

Beer brewing in the Bhutanese style

Christian Berger

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Bhutan, a kingdom as big as Switzerland, born on the foothills of the Himalayas between two giants, India and China, harbours many treasures, some of them hidden, others for all to see.

Among the latter: the Three Jewels of Buddhism¹, the Gross National Happiness, and an unusual way of brewing the traditional Bhutanese beer called *chang*. The combination of religion, economics and a fermented drink may seem incongruous, even disconcerting. So let us take a closer look.



Map 1: Bhutan in Asia

When China invaded Tibet in 1959, Bhutan became with India the land of welcome for Mahayana Buddhism in its Tibetan version. Since the ninth century, Tibet and Bhutan have shared a common political and religious history, both complementary and conflictual². Buddhism is the official Bhutanese religion.

Gross National Happiness (G.N.H.) is a concept created in Bhutan to define national indicators on the following four axis: 1) Sustainable/fair development 2) Environmental protection 3) Promotion of culture 4) Good governance³.



Fig. 1: Left: chortens (stupas) at Dochula. Centre: schoolgirls and boys. Right: Bhutanese *phab* (beer-ferment cakes) dried above a fireplace

¹ These Three Jewels (Skr. *Triratna*) are the Buddha, the Dharma and the Sangha. Respectively, they are the fact that a human being such as Siddhārtha Gautama became enlightened (Buddha), the Buddha's Teachings (Dharma) that give a Middle Path to ensure one's liberation from the torments of samsāra, and lastly the human community of monks and nuns (Sangha) which gathered and organised around these teachings.

² Karma Phuntsho (2013), *The History of Bhutan*; Michael Aris (2005), *The Raven Crown: The Origins of Buddhist Monarchy in Bhutan*; Michael Aris (1979), *Bhutan: The Early History of a Himalayan Kingdom*; en.wikipedia.org/wiki/History_of_Bhutan

³ The GNH (Gross National Happiness Index) rethinks the GDP (Gross National Product), which only measures the production/consumption of material objects, reduces the economy to the monetary value of goods, and precludes human development and well-being.

The Bhutanese produce their beer in rural villages in the heart of small fields of cereals and rice, and drink it in their homes. They have been doing so for centuries. In Bhutan where brewing is kept in women's hands, Bhutanese people have developed skills inherited from their ancestors and neighbours in the Himalayas. The only requisites for brewing beer are specific plants to produce the ferments, besides cereals, water, wood for heating and containers. In addition, an expertise transmitted from mother to daughter is needed to master the delicate making of the beer ferments indispensable for the brewing of the domestic beer of Bhutan known as *chang*⁴.

The technique involved in the making of beer ferments (or beer starter) is a real technological treasure. The Bhutanese woman brewer (better named a brewster) does not use yeast, industrial malt, hops, food additives nor chemicals - only plants from her mountain and forest environment (flowers, leaves, bark and dried roots) and grown cereals (barley, wheat, buckwheat, finger millet, rice and maize). The whole secret lies in the composition and making of the ferments described below. A treasure related to a biotechnology using the vegetal resources of the country. Cultivating microscopic fungi with amazing powers implies a more complex know-how than can be imagined.

Chang beer is also a cultural treasure in Bhutan. Beer plays a social role in all countries of the world. Friendship and anniversary parties are celebrated around a glass of beer, thus releasing tensions. Industrial beer does the trick in many countries, whereas in Bhutan domestic beer brewed in farms or in large rural residences cannot travel or be bottled.

It is a result of local production by and for a family or for a meeting with a few dozen people, brewed with local cereals and fermented with wild plants (ferments). Its taste and aromas change according to the season, the cereals available, the weather and the expertise of the brewers. This is the opposite of a bottled, standardized industrial beer, dedicated to trade and mass production. *Chang* is a treasure at risk because its future rests on that of the village communities. Their extended family structure and their mode of agricultural production are suffering



Fig. 2: *phab* (beer-ferment dried cakes)



Fig. 3: family meal and *chang*-beer being drunk by adults



Fig. 4: a communal feast with *ara* (distilled *chang*) drinking

⁴ *Chang* is a cousin of the Tibetan word *chhang*, the name of the Tibetan barley beer. Only barley can grow above 4000m in Tibet. In Bhutan, the diversity of cereals and other sources of starch (yam, taro) is large. The Bhutanese *chang* is a diversiform beer, like the microscopic mushrooms that make up the beer ferments (beer starter).

under the blows of globalisation and the forced modernisation of this small country⁵.

Ultimately, *chang* is a religious treasure. Fermented drinks are alien to the Buddhist practice of lamas, monks and nuns. However, Tantric Buddhism accepts offerings of alcohol from the laity (see Drukpa Kunley's worship at the monastery of [Chimi Lhakhang](#)). The [Bön](#) rites, domestic offerings and collective festivals also have a key role in relation to *chang* beer and *ara* distilled alcohol.



Fig. 5: religious offering of *chang*-beer

Replacement on the domestic altar of the cup of beer brewed at home by a bottle of industrial beer or alcohol purchased in a store threatens the deep meaning of the religious offering. Buddhist devotion implies that an offering should come from one's own effort and work, being the result from a personal project as opposed to a factory-made product bought in a commercial store. An even more radical transformation takes place on a religious altar when a beverage made with the natural fruits of the earth is replaced by sodas made with chemicals. As a result of this kind of rapid cultural evolution, it is the gestures and devotional objects associated with the Buddhist rituals which first lose their primitive religious significance for those who practice them, for example if the *chang* or the *ara* are superseded by industrial spirits. Soon afterwards, the words and prayers themselves are slowly emptied of their original meaning for those who recite them.



Fig. 6: religious offering of soda & bottled industrial beer instead of traditional Bhutanese *chang*-beer

These are three main reasons, among others, for preserving the "Bhutanese-style of beer brewing", a unique tradition and expertise going far beyond folklore or touristic oddity.

⁵ Since 2010, the industrial beers "made in Bhutan" are described as authentic Bhutanese beers, whereas the traditional *chang* beer is a curiosity of the past, a kind of folk-lore. The foreigner recognized as specialists of Bhutan are not doing themselves better when they ignore or despise this traditional Bhutanese beer. The traditional *chang* beer and the *ara* alcohol (distilled *chang*) are banned for sale since 1983. However, Bhutan imports massively industrial beers and spirits from around the world, mainly from India, instead of favour their homemade beverages and craft beers.



Map 2: the traditional *chang*-beers and their starchy sources, according to the ecological areas in Bhutan

1 The techniques of Bhutanese-style brewing

Bhutanese brewing is part of the great Asian tradition of amylolytic ferments⁶. This method of brewing beer has been practiced for two or three millennia over a wide area covering China, Japan, South-East Asia, Central Asia, northern India, and of course the Himalayan arc (Tibet, Arunachala Pradesh, Bhutan, Sikkim, Nepal, Ladakh). Refer to [§ 6 Brewing methods in the Himalayan regions](#).

This method of brewing follows the path that Beer-Studies has named « [Path n° 3, amylolytic fungi cultivation](#) ». We use the term "ferment" rather than "yeast" when referring to this technique, as the latter does not account for the complex composition of mushrooms grown with the ferments which are not limited to yeasts. Some fungi metabolism can also trigger an alcoholic fermentation⁷.

