Dhānā* also has the narrower sense of fried barley. See also a reference to drinking *gaudam mahāsavam* at *Mahābhārata* 8.30.30. The only other attestation of *sīdhu*/*śīdhu* in the critical edition (based on a search of the electronic text (Tokunaga and Smith 1999)) is in the *Mausala Parvan* when the Kṛṣṇa's clansmen, attached to *sīdhu* (drinks) (*sīdhuṣu sak-tāḥ*) leave the town, prior to the drunken mutual slaughter (*Mahābhārata* 16.4.8 (Sukthankar, Belvalkar, et al. 1933–59: vol. 19, *Mausala*. 12)). Though these are respectable figures, the drinking here becomes the proverbial example of a drunken disaster in

many later textual traditions. On this episode see McHugh (forthcoming a), chapter on mythology and narratives. Again this episode of *sīdhu*-drinking in the *Mahābhārata* is a form of “bad-drinking.” In the *Mahābhārata* the people of the north-west are not yet associated with grape wine, as grapes and wine are not mentioned in either epic (see McHugh forthcoming b).

<sup>54</sup> Olivelle 2000: Intro. p. 10.

<sup>55</sup> *Baudhāyana Dharmasūtra* 1.2.4 (Olivelle 2000: 198–99). Olivelle notes in his critical edition that some MSS have *śīdhu*-, and one has *madhu*-.

<sup>56</sup> As, for example, with sandalwood in the South, musk in the North.



century), the very first drink described is made from sugar cane—from the juice, jaggery, and soft brown sugar. Here the drink is called *madhu*, a word which elsewhere typically means “grape wine” in a liquor context, though it can also mean honey mead.<sup>57</sup> Perhaps this was a regional usage of the word, and maybe a study of Kannada liquor vocabulary would be of use here. The *dhātakī* flowers used here (*Woodfordia fruticosa* (L.) Kurz), are dried, red, somewhat tannic flowers used in many recipes for liquors, as they are today in Āyurvedic fermented medicines. They are an essential additive in many of the alcoholic drinks in the *Delight of the Mind*. Arguably these flowers are as closely associated with fermenting in India as hops and beer in Europe.<sup>58</sup> How were these flowers used? When I observed fermented medicinal drinks being made in Kerala today, a large quantity of the dried flowers was placed on top of the sugar-liquid prior to a jar being sealed<sup>59</sup> This layer of *dhātakī* flowers sinks down through the liquid over the course of fermentation, and my informants told me that it was “like the yeast,” though of course the flowers no doubt contribute a lot of things to these processes—both factors we might consider useful in our modern understanding of fermentation, and other things that might be of no use whatsoever from a scientific understanding, yet which were traditionally considered important.<sup>60</sup> Below is the recipe for a sugar cane based *madhu* from the *Delight of the Mind*:<sup>61</sup>

*Madhu* is produced from jaggery and sugar cane juice transformed/fermented (*vikṛtiṃ gatam*) for a time, sprinkled with *dhātakī* flowers and mixed with soft brown sugar (*khaṇḍa*).

Warmed/heated for a long time with heat it transforms (ferments?) (*vikṛtiṃ gatam*), has a clear colour by means of herbs and has intense pungent and bitter flavours.

Given the later date one might be tempted to see this as an early reference to alcoholic distillation, which is first mentioned in a medical text from around 1200 CE

<sup>57</sup> For *madhu* as grape wine see *Arthaśāstra* 2.15.16 (Kangle 1960: 1, 63; 2, 123).

<sup>58</sup> They were used in this manner from early periods. In the *Carakasaṃhitā* one *āsava* is made, fermented with *dhātakī*: धातक्याऽभिषुतो Ca.sū.27.188ab (Ācārya 2013: 163).

<sup>59</sup> See p. 52 below for my thanks to many people who helped with these observations.

<sup>60</sup> There is considerable scientific literature on this herb that I cannot consider here.

<sup>61</sup> *Mānasollāsa* Viṃśati 5, adhyāya 10, verses 429–30 (Shrigondekar 1925–61: 3,

215):

गुडेश्वरससम्भूतां(-तं) कालेन विकृतिं गताम् (-तम्) ।  
धातकीपुष्पसंसिक्ताका-(-क्तं ख-)-ण्डसम्मिश्रितं  
मधु ॥ ४२९

उ-(ऊ-)-ष्मणा सुचिरं कालमुषितं विकृतिं गतम् ।  
औषधेन समच्छायं कटुतिक्तसोत्कटम् ॥ ४३०

The editor suggests several emendations and I have included these in parentheses as they are quite extensive, as also for the passage below. The sense of the following line, verse 431ab eludes me, possibly a reference to *mādhvī* liquor.

and may, of course, have been practised somewhat earlier in South Asia.<sup>62</sup> However heating “for a long time” (*suciraṃ kālam*) may suggest otherwise—alcoholic distillation is not a terribly lengthy business. Also this text is elsewhere very clear about technical matters. The drink above is made in a way that is identical to modern Āyurvedic *āsavas* and would have been quite similar to those, only without the herbs, thus a dark-brown, sweet/sour alcoholic drink with a rich flavour. As noted, the second line about heating it for a long time is less clear. Is this a second fermentation or transformation, or an alternative method?

To confuse matters somewhat, the *Mānasollāsa* describes another drink, explicitly called *sīdhu*, as follows:<sup>63</sup>

Slightly heated purified sugar cane (*rasāla*-)<sup>64</sup> *āsava* in a jar heated for three nights is the intoxicating drink called *sīdhu* which produces drunkenness.

Presumably the *āsava* had previously been prepared by fermentation—*āsava* is a word that can have a very broad application to almost any liquor starting with a sugar base (though it also has a narrow sense in some āyurvedic sources of a fermented medicine in which the herbs are added cold).<sup>65</sup> As with the first drink, this *sīdhu* requires heating, but here the starting point is a sugar cane *āsava* that is heated in a pot for three nights, which must have changed the flavour somewhat. Again, were distillation involved here I believe that would be indicated clearly—the physical method of harvesting palm sap to make toddy is very clearly described in the same text, and I am convinced distillation would be described with similar clarity. As with the first recipe, perhaps this heating is to transform the colour and flavour, and maybe also this effectively pasteurized the drink for storage. Certainly *sīdhu* here is no simple sugar cane juice wine, though this could be due to regional factors just as much as changes over time. Or perhaps this in fact gives us a sense of how “plain” *sīdhu* was made even at early periods? Despite the many difficulties with these two recipes, it is clear that in twelfth century South India people still knew about sugar cane-based liquors, one of which was called *sīdhu*, and which were not, apparently, distilled.

<sup>62</sup> The earliest explicit description of alcoholic distillation is apparently in the *Gadanigraha*, dating from around 1200 CE (HIML: IIA, 218–19).

<sup>63</sup> I again reproduce the editor’s suggested considerable emendations in parentheses. *Mānasollāsa* Vim. 5, adhyāya 10, verses 446cd–447ab (Shrigondekar 1925–61: 3, 217):

ईषदुष्णीकृतं शुद्धं रसालस्य(-स्या-) च (-स-) स(-व-)  
द्वटे ॥ ४४६ ॥

त्रिरात्रु(-त्रमु)-षितं मद्यं सि(-सी-)-धु नास(-म)  
व(-म-)-दावय(-ह-)-म्।

<sup>64</sup> *Rasāla* can also mean “mango tree” and “grape/wine” but given that this drink is *sīdhu* I have opted to translate it as sugar cane.

<sup>65</sup> On *āsavas*, see McHugh (forthcoming a).

## 6 CONCLUSIONS

ALTHOUGH SOME OF THE DETAILS CAN BE CONFUSING, some basic facts seem clear about the drink called *sīdhu*: people in ancient and early medieval South Asia grew sugar cane, processed it in complex ways, and from quite an early period, probably several centuries BCE, they also made several types of fermented alcoholic drinks from sugar cane. The most important name for one such drink, in which sugar cane (possibly even sugar cane juice) was conceptually the predominant ingredient, was *sīdhu* (or *śīdhu*). Unlike for some other drinks, we have no ancient recipes for this drink—perhaps the simplest form was made from the juice with a herb such as *dhātakī*. From an early period, this drink was an important element in a complex drink culture that must have varied regionally and over time. In the earliest period discussed above, that of the epics, *sīdhu* may have been associated with people living in certain regions that were considered to be peripheral. If “plain” *sīdhu* was made from sugar cane juice alone, it would have been limited to areas where sugar cane was grown and may have been deemed a simple, local drink, like palm toddy today, as opposed to the drinks made from refined sugars. By the first millennium CE we read of aged *sīdhu* which had a distinctive colour. Our evidence for ancient *sīdhu* is, however, quite sparse, so many of my suggestions here are somewhat conjectural.