The principle is basic. Plants host filamentous fungi which grow on flowers, fruits, leaves, roots or barks, at certain seasons of the year. Among them are yeasts, and also fungi especially those able to hydrolyse starch from cereals, in other words able to convert the raw starch into fermentable sugars. In the plant world, these fungi help plants to feed in symbiosis with them, by hydrolysing, for example, the macromolecules of carbohydrates. The presence in the wild of these mushrooms is a blessing for the Bhutanese brewsters (female brewers). Besides, they know the secret of these mushrooms. They know how to cultivate them on a substrate of cooked and wet grains formed into lumps, mixed with plants carrying microscopic fungi and other ingredients. In Bhutan, there is no point in germinating barley or wheat to make malt and to brew beer. These remarkable mushrooms themselves transform starch



Fig. 7: another kind of beer-ferment (murcha) from Nepal

⁶ An amylolytic ferment converts cooked starch into fermentable sugars by the action of enzymes called amylases. They cut the starch macromolecules, long branched chains of several hundred or even thousands of [glucosides](#), into single sugars (glucose) which yeasts can assimilate and transform into ethanol and CO₂.

⁷ In 1977, John Ardussi had already made this pertinent remark about the nature of the Tibetan beer ferments, cousins of Bhutanese ferments, and understood the link between Tibetan-Bhutanese and Japanese brewing methods (sake brewing): « *Tibetan beer starter, like that for sake, contains not only yeast but also mold spores (Aspergillus oryzae), chemically essential for fermentation. This fact was confirmed by clinical analysis performed for me on a sample of phabs (graciously supplied by Dr. Melvyn Goldstein), by Dr. Howard Douglas of the University of Washington School of Medicine. The usual translations of phabs and chang-rtsi as 'yeast' must therefore be rejected. Phabs is stirred into the cooled barley, which is then kept warm for several days while it ferments as a kind of damp mash (glum). It is then infused with water (bsings) in a large pot, where it absorbs the alcohol, thereby becoming 'strengthened into beer' (chang du ngar).* » (Ardussi, 1977 note 23 p. 119, underlined by myself).

into sugars thanks to the powerful enzymes (amylases, amyl glucosidases) produced by their metabolism. While the European brewer has to trigger barley to germinate in order for the grain embryo to convert the starch into sugar, the Bhutanese brewer uses those mushrooms to do the same job, without any prior grain germination.

This Bhutanese brewing method, and more generally the Asian method, has obvious benefits compared to the European method of malting.

First advantage: it is suitable for all sources of starch, including cereals that can no longer sprout like husked rice, cereals whose germination is poorly controlled (millet, buckwheat), and starchy tubers such as yams or taros⁸. This advantage is exploited because the Bhutan agricultural landscape is very diversified, as it is a mountainous country that stretches from low plains in the south (500m to 1200m) to the high valleys bordering Tibet (4000m and more). Red or white rice and millet are cultivated at low altitudes (Paro, Tsirang, Dagana, Zhemgang), unlike barley, wheat and buckwheat sown on higher spots (Haa, Punakha, Bumthang). The farms in the eastern dry valleys grow maize and millet (Trashigang, Samdrup). The *Drunaghu* is a list of nine plants which are the traditional food base of Bhutan: paddy rice, maize, wheat, barley, buckwheat, millet, amaranth, bean and mustard.



Fig. 8: Top-left to bottom-right: six food plants among the nine ones of the *Drunaghu* list: millet, rice, barley, amaranth, maize, mustard

⁸ The European brewer has to settle for two cereals to brew his beers, especially barley whose germination is well mastered, and wheat. The other sources of starch (mainly maize and rice) are used as crushed raw grains added during the soaking phase and converted into sugars by the amylases from the barley malt.

Second advantage: once the making of the ferments is mastered, they are preserved in dry state for several years without losing their amylolytic powers. This brings the ferments into a local trade. One can easily buy patties or dumplings of ferments at villages or cities markets to brew a Bhutanese beer.

The tradition of brewing beer in rural areas result from these two advantages combined. Depending on the season, the region and the land, the Bhutanese brewer may equally ferment rice, corn, buckwheat, barley, wheat, and even yams or taros in eastern Bhutan, often blending a mixture of the grains according their availabilities. Hence, the taste of the beer fluctuates from one brew to another, from one moment in the year to another.



Fig. 9: Left: *phab* from Bhutan. Centre & right: beer-ferment sold in a market at [Punakha](#) coming from the [Sarpang district or city](#) (southern Bhutanese border with India. See Map 1)

The general pattern of Bhutanese beer brewing is as follows:

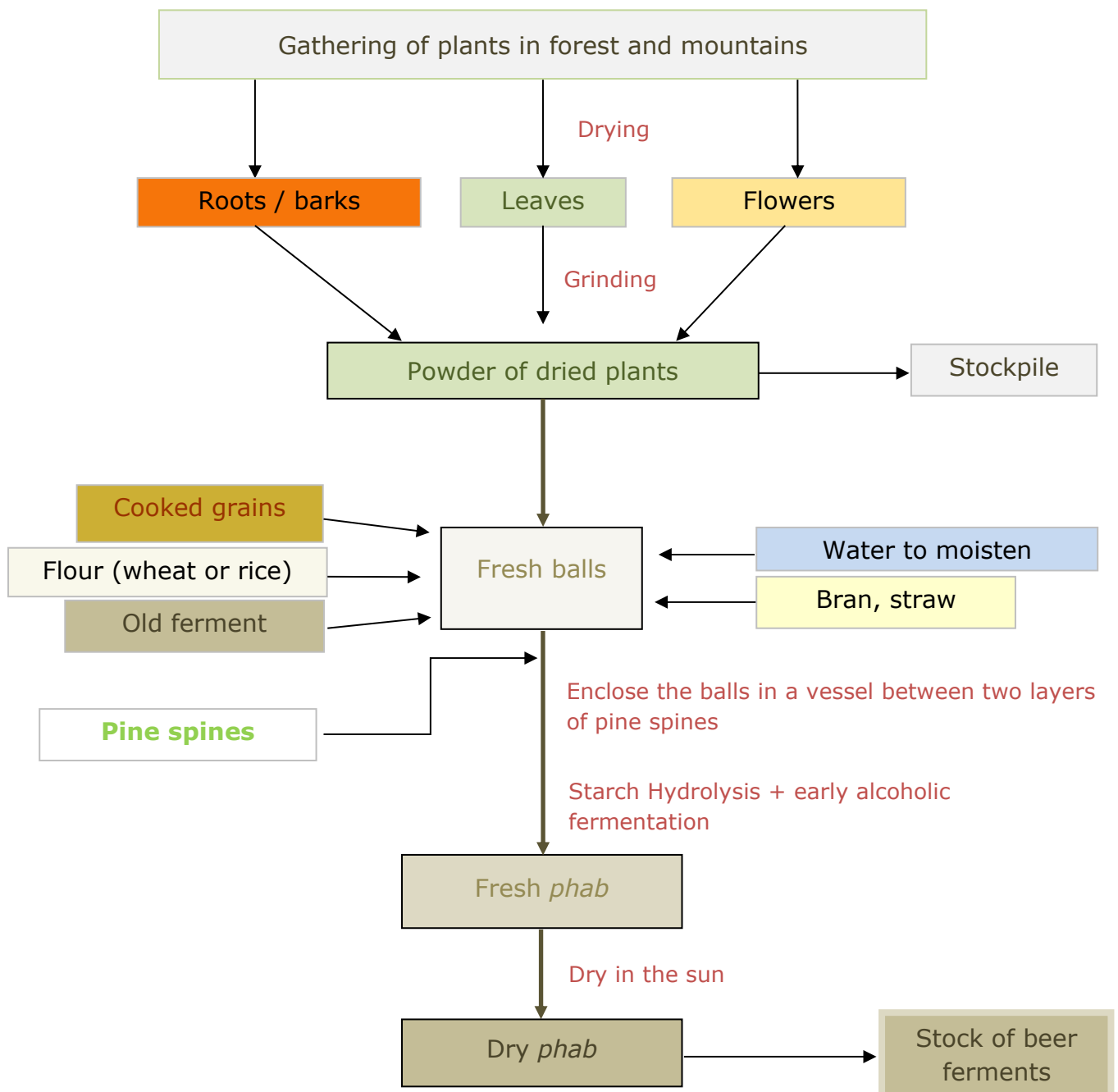
- ✚ Making ferments (Cf. Schema 1):
 - Collecting the wild plants bearing mushrooms in the right season.
 - Drying flowers, leaves and bark before grinding them down to powder.
 - Making ferments in the form of pellets or small pancakes with these powders + wheat-barley flour + residues of cereals (bran, straw) + water. Maturation between two layers of Himalayan pine needles.