Nowadays sugar, especially molasses, is a very common base for making alcohol, and refined sugar is a common, sometimes even reviled, substance in most parts of the world. Thus one might overlook how distinctive these South Asian drinks are, especially in very early periods when they were not a major category of drink elsewhere in the world. For example, prior to the turn of the Common Era, Europe did not have sugar cane-based alcoholic drinks, nor did the Middle East, nor, most probably, did China at early periods (though people in Southeast Asia did make sugar cane liquors quite early).<sup>66</sup> As I have discussed elsewhere, Assyriologist Jean Bottéro wrote an article entitled “Wine in a Beer Civilization” about the status of grape wine—imported and somewhat “secondary”—in beer-dominated Mesopotamia.<sup>67</sup> By contrast, for South Asia by the turn of the Common Era we might write instead of “imported grape wine in a beer (grain-*surā*)

<sup>66</sup> Daniels states that a text from Dunhuang dated provisionally from the ninth or tenth century CE contains the first extant reference to making sugar cane wine in China (1996: 375). Of course sugar cane wine may have been made at an earlier period in China (Daniels 1996: 58–9), though it is not a prominent alcoholic drink in early Chinese texts. Sugar cane itself was consumed in China from early periods, with the earliest reference to sugar cane in Chinese litera-

ture dating from 241 BCE, and pharmacopoeias mention various sugar cane sugars from the sixth century CE (Daniels 1996: 58, 88). According to Daniels, sugar cane wine appeared quite early in peninsular and insular Southeast Asia, with one Chinese reference to it being produced on the Malay peninsula dating from between 581–618 CE (Daniels 1996: 88).

<sup>67</sup> Bottéro 1995. As discussed also in McHugh (forthcoming b).

and sugar cane-wine civilization.” Although the exact dates of many of our early texts are much debated, nevertheless we can say that people in South Asia, probably several centuries BCE, were making many alcoholic drinks from a variety of sugar cane products, as well as from the several varieties of sugar cane plants we read of in early texts.<sup>68</sup> Such sugar cane drinks are present, even quite prominent, in early texts such as the *Rāmāyaṇa* and some early Buddhist sources.<sup>69</sup> Thus, as with the distinctive agave sugars and related drinks of Mesoamerica, the sugar cane liquors of South Asia are a highly distinctive feature of South Asian regional alcohol culture in the *longue durée*. This is a truly striking fact in the world history of drugs and alcohol that is easily eclipsed by the spread of sugar cane to other world regions and by our modern familiarity with sugar.

Where is *sīdhu* today? As with cereal-based *surā* drinks that have nowadays also mostly vanished,<sup>70</sup> it is possible the rise of distillation may well have effaced most of these sugar cane wines (medicinal, herbal *āsavas* and *ariṣṭas* excepted), because a clear, distilled “country liquor” is more or less the same regardless of its original ingredients and this has probably been the case for many centuries. Of course, sugar cane is still used in making many modern Indian drinks, not just rum, but also other flavoured Indian Manufactured Foreign Liquors (IMFL), as well as “country liquor” (Indian Manufactured Indian Liquor, IMIL). But nowadays the *basi* of the Philippines, which is not distilled, is perhaps the surviving drink most similar to the fragrant, coloured “old *sīdhus*” celebrated by the poets of India.<sup>71</sup> *Basi* has the aroma of rum and sugar cane juice, and tastes like a light, watery *amontillado*, very dry and a little tannic, so we can only imagine the pleasures of the long vanished varieties of sugar cane wines, and especially the aged *sīdhus* of ancient India.

## ACKNOWLEDGEMENTS

For contemporary theory and manufacture of these drinks I am extremely grateful to the following people in India who have taken the time to show me the world of *Āyurvedic* fermentation today (in the order I met them in autumn 2014): Dr Shahjahan of the Dravyaguṇa Department of the Government Ayurveda College, Trivandrum; Mr Balakrishnan Unni and Mr Shashi Unni of Vasudeva Vilasa Ayurveda in Trivandrum; Dr Sivakaran Namboothiri at Sreedhary Ayurvedic Center in Kerala; at Sitaram Ayurveda Kerala I met Dr Sankaranarayanan, Dr R.

<sup>68</sup> For example the twelve varieties given at Su.sū.45.149–150 (Ācārya 2013: 208).

<sup>69</sup> As with *maireya/meraya*. On this see McHugh (submitted).

<sup>70</sup> Some *surā*-like drinks are still made in villages and Adivasi communities, such as

the rice-based *handia* of Odisha.

<sup>71</sup> I am not, of course, suggesting any connection between these two drinks, but rather that *basi* can give us a sense of the sensory properties of an aged, sugar cane wine.

Vighnesh Devraj, Dr V M Wilson, and Dr V. Neelakandan; and I met with Dr G. Krishnadas at Vaidyaratna. In Spring 2017 I was shown around Dhanvantari Aushadhalaya in Jaipur by Dr Vimlesh Sharma and Mr Vishvabandhu.

I wish to thank the two anonymous reviewers for their constructive comments on this article. I read an early version of this at the World Sanskrit Conference in Vancouver in July 2018 and thank the audience members who provided comments at that time. I also thank Dominik Wujastyk for all his help making this paper into a publication. Mathew Wrenshall and Damian McHugh kindly helped with reading drafts of this paper.

Research for this article was funded in part by fellowships from the National Endowment for the Humanities and from the American Council of Learned Societies.

### ABBREVIATIONS

- CDIAL Turner, R. L. (1966), *A Comparative Dictionary of the Indo-aryan Languages* (London, New York: Oxford University Press).
- EWA Mayrhofer, M. (1986), *Etymologisches Wörterbuch des Altindiarischen* (Indogermanische Bibliothek. II. Reihe, Wörterbücher; Heidelberg: CWinter), ISBN: 978-3-533-03826-9.
- HIML Meulenbeld, G. J. (1999–2002), *A History of Indian Medical Literature* (Groningen Oriental Studies, 15; Groningen: E. Forsten), ISBN: 978-90-6980-124-7.
- KEWA Mayrhofer, M. (1956), *Kurzgefasstes etymologisches Wörterbuch des Altindischen = A concise etymological Sanskrit dictionary* (Indogermanische Bibliothek. II. Reihe, Wörterbücher; Heidelberg: Winter), ISBN: 978-3-533-02466-8.

### REFERENCES

- Ācārya, Y. T. (1941) (ed.), *Maharṣiṇā Punarvasunopadiṣṭā, Tacchiṣyenāgniveśena Praṇītā, Carakadṛḍhabalābhyāṃ Pratisaṃskṛtā Carakasaṃhitā, Śrīcakrapāṇīdattaviracitayā Āyurvedadīpikāvyākhyayā Saṃvalitā = The Charakasaṃhitā by Agniveśa Revised by Charaka and Dṛidhabala with the Āyurveda-Dīpikā Commentary of Chakrapāṇīdatta* (3rd edn., Mumbayyāṃ: Nirnaya Sagara Press), <http://n2t.net/ark:/13960/t48q2f20n>, (on 1 Jan. 2018).
- Ācārya, Y. T. (2013) (ed.), *Maharṣiṇā Suśrutena viracitā Suśrutasaṃhitā. Śrī Ḍalhanācāryaviracitayā Nibandasaṃgrahākhyavyākhyayā Nidānasthānasya Śrī Gayadāsācāryaviracitayā Nyāyacandrikākhyapañjikāvyākhyayā ca samullasitā = Suśrutasaṃhitā of Suśruta: with the Nibandhasaṃgraha Commentary of Śrī Ḍal-*