- ✚ Brewing beer and fermentation (Cf. Schema 2):
 - Soaking and heating some measures of grains in water (= mash).
 - Cooling that mash in open air.
 - Sprinkling the beer ferments onto the mash and mix them thoroughly.
 - [Amylolysis](#) + fermentation of the grains-ferment blend in a closed bucket (several days to several weeks).

- ✚ Dilution of the fermented mash and filtration of the *chang* beer:
 - Put the fermented mash in a pot.
 - Pouring in an equal volume of fresh water.
 - Straining with a wicker tube and drink the liquid, this is the *chang* beer.
 - Adding water again and strain to drink a second time (*bangchang*).
 - Eventual third dilution of the fermented mash.

1.1 The making of beer ferments

The ferments host amylolytic filamentous fungi belonging to the genera *Aspergillus*, *Mucor*, *Rhizopus*, *Monascus*, *Amylomyces*, *Penicillium*, wild yeasts (*Saccharomyces*, *Candida*, *Kluveromyces*, *Pichia*, ...) and lactic bacteria (*Leuconostoc*, *Lactobacillus*, *Streptococcus*, ...). In Bhutan, ferment cakes are called *phab* or *phow* in Dzongkha dialect (western-central Bhutan), and *pham* in Tshanglakha dialect (eastern Bhutan).



Schema 1: the making of beer ferment

The brewsters pick various kinds of wild plants called *yangrim* (*yangrem*). Once a year or every two years, they roam through forests and across mountains to harvest these plants that will be dried and stored in pots or sacks. They are called *chong yangrim*, *ru yangrim* and *bainang yangrim* in tshangla dialect. *Chong yangrim* and *bainang yangrim* are flowers, while *ru yangrim* is a climbing plant also known as *pham ru*. The brewer uses the leaves of *chong yangrim* and *bainang yangrim*, along with the bark of *ru yangrim*. This applies to central and eastern Bhutan. In western and southern areas, other wild plants are used, as climate and biosphere differ strongly.

Identifying these plants is a difficult task. Local names vary from region to region, also according to the different Bhutanese languages. In addition, Bhutan's borders with Assam, Sikkim, Tibet and Arunachal Pradesh have enabled centuries-old exchanges of knowledge, plants and people, including with Nepal. Throughout this vast geographical and human aggregate, we find common brewery techniques, shared wild plants and similar ways of making beer ferments.

After collecting the wild plants, the leaves, flowers, and barks are dried and finely cut. They are then ground into powder which is preserved until the time of making pancakes to ferment. This technique makes it possible to keep the precious dried plants in stock without needing to search and collect the “magic plants” in the mountain each time the brewster needs new raw materials before fermentation.



Fig. 10: powdered beer-ferment from Nepal

The short table below, centred on Bhutan, shows the correspondence between local name and botanical nomenclature. It is by no means exhaustive and requires confirmation from botanists specialising in Bhutanese flora.

Local name	Scientific name, ecosystem	Used	
<i>chong yangrim</i> in Tshangla	<i>Leucosceptrum canum</i> Dry open waste areas, forest margins, valley stream sides, in the Himalayas. Abundant black-brown nectar. Flowering in November-March. Altitudes of 1000-2600m	Flowers Leaves	
<i>bainang yangrim</i> in Tshangla <i>banmara</i> in Sikkim (India)	<i>Eupatorium mairei</i> Herbaceous areas. Altitudes of 1500-2300m	Flowers Leaves	
<i>ru yangrim</i> in Tshangla <i>marcha</i> in Néпали Yellow Milkwort	<i>Polygala arillata</i> Flowering in March-May. Altitudes of 1500-2700m	Leaves Bark	
<i>marcha</i> in Néпали	<i>Eupatorium chinense</i> Open and deforested areas at altitudes of 2000-2600m in Nepal. http://tropical.theferns.info/viewtropical.php?id=Eupatorium+chinense	Young leaves and flowers	
<i>kai-sengma</i> or <i>hoshom</i> in Dzongkha Shemgang district, southern Bhutan	<i>Buddleja asiatica</i> Loureiro Forest bush and open spaces. Altitudes of 800-2500m. Large bloom of local names. http://tropical.theferns.info/viewtropical.php?id=Buddleja+asiatica Ref. S. Nakao & K. Nishioka, Flowers of Bhutan (1984), pp. 120-121	Dried leaves grinded into powder	
<i>kaga-nyumpa</i> in Dzongkha	<i>Hedyotis sp. (Rubiaceae)</i> Little shrub. Altitudes of 800-1500 m. No less than 500 species in the world, some of them used as medicinal plants. http://tropical.theferns.info/query.php?full=Hedyotis+ Ref. S. Nakao & K. Nishioka, Flowers of Bhutan (1984), pp. 120-121	Leaves	
<i>marcha</i> in Nepali <i>thamik</i> in Lepcha <i>khesung</i> in Limbu + <i>sweto-chitu</i> in Lepcha <i>vimsen pathe</i> in Limbu	<i>Plumbago zeylanica</i> L. + <i>Buddleja asiatica</i>	Roots + Leaves	

Fig. 11: Bhutanese plants hosting the amyolytic fungi to make the beer-ferments

The manufacture of ferments (*bae*) proper:

The dried plant powder is moistened with lukewarm water and kneaded with wheat flour, barley, rice or maize (depending on the region and season), straw and bran (same as for wheat, barley, rice or maize), and possibly a little dried yeast (*abi*) from an old brew. The moist patties or dumplings, moulded in the palm of the hand, are then covered with a little wheat flour (*ka*) or rice depending on the region.



Fig. 12: Bhutanese housewife and brewer making beer ferment

[Video: making of beer-ferments in Bhutan \(on Beer-Studies\)](#)



Fig. 13: Bhutanese housewife making beer ferment with captions. See video for details (link above)

They are then placed in a large pot or bucket between two layers of Himalayan pine needles⁹. The pot covered with a clean cloth is kept in the house for about 15 to 20 days. The time depends mainly on the temperature and dampness (monsoon season or not), as well as the quality of the ingredients. The brewer smells the pot at regular intervals. If a characteristic smell of alcohol is detected, the brewer turns the cakes over and pushes in her finger or leaves one or two marks to identify the flipped side. The brewers who sell their ferments have their own signs.



Fig. 14: bucket with fresh cakes between 2 layers of pine needles, waiting for fungi growth

Once flipped, the cakes remain between the two layers of pine needles a week longer, for 15 to 20 days altogether. If fungi do not grow fast enough the pot goes to a warmer place or the cakes are rehydrated. Mushrooms and yeast must simultaneously trigger the transformation of the flour into sugar and the alcoholic fermentation of the sugars. This indicates that the ferment is active, "alive". At the same time, it is necessary to avoid lactic or acetic acid fermentations which may be detected with a good sense of smell. The brewster applies an indispensable procedure during this crucial step as the control and cultivation of microorganisms is not a simple matter.



Fig. 15: fresh beer-ferment to be dried

When the time is deemed opportune by the brewster, moist cakes of fresh ferment are put out to dry in the sun to stop the processes of saccharification and fermentation. In winter or in the middle of the monsoon, fresh ferments are dried above the hearth inside the houses. Fully dehydrated, the ferment cakes are ready for use. They will be kept for several years, to be exchanged among neighbours and households of brewers or sold on the marketplace.



Fig. 16: beer-ferment patties drying under the sun

The aspect of ferments depends on their composition. They are brown-green, the size of a thick pancake or blini. These colours come from the flowers and dried leaves used. They are creamy-white when made

⁹ *Pinus wallichiana* populates the Himalayan arc, in India, Nepal, Bhutan and Burma. This tree grows in valleys and mountains at a maximum altitude of 2700m, except in Bhutan where it reaches 3400m. See Sharma, Gupta & al. 2019 about the antioxidant potential of *Pinus wallichiana* essential and volatile oils, which result in a selective antiseptic power.

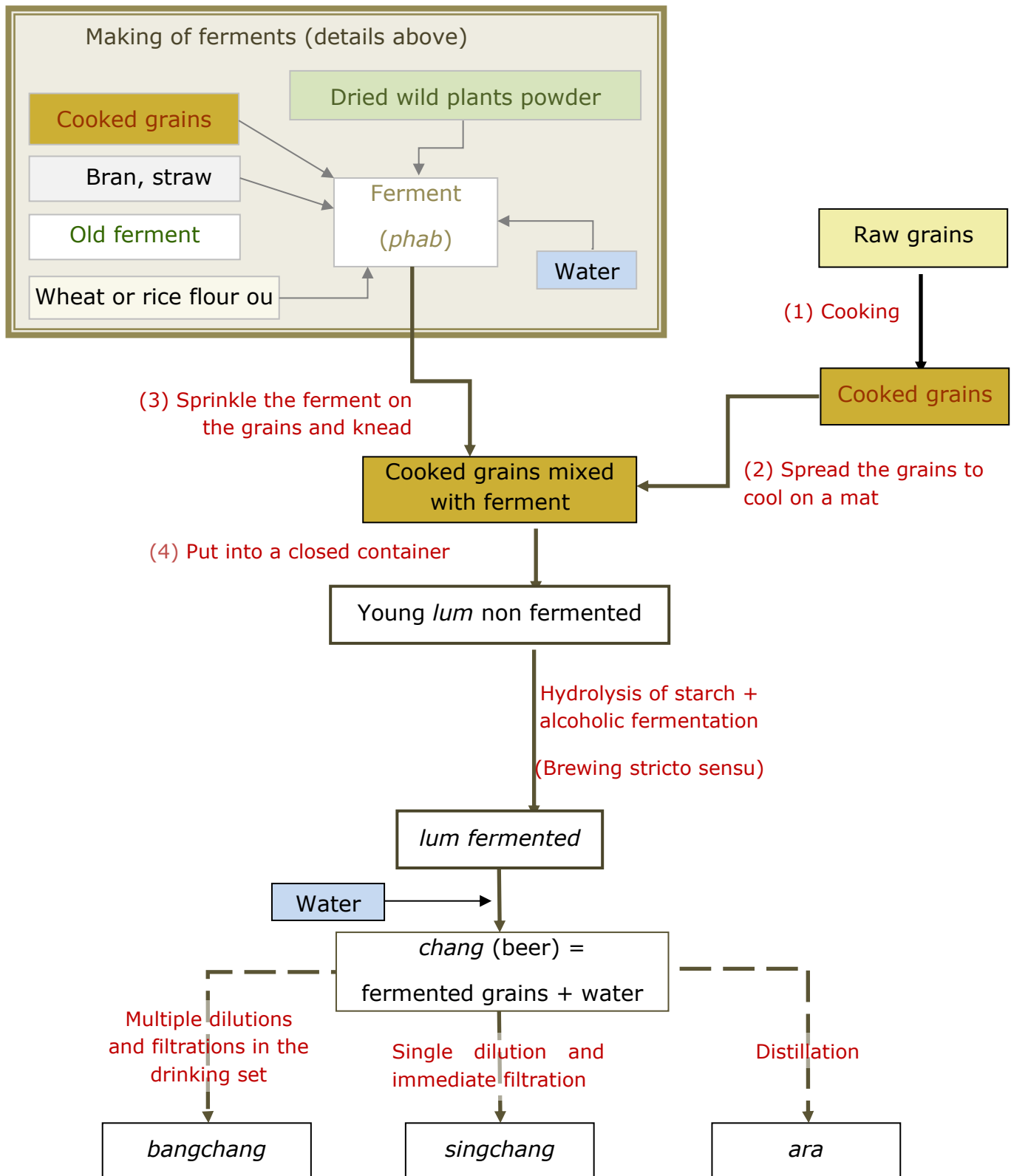
from rice or wheat flour with the yellow flowers of *Polygala arillata*. These are notably the ferment made in southern Bhutan (Sarpang Valley on the border of Assam) or in the west. They can even be pinkish if the Bhutan's famous red rice is part of their composition (a luxury!).



Fig. 17: three kinds of *phab*. Left to right: from wheat, from rice, from a mix of barley + millet

[VIDEO: Making of beer-ferments in Bhutan \(on Beer-Studies\)](#)

1.2 Brewing the *chang* beer



Schema 2: Bhutanese brewing general process



Fig. 18: lum (mash) = cooked grain (millet, barley or maize) sprinkled with powdered *phab* (beer ferment) to induce both saccharification and alcoholic fermentation of the starch

Once the beer ferments are made, brewing couldn't be easier. One can mix all kinds of cooked cereals, even yams, as raw material of beer, a tradition in Eastern Bhutan (1.6). Buckwheat ((*bjo*, *gere/bremu*), barley (*naa/guntshong*), wheat (*ka/bong*), maize (*geza/ashom*), white rice (*chum*, *bjaa/bara*), red rice (*chum map*) or millet (*kongpu/shera*) grains are first cooked in boiling water. This operation reduces the crude starch of the grains into a starchy slurry: in other words, into starch that the ferments can convert into sugar (glucose hydrolysis). The cooking stops when the grains are softened between two fingers. For brewing with yams or taro, see 1.6.

Drained and cooled on a bamboo mat (*richu/baze*), the grains are mixed with one or two cakes of ferments (about 2 cakes for 5 measures of raw grains, that is ≈ 10 litres or 7-8 kg of grains according to the *dre* measure or unit of the country. Fig. 73: a collection of traditional *dre*-measures from Bhutan). This concoction remains in a bucket or bamboo container for at least a few hours, at most a few days. For now, the mixture of cooked grains + ferments is only moist. This technical sequence is close to the one adopted in the making of ferments. Blankets or cloths are wrapped around the closed container to maintain an optimum temperature (ideally 20-25°C), and kept in a warm place inside the house.



Fig. 19: wheat and maize during fermentation (*lum*)

This blend is named *lum* (*yu-dama*). It is regularly inspected. The saccharification of cooked starch and the alcoholic fermentation are detected by smell and taste. The gradual conversion of the starch causes its liquefaction. The initial grain dough is transformed. The two biochemical processes, conversion of starch into fermentable sugars (glucoses) and alcoholic fermentation of sugars, take place in parallel, the first (metabolism of amylolytic fungi) supplying sugar to the metabolism of yeasts of the *Saccharomyces* and *Candida* type. The simultaneous application of these two basic biochemical processes is typical of traditional brewing in Asian countries. From a technical point of view, the brewing of Bhutanese beer is but one of the many branches

of a very old and widespread tradition that extends from Japan (brewing of *sake*) through Ladakh (barley beer called *skyems*) including South-eastern Asian countries.