- haṇācārya and the Nyāyacandrikā Pañjikā of Śrī Gayadāsācārya on Nidānasthāna* (Varanasi: Chaukhamba Sanskrit Sansthan); reprint of the 1938 edition with different pagination.
- Bhatt, G. H., Shah, U. P., et al. (1960–75) (eds.), *The Vālmiki-Rāmāyaṇa*, 7 vols. (Baroda: Oriental Institute).
- Bhaṭṭācāryya, J. V. (1884) (ed.), *Bālarāmāyaṇam nāma nāṭakam. Mahākavi ŚrīRājaśekhara viracitam = Balaramayana, A Drama by Rajasekhara Edited with a Commentary by Pandit Jibananda Vidyasagara* (Calcutta: The editor, at the New Valmiki Press), <http://n2t.net/ark:/13960/t6j18k76v>, (on 10 May 2020).
- Bottéro, J. (1995), ‘Le vin dans une civilisation de la bière: la Mesopotamie’, in O. Murray and M. Tecuşan (eds.), *In Vino Veritas* (London: British School at Rome in association with American Academy at Rome ... [et al.], 21–34, ISBN: 978-0-904152-27-2).
- Charpentier, J. (1922) (ed.), *The Uttarādhyayanāsūtra, being the First Mūlasūtra of the Śvetāmbara Jains. Edited, with an Introduction, Critical Notes and a Commentary* (Uppsala: Appelbergs Boktryckeri Aktiebolag), <http://n2t.net/ark:/13960/t6xw4q704>, (on 10 May 2020).
- Daniels, C. (1996), *Agro-Industries: Sugarcane Technology* (Cambridge: Cambridge University Press), in Needham, J. (ed.), *Science and Civilisation in China. Vol. 6 Pt. 3. Agro-Industries: Sugarcane Technology. Agro-Industries and Forestry* (Cambridge: Cambridge University Press, 1996), ISBN: 978-0-521-41999-4.
- Dezső, C. and Vasudeva, S. (2009), *The Quartet of Causeries* (New York, NY: New York University Press & JJC Foundation), ISBN: 978-0-8147-1978-7.
- Gopal, L. (1964), ‘Sugar-making in Ancient India’, *Journal of the Economic and Social History of the Orient*, 7/1–3: 57–72, ISSN: 0022-4995. DOI: 10.1163/156852064X00030.
- Hinüber, O. v. (1971), ‘Zur Technologie der Zuckerherstellung im alten Indien’, *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, 121/1: 93–109, ISSN: 0341-0137, <https://www.jstor.org/stable/43370328>, (on 7 May 2020).
- Ingalls, D. H. H. (1965) (ed.), *An Anthology of Sanskrit Court Poetry; Vidyākara’s “Subhāṣitaratnaśoṣa”* (Harvard Oriental Series, 44; Cambridge: Harvard University Press), ISBN: 978-0-674-03950-6, <http://n2t.net/ark:/13960/t3qw22q8z>, (on 7 May 2020).
- Jhala, G. C. (1966) (ed.), *The Sundarakāṇḍa. The Fifth Book of the Vālmiki Rāmāyaṇa, the National Epic of India*, [vol. v of *The Vālmiki-Rāmāyaṇa* ed. Bhatt et al.] (Baroda: Oriental Institute), <http://n2t.net/ark:/13960/t79s8x103>, (on 10 May 2020).



- Kangle, R. P. (1960), *The Kauṭīlīya Arthaśāstra Part I. A Critical Edition with a Glossary* (University of Bombay. Studies. Sanskrit, Prakrit and Pali, 1; Bombay: University of Bombay), <http://n2t.net/ark:/13960/t7vm9p82x>, (on 7 May 2020).
- Kosambi, D. D. and Gokhale, V. V. (1957) (eds.), *The Subhāṣitaratnaḥa* (Cambridge, Mass.: Harvard University Press).
- Kuṁṭe, A. M., Navare, K., and Parādkar, H. (1939) (eds.), *ŚrīmadVāgbhaṭaviracitam Aṣṭāṅgahrdayam, śrīmadAruṇadattaviracitayā 'Sarvāṅgasundaryākyā' vyākhyayā Hemādriprāṇitayā 'Āyurvedarasāyanāhvayā' ṭikayā ca samullasitam = the Astāṅgahrdaya. a Compendium of the Ayurvedic System Composed by Vāgbhaṭa with the Commentaries (Sarvāṅgasundarā) of Arunadatta and (Āyurvedarasāyana) of Hemādri* (6th edn., Bombay: Nirnaya Sagara Press), <http://n2t.net/ark:13960/t3tt6967d>, (on 4 June 2017).
- McHugh, J. (forthcoming a), *An Unholy Brew: Alcohol in Indian History and Religions* (New York: Oxford University Press).
- (forthcoming b), 'Grape Wine in Ancient and Early Medieval India – the View from the Center', *Indian Economic and Social History Review*.
- (submitted), 'Theorizing Alcoholic Drinks in Ancient India: the Complex Case of Maireya', *The Social History of Alcohol and Drugs*.
- (forthcoming c), 'Too Big to Fail: the Idea of Ancient Indian Distillation', in D. N. Jha (ed.), *Alcohol in India*.
- Meulenbeld, G. J. (1974), *The Mādhavanidāna and Its Chief Commentary, Chapters 1–10: Introduction, Translation and Notes* (Leiden: Brill).
- Mintz, S. W. (1986), *Sweetness and Power: The Place of Sugar in Modern History* (New York: Penguin Books), ISBN: 978-0-14-009233-2.
- Murray, O. and Tecusan, M. (1995) (eds.), *In Vino Veritas* (London: British School at Rome in association with American Academy at Rome ... [et al.], ISBN: 978-0-904152-27-2).
- Needham, J. (1996) (ed.), *Science and Civilisation in China. Vol. 6 Pt. 3. Agro-Industries: Sugarcane Technology. Agro-Industries and Forestry* (Cambridge: Cambridge University Press), ISBN: 978-0-521-41999-4.
- Olivelle, P. (2000), *Dharmasūtras: The Law Codes of Āpastamba, Gautama, Baudhāyana, and Vasiṣṭha. Annotated Text and Translation* (Delhi: Motilal Banarsidass Publishers), ISBN: 8120817397.
- (2013), *King, Governance, and Law in Ancient India: Kautilya's Arthashastra* (New York, NY: Oxford University Press), ISBN: 978-0-19-064412-3.