Depending on the ambient temperature, the saccharification and the alcoholic fermentation are either rapid or slow. The brewster adapts. She puts the container in a cool place, or conversely adds a little ferment or warms up the *lum*. The brewing may last only 2 to 3 days, but up to a week or more in winter. Some brews may require several weeks, even months, if the brewster wants to strengthen the fermentation to create powerful aromas, such as for a tasty *sake*. The great annual ceremonies and the reception of hosts are opportunities to brew special strong *singchang* beer. At this point, the brewster has several options:

- ✚ If she brews *bangchang*, a daily beer to drink on the spot, she pours lukewarm water on the *lum* (the partially liquefied mixture of fermented grains) in a pot to serve the beer (see below). This process will be repeated several times, increasingly diluting the *bangchang* beer.
- ✚ If she brews *singchang*, a special beer to drink on the spot, she also adds lukewarm water and strains the fermented liquid through a basketry colander, just once (see below). This filtered fermented drink results in the *singchang* beer itself.
- ✚ If she intends to distil her brew to make *ara*, she pours lukewarm water to cover the grains and puts a portion (of grains and beer mixed) into the distillation cauldron which needs to be on a fire (cf. 2).

The brewing of the *chang* has the characteristics typical of the domestic beers in the Himalayan region. The rich composition of grains, generally one to three different kinds, produces beers with fluctuating flavours and scents (cf. 1.7). The addition of aromatics or spices depends on the brewster. This is not mandatory because ferments already provide rich aromatics¹⁰. These added herbs may generally serve for medicinal purposes.



Fig. 20: fermentation in an open home bucket

The fermentation in a container that is not tightly closed allows carbon dioxide to escape. No foam when drinking *chang* beer! Very few bubbles; just a slight sparkling when the *chang* is served straight after the brewing.

Because *chang* is filtered using a colander or simply a basketry tube, the beer is full of fine particles of unfermented starch, resulting in a milky substance like European wheat beer. The suspended yeasts are drunk with the *chang*, in a similar way to the drinking of lactic acid bacteria in European wheat beer or *lambic* (a traditional spontaneous fermentation beer brewed in Brussels). *Chang* is a very nutritionally rich beer. Let's see both variants of this beer.

¹⁰ No question of hops, the aromatic plant typical of the western industrial brewing tradition.

1.3 *Bang chang*, the everyday ordinary beer

The *bang chang*, fermented grains and liquid beer combined, is poured into a large cup (*khro*) made of wood, terra-cotta or metal. The baskets are coated inside with the milky sap of *Ficus elastica*, which strengthens them with water-proofing. The brewer dips a tube or a small basketry cup into it to collect the liquid, which is actually the beer called *bang chang*.



Fig. 21: serving the *bang-chang*, a daily weak beer from the diluted fermented mash

Video mandala.shanti.virginia.edu/subjects/7371/audio-video-node/4222/nojs

This beer is poured into drinking cups. It is gently sipped through a drinking straw made of bamboo or metal (for the wealthiest), and nowadays a plastic tube used in urban areas. It can also be collected with a small metal or bamboo ladle and poured into a drinking cup. This is the way to drink the first juice of the *bangchang*, the most aromatic and concentrated.



Fig. 22: serving the *bang-chang* from a basketry basket

When the central filter is empty, lukewarm water is poured once more over the mixture of fermented grains, which is pressed with a ladle or spatula. The filter-tube placed in the centre of the basin is filled up again, and the family resume the tasting of this "second" preparation. This stage can be repeated a third time and even more, until the *bangchang* is judged to have neither taste nor strength. Grains that have

been squeezed too often cannot produce alcohol or good flavours. It's time to throw those grain residues to the hens or the pigs.



Fig. 23: serving the *bang-chang* from a basketry basket on a ceremonial occasion or for a guest

The way of drinking *bangchang* may be confused with another usage in Nepal, Sikkim and southwestern Bhutan (Samtse District), the drinking of *tongpa* beer. Another drinking style belonging to the Lhops ethnic group use a tube in a pot where the millet beer stays mixed with grain. Former Nepalese people, distinct from the Lhops, living in the south of the country, are also accustomed to drinking their *tongpa* beer in southern Bhutan to where they have migrated. Their brewing technique is basically the same. Only the grains differ, here a variety of purple millet. They sip their beer through a bamboo straw, directly from the unstrained solid-liquid mixture, similar to the moist fermented *lum*. This drinking tube ends with a small hole through which the liquid passes. This way of drinking small quantities leaves time to chat.

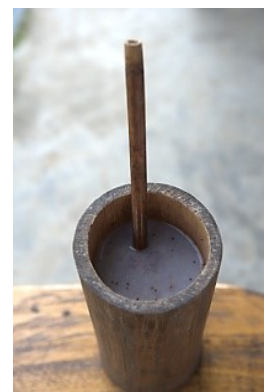


Fig. 24: *tongpa* beer (Nepal)



1.4 *Sing-chang*, a beer offered to guests

Sing-chang is the noble beer, a unique filtrate of the mash from the bucket or vessel where grains and liquid have fermented for several days or weeks. This beer is similar to the first juice from the *bangchang*. The best fermented part of the brew is extracted in one go, without a second dilution in the container where grains have fermented, nor any addition of lukewarm water in the drinking cup.



Fig. 25: *sing-chang*, the noble Bhutanese beer offered to guests

This *chang* is therefore most aromatic and tasty, with more alcoholic content, drunk in small quantities and cold, whereas *bangchang* is lukewarm. The *singchang* beer is offered to distinguished guests. To put it in a nutshell, a *bangchang* brew with its on average three dilutions provides three times the drinking volume of a *singchang* brew with an equal initial quantity of fermented grains.

This is not the only difference compared to *bangchang*. Precious cereals such as Bhutanese red rice can enrich a *singchang* brew. We have emphasized this characteristic of the "Bhutanese-style brewing" and similar methods in neighbouring countries. The brewster mixes cereals as she wishes, according to her stock of grains, respecting the rules of hospitality. The choice of favourite grain for brewing *singchang* in each region depends on the local agricultural environment. Here it may be millet or buckwheat, there barley or wheat, elsewhere the famous aromatic tasty red rice of Bhutan.



Fig. 26: a kind of commercial brew of *singchang*

As a matter of fact, the differences between *bang-* and *sing- chang* are slim. They result from social habits and courtesy between families and villagers. Guests and hosts are expected to know how to taste the *singchang*, to appreciate its quality, to praise it and express their satisfaction, with a loud click of the tongue¹¹.

1.5 *Changkö*, a nourishing beer-porridge

Changkö (*nagpa* in central Bhutan), a thick fermented soup from Bhutan, was inspired by the combination of the solid form of fermented grains (bread, pancakes) and their liquid form (beer). This food is prepared for household customs and special occasions, or given to women after childbirth. *Changkö* (pronounced *changkhoy*) is very calorific, energising and full of vitamins, in between beer and solid food.



Fig. 27: *changkö* nourishing beer-porridge

The composition of *changkö* reflects the diversity of the cereals grown in Bhutan, which is also true for *chang* beer. In the case of barley or wheat, the grains are first grilled in a pan or on a hotplate and ground into flour, resulting in *kapché ie* roasted flour which Bhutanese people drink with their tea, not unlike Tibetan *tsampa*. In the case of rice or millet, the raw grains are simply ground.

The dough made with the flour is prepared in boiling water, then spread on a mat or cloth to cool, and sprinkled with the beer ferment powder. After the kneading of the dough to even out the ferment, the paste is put into a bamboo tube or a closed container for the fermentation. These gestures could be those of a European baker preparing his leavened dough, except that a Bhutanese brewster knows how to make her own ferments¹².

After several days of fermentation, the Bhutanese give the name *changkö* to a sharp soup containing alcohol which is calorific, refreshing, slightly lactic and nutritious thanks to the yeast and ferments. The Bhutanese preserve the *changkö* for several weeks to improve it and complete the fermentation (the hydrolysis of the starch + the alcoholic and lactic fermentations).