- Pandit, S. P. (1874) (ed.), *The Raghuvamśa of Kālidāsa: With the Commentary of Mallinātha Part III, Cantos XIV–XIX* (Bombay: Indu-Prakash Press), <http://n2t.net/ark:/13960/t3vt20n6t>, (on 10 May 2020).
- Ray, J. C. (1918), ‘Sugar Industry in Ancient India’, *Journal of the Bihar Research Society*, 4/4: 435–54, <http://n2t.net/ark:/13960/t1zd1sn3r>, (on 12 May 2020).
- Shah, U. P. (1975) (ed.), *The Uttarakāṇḍa. The Seventh Book of the Vālmīki Rāmāyaṇa, the National Epic of India*, [vol. vii of *The Vālmīki-Rāmāyaṇa* ed. Bhatt et al.] (Baroda: Oriental Institute), <http://n2t.net/ark:/13960/t5n94d807>, (on 10 May 2020).
- Shrigondekar, G. K. (1925–61) (ed.), *Mānasollāsa or Abhilaṣitārthacintāmaṇi* (Gaekwad’s Oriental Series, 28, 84, 138; Baroda: Oriental Institute); vol. 3 at <http://n2t.net/ark:/13960/t0dv4zh2x>.
- Southworth, F. C. (2005), *Linguistic Archaeology of South Asia* (London: RoutledgeCurzon), ISBN: 978-0-203-41291-6, <http://pi.lib.uchicago.edu/1001/cat/bib/11299166>, (on 10 Jan. 2020).
- Srikantha Murthy, K. R. (1984), *Śārṅgadhara-saṃhitā (a Treatise on Āyurveda) by Śārṅgadhara, Translated into English* (Varanasi, Delhi: Chaukhambha Orientalia).
- Steinkraus, K. H. (1996), *Handbook of Indigenous Fermented Foods* (Food Science and Technology, 73; 2nd edn., New York: Marcel Dekker), ISBN: 978-0-8247-9352-4.
- Sukthankar, S. V., Belvalkar, S. K., et al. (1933–59) (eds.), *The Mahābhārata, for the First Time Critically Edited*, 19 vols. (Poona: Bhandarkar Oriental Research Institute).
- Tokunaga, M. and Smith, J. (1999) (eds.), ‘The Electronic Text of the Critical Edition of the Mahābhārata’, <http://bombay.indology.info/mahabharata/statement.html>, (on 3 Dec. 2019).
- Vaidya, P. L. (1971) (ed.), *The Yuddhakāṇḍa. The Sixth Book of the Vālmīki Rāmāyaṇa, the National Epic of India*, [vol. vi of *The Vālmīki-Rāmāyaṇa* ed. Bhatt et al.] (Baroda: Oriental Institute), <http://n2t.net/ark:/13960/t2s53t70d>, (on 10 May 2020).
- Watt, G. (1893), *A Dictionary of the Economic Products of India* 6,2, 6,2, (Calcutta: Government Printing, India).
- Williams, R. (1963), *Jaina Yoga; a Survey of the Mediaeval Śrāvakācāras* (London Oriental Series, 14; London, New York: Oxford University Press), <http://n2t.net/ark:/13960/t25b80s34>, (on 12 May 2020).



---

Please write to [wujastyk@ualberta.ca](mailto:wujastyk@ualberta.ca) to file bugs/problem reports, feature requests and to get involved.

The History of Science in South Asia • Department of History and Classics, 2-81 HM Tory Building, University of Alberta, Edmonton, AB, T6G 2H4, Canada.