¹¹ The reputation of brewing and serving a good *singchang* in Bhutan evokes the care a French person pays in choosing a grand cru from his wine cellar to honour a guest.

¹² The European baker buys his dehydrated yeast: a selected strain produced in food laboratories. 150 years ago, the baker obtained good yeast from the brewer when his own leaven became too sour. As for the brewers, they prayed to be preserved from fermentation accidents, such as yeast contaminated by bacteria. However, 250 years ago, the best European brewers "cultivated" their yeast from wild plant and cereal extracts, thus avoiding fermentation accidents. This knowledge, long lost in Europe, is still alive in Bhutan and neighbouring countries.

When *Changkö* is fried in butter, with or without eggs, it serves as a meal or delicacy during a family or village ceremony. This recipe makes the *changkö* even more delicious and invigorating.

The *changkö* is also used to recycle leftovers from collective meals, including uneaten rice. Fermenting turns them into delicious treats¹³. The alcoholic content is close to zero after frying in a pan but the flavour of the fermented dish remains unspoiled.

1.6 *Chang* beer brewed with yams or taros

The forests of eastern Bhutan provide wild yams and taro. The inhabitants use the leaves and buds and dig up the tubers to produce flour. The latter is used to make pancakes, soup and beer. The bulbs of some species of yams are toxic (being rich in dioscorine, a powerful alkaloid) and require a prolonged soaking (retting) and boiling in water before consumption - as with cassava. This use of yams stems from a deep knowledge of the forest environment. Some species grow in synergy with trees, sprouting between their roots. The Bhutanese have created specialized tools to clear the ground, dig up, scrape, peel, and cut the tubers.



Fig. 28: preparing yams for cooking

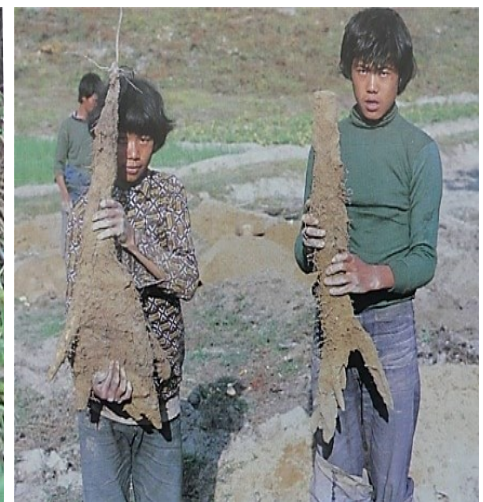
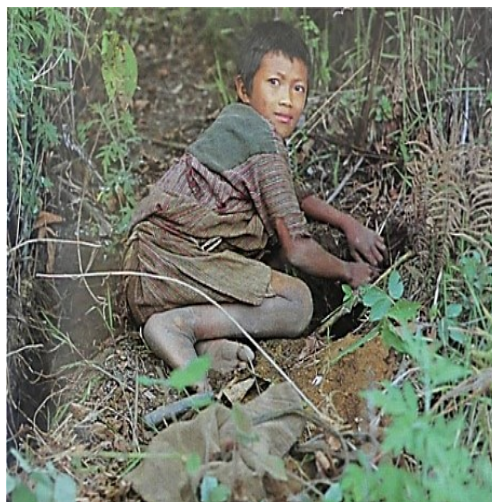


Fig. 29: Gathering yams in Bhutan. Left: Tools to dig them out. Centre: A boy digging out a taro root. Right: Good-sized starchy roots

¹³ Stale bread fried with eggs and sugar called "French toast" (*armer Ritter*, *gewonnen brood*, *torrija*, *rabanadas*, ...) is a similar solution of European cuisine, but without fermentation, at least in modern times.

Recognizing non-toxic species also requires long and reliable experience. Some yams are grown by simply "planting", or burying, the tubers. A fern (*Angiopteris lygodiifolia* Rosent) also produces large floury tubers, *patay* in Bhutanese. After being cut into pieces and soaked in running water to detoxify them, they provide a good meal. The large *Entada* beans (*Leguminosae*) also serve as emergency food, after a long heavy process of detoxification, as the plant is very poisonous.



Fig. 30: a fern that provides starchy roots

In eastern Bhutan, yams and taros used to be a resource in times of famine, or to bridge the gap during the months before the harvest of cereals. After the cultivation of maize crops in Bengal and along Indian coasts was introduced by the Portuguese in the 17th century, this very productive cereal alleviated these nutritional problems, as did the more recent introduction of the potato by Bogle in 1774. Maize requires less effort in *chang* brewing and has inexorably been replacing yams in eastern Bhutan. The brewing of *chang* beer with yams will continue as long as villagers value its cultural role in relation to wild nature, the forest, and traditional plant picking (although taro and yam cultivation is easy).

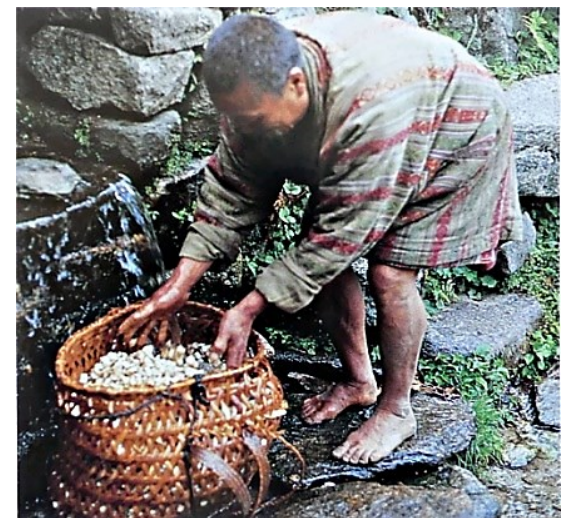


Fig. 31: rotting yam tubers put into in running water to detoxify them

The brewing of *chang-beer* with yam bulbs or taro tubers exemplifies the great strength of the Bhutanese-style brewing technique. It can adapt to various sources of starch, even tubers. The tubers may be peeled, grated and boiled, ending up as a starchy mash which is mixed with the beer ferments, exactly as with the cooked mash of cereals.







Fig. 32: a taro and yam scraper

The filtration of the beer requires a specific technique. The fermented porridge of yams or taro must be filtered immediately as they are already semi-liquid before fermentation, like the cereal-based *sing-chang*.



Fig. 33: a pile of yam species with round tubers, Marsala, Shemgang alt. 1300m

Vernacular name	Botanic name	
<i>borang juktang</i>	<p><i>Dioscorea hamiltonii</i> A climbing plant up to 10m. Tubers, one per growing season, often with withering tuber of previous season, c. 0.4–1cm by 7.5–12cm. Open areas in mixed deciduous forest with or without bamboo on limestone and other substrates; 400–1,250m.</p>	
<i>pantang</i>	<p><i>Dioscorea pentaphylla</i> A climbing plant up to 10 m. The plant produces horseshoe-shaped bulbils about a centimetre long. Edible roots up to 2kg each. Edible species have opposing leaves whilst poisonous species have alternate leaves.</p>	
<i>geetha</i>	<p><i>Dioscorea bulbifera</i> L. A climbing plant. Aerial bulbils of 200 to 300g. Tubers beneath the ground. Require detoxification by soaking and cooking if the species have alternate leaves.</p>	
<i>bozong</i>	<p><i>Calocasia sp. L. Schott</i> Taro is a food plant known throughout Southeast Asia, northern India and the Himalayan arc.</p>	

Data given by tropical.theferns.info/ and sites.google.com/site/efloraofindia/

1.7 Flavours and fragrances of a *chang* beer

Chang beer, whether referring to *bang-chang* or *sing-chang*, scarcely sparkles and has no foam. Milky, tangy, rich in fruity aromas, slightly lactic, strong in woody flavours brought by the ferments, thick, spicy and a little grainy under the tongue, it is served lukewarm.

The taste comes from the cereals. *Chang* beer deserves the name of "liquid bread". Unprocessed starch granules and tiny grain residues reinforce this impression. The predominant flavour varies - depending on the composition. Maize adds a sweet touch. *Chang* brewed with barley or wheat is similar to western white beers. Rice adds a sweet and fruity flavour. Red rice, mainly brewed for *singchang*, offers a great

delicacy¹⁴. This wide range of flavours varies infinitely according to the recipes of the brewers, the grains used, and the quality of the ferments.

The sourness of the *chang* is complex. Many microorganisms derived from the ferment confer a lactic acidity, slightly acetic, without astringency. A raw farmer's cider for fruity or an authentic Brussels *lambic* for acidity approaches it, if we put aside the liquid thickness of the *chang*.

The *chang* beer does not have the bitterness of industrial beers loaded with hops. Its refreshing character comes from its sour finish that invites you to resume. These descriptions do not reflect the unlimited inventiveness of the Bhutanese brewers. They know how to add subtle aromas to their brews and give infinite variations to their recipes.



Fig. 34: serving a *chang* beer

The alcohol content of *bangchang* oscillates between 5° and 15° alc. vol., depending on whether the 1st or 3rd and often last filtration is used, the latter giving the most diluted batch. The alcohol content of *singchang*, the sole withdrawal of the initial *chang*, varies between 15° and 20°. Here again, this depends on the quality of the ferments, the nature of the grains and the fermentation time of the *lum*. For example, a rice-based *lum* will give a stronger *chang* beer than the one brewed with wheat or barley, given an equal volume of initially fermented grains and added water at the end.

1.8 The *chang* from Bhutan, an authentic beer?

Are *bang chang* and *sing chang* true beers?

The *chang* barely sparkles and does not foam. Milky and served lukewarm, this fermented beverage defies the regularity of the widespread industrial beer. But the global wave of craft beers is slowly changing the Westerner's palates. It is a matter of time for Westerners' tastes to find their way from an authentic Brussels' *gueuze*, a thick stout, or a trendy IPA, to a Bhutanese *chang* beer.

Is *chang* a real beer? The supercilious brewers trained in Western schools to produce the industrial cool lager say that *chang* or akin beers in the world are specimens of archaic fermented soup brewed by farmers in the back of their kitchen; that these recipes belong to another age and must join the museums of ethnography. The debate is not about the taste or the visual appeal of these domestic beers. The basic question is economic, and especially technical.

¹⁴ Singchang from red rice, more heavily filtered, would recall a Japanese *amasake* or a Korean *makgeolli*.

Economists and industrialists are reluctant to talk about "beer" when the word refers to traditional fermented cereal-based beverages brewed outside the walls of a duly recognised brewery, especially when the technical schemes diverge from the western pattern of the cereal maltings. They want to reserve the term "beer" for the standardized industrial drink, properly labelled with trademark, and liable to payment of taxes to a state that protects their trade. Beyond these marketing, commercial and fiscal policies, the real question is of a scientific nature.

According to its technical definition, beer is an alcoholic beverage made with a starch decoction saccharified¹⁵ (cf. [Beer Definition](#)). Starch is what separates beer from wine made with natural fruit sugars (or tree sap). Hence, we can brew beer with barley, wheat, rice, corn, millet, sorghum, cassava, taro, yams and even potatoes. The *chang* beer of Bhutan conforms to this definition in every respect. Bhutan's domestic beer is a beer in the full, technical and historical sense of the term "beer", if we give to that word "beer" a technical meaning. The beer-starter brewing technique is as ancient and venerable a tradition as the malting technique that was improved in Mesopotamia and Egypt more than 5000 years ago.

The brewing methods have diverged and still differ today across continents and time (beer has existed for 13,000 years!). They will further evolve in the future. The technical definition of beer includes all kinds of fermented beverages, provided they are starch-based. The *chang* of Bhutan, just as European lager or Japanese *sake*, fits into this definition. Industrial western beer is only a recent subset (early 19th century) of the vast beer brewing realm that has upsized over the history of humankind.

Some historians would have us believe that the "real brewery", and therefore "beer", were born with the Western industrial revolution of the 19th century. That claim ignores the technological fundamentals of brewing. It is as ridiculous (or Eurocentric) as denying the name of "ship" to 15th century Chinese junks because they had neither metal hulls nor diesel engines.

¹⁵ The starch decoction is obtained by cooking the starch (or soaking it in some acidified medium). The raw starch is stored by the plants in granules protected by a thin layer of proteins. The starch amylases cannot hydrolyze starch macromolecules (branched chains of several hundred glucoses) if they are not released into water. The cooking or acidic action converts the raw starch into a paste more or less sticky, the so-called starchy decoction (an "empois" in French). This is a mandatory technical step in converting the raw starch granules stored by cereals into sugars and therefore brewing beer.

2 The distillation of *ara* (ཇམ་ཤྱ།) from *chang*-beer

Distillation is the third way to use a *chang* brew, when water is added to fermented grains (*lum*). The aim is to extract the alcoholic part. The brewster pushes the fermentation as much as possible to convert almost all the sugars into alcohol. She keeps the grain-ferments mixture longer in its container of wood, terracotta or metal (plastic recently).

Another consequence: the grains chosen to brew the *chang* for distillation are less valuable, richer in starch and therefore more productive in alcohol. The brewster favours maize (eastern Bhutan), barley (middle and high valleys), wheat and ordinary rice (west and centre Bhutan). Recently introduced and cultivated since the 19th century, the potato, very rich in starch, and profitable from the point of view of its alcoholic fermentation, is from now on used to brew *chang* for its distillation¹⁶. The same goes for yams in eastern Bhutan.



Fig. 35: pinkish *ara* coloured with the flowers of *Polygala arillata*

Ara is a traditional alcohol widely used in Bhutan and neighbouring areas, known by other names. Like the brewing of *chang*, distilling techniques are very similar among the peoples of the Himalayas and northern India. The knowledge is controlled by women, and the work takes place in a domestic context. The *ara* plays, as beer, an important role in the social and religious culture of Bhutan.



Fig. 36: white *ara* right after distillation

Chang and *ara* are sometimes confused by Westerners who believe that the brewing of *chang* is only a step in the distillation of *ara*. The *chang* actually refers to the mixture of fermented grains + water that gives rise to these three beverages: two variants of beer (*bangchang* and *singchang*) and a distilled alcohol (*ara*)¹⁷.

There is, however, a noticeable difference between *chang* beer and *ara*. *Bangchang* and *sing-chang* should be drunk on site and quickly after brewing. The *ara*, like any distilled alcohol, can be preserved for a long time in a closed container and, as

¹⁶ Even apples are fermented and distilled to produce a kind of “*calva*”. This fruit-based technique is beyond the scope of the brewery that processes starch.

¹⁷ *Chang* and *ara* are in the same technical relationship to each other as barley beer and whisky (Scotland), *sake* and rice alcohol (Japan), *boza* beer and *arak* (Turkey, Balkan Europe, Ukraine), *marcha* and *raksi* (Nepal), *ketan* and *brem* (Indonesia), to give a few examples. Since the 20th century and worldwide, traditional domestic beers are usually distilled, because alcohol is easily stored, packaged, shipped and sold, and provides incomes for rural families. This domestic economy exists and flourished in the world as long as multinational agribusinesses do not take over a country's agricultural resources and its local sales channels. This unfortunate future awaits Bhutan in coming decades if its domestic technologies of *chang* and *ara* making are not protected.

such, be easily moved. The consumption of *chang* beer remains confined to the domestic space and the village. That of *ara* goes far away from the farms where it has been distilled, towards other villages, or far-removed places to be offered in religious ceremonies, ultimately all over the country. This is the current situation.

Bhutan of the past centuries knew little about the importation of distilled spirits (except Tibetan, Indian or Nepalese). The *chang* beer, or more exactly the still semi-solid *lum*, travelled more widely throughout the country. Beyond the ethnic and geographical barriers, *chang* beer was part of every trade exchange and travel, not to mention the messengers that a *dzonglöp* (a kind of province governor) sent across the country. They did not leave without carrying a personal reserve of *lum*. A little water on the way, and the *lum* promptly gave a fresh beer. The same result was obtained by a person carrying away the precious beer ferments and some cooked grains. The preparation of *lum* requires only these two ingredients and a closed container kept warm. In a few days, the mixture could have fermented and required only a little water to provide a fresh and healthy *chang* beer.



Fig. 38: pinkish *ara* coloured with the flowers of *Polygala arillata*

In other words, the pair *phab* (dried ferment) and *lum* (moist fermented grains) made a practical and effective kit for brewing an instant beer during a trip of several weeks to Tibet or Assam, or during distant agricultural works or expeditions in the forest.

Regarding the *ara*, a more elaborate kind of superior quality was reserved for the ruling social class, soldiers, and religious ceremonies led by lamas and monks. Its purity and volatile nature are suitable for religious offerings to celestial or even chthonian divinities.



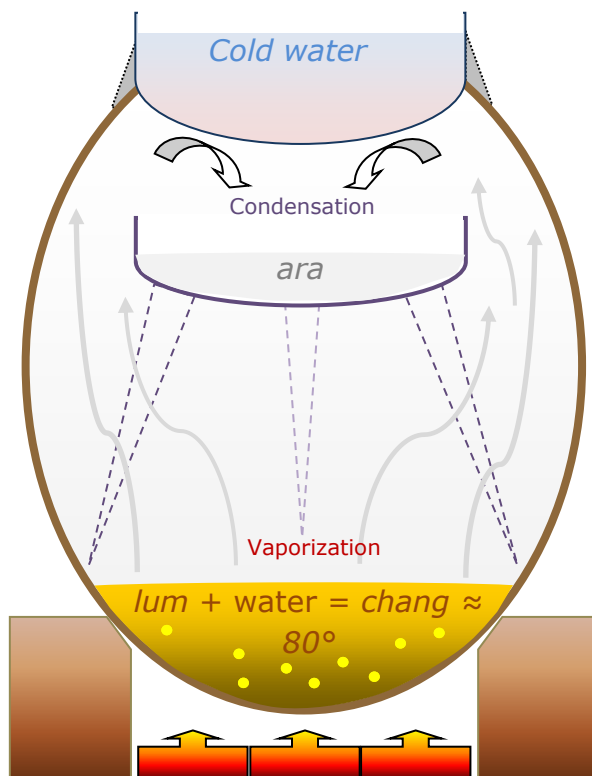
Fig. 37: ceremonial copper pot to keep and serve *ara*

2.1 Devices and distillation method

The distillation device includes 3 containers: 1) at the bottom, set on a fire, the cauldron called *arazang* (ཇ་རྩག་ ཟངས་), containing a part of the *chang* brew (*lum* + water); 2) inside this cauldron, placed on a tripod or 3 bamboo stems, the pot of terracotta or metal used to collect the distillate, that is to say the *ara*; 3) above, placed on the cauldron and sealing it tightly, a metal bowl called *khataw* (ཁ་ ཏུ་) filled with cold water and wrapped by a wet cloth.



Fig. 39: a distillation apparatus



Bowl *khataw* and clogging

Bowl *barzam* set on a tripod

Tripod *kangsum* in metal or bamboo

Cauldron *arazang*

Clay hearth *thab*

Schema 3: device to distil *ara*

The principle is simple. Alcohol evaporates from the heated *chang*, condenses against the cold wall of the upper bowl, and falls in drops inside the pot below (Schema 3). The art of this distillation deals with the temperatures, the consistency of the *lum* (more or less added water), and the speed of the operations:

- ✚ Pour some of the *chang* into the cauldron and adjust the amount of water. If the *chang* is too thick, the heat will cook the mash instead of allowing the alcohol to evaporate slowly. If the volume of water is too big, it will take longer for the *chang* beer to heat up and the alcohol to vaporize.



- ✚ Place the tripod and the pot halfway up the cauldron, so that its opening is close to the bottom of the cooling bowl. In some Bhutan areas, a bamboo suspender (*ray*) holds the *barzam* bowl and makes the tripod unnecessary.



- ✚ Fill this *barzam* bowl with a little cold water. A sensible precaution. If the first drops of condensed alcohol were to fall back into the *barzam* bowl without water, its hot wall would cause a new evaporation. The distillation only works if a wide temperature gradient exists between the heated *chang* beer and the cooling bowl + *barzam* bowl which recovers the condensed alcohol.



- ✚ Close the opening of the cauldron by putting on it the cooling bowl. Fill it with cold water. Seal the openings with a damp cloth so that the alcohol vapours do not escape.



- ✚ Heat the bottom of the cauldron slowly. A too abrupt heating may "cook" the *chang* and vaporize the water, a too low heat does not cause the evaporation of the alcohol at $\approx 80^{\circ}\text{C}$.

- ✚ The process is controlled by testing the temperature of the water in the cooling bowl. It heats up quickly as soon as the alcohol evaporates. It is replaced by cold water as much as necessary.



- ✚ The brewster then adds into the cauldron the unused part of *chang* beer, which involves opening the cauldron. She takes this opportunity to remove the *ara* already distilled in the central pot and pours in a little cold water again.



- ✚ The distillation goes on by feeding the fire. The brewster's experience dictates the time needed to complete the job. It is done partially blind because the cauldron must be open as little as possible. The distillation lasts on average 2 to 3 hours for about 5 initial litres of *chang*.



- ✚ The quality of *ara*, i.e., its strength, is smelt, tasted, and tested with a flame. An inflamed *ara* indicates a high alcohol content, about 30° to 40°. *Ara* rarely exceeds this degree because the distillation method involves putting a little water in the central bowl (*barzam*).



- ✚ *Ara* is then poured into the *palang* (a traditional pot of bamboo or wood), or in a plastic jerry-can, to be preserved and drunk later.

- ✚ It is sometimes enriched with red sandal powder (a luxurious product), or flowers of *Polygala arillata* which gives it a pink color and a slight sweet taste. The dark red seeds and flowers of *Amaranthus caudatus* (Dzongkha *Memja*, tchangelakha *Lahasomo / Bodhpa*) and *Amaranthus hybridus* ssp. *Hypochondriacus* (idem) are also used to colour the *ara*. These are also the seeds used for dyeing the red robes of the monks.



A "standard" distillation proceeds in this way: about 5kg of fermented grains, 3 litres of water added to the *arazang* cauldron to cover the grains, 1 litre of water in the *barzam* bowl, 5 litres of cold water in the cooling *khataw* bowl renewed 3 to 5 times depending on the circumstances. This yields about 4 litres of *ara* for 2 hours of work and a few logs burned into the hearth. These 4 litres of *ara* titrate about 30° alc. vol. A "standard" distillation describes how a Bhutanese brewster distils *ara* for her family use or for a guest's reception.

Ordinary life is satisfied by drinking the *bangchang* beer. The preparation of collective or religious ceremonies requires distilling *ara* in greater quantity, possibly of superior quality, each family having to offer the best it has.

Temperature control is essential for distilling a good *ara*. Water and ethanol form a so-called [azeotrope](#) mixture which vaporizes at about 78°C and contains about 95% of ethanol. The Bhutanese brewster proceeds by direct and continuous distillation, without fractionation. She throws the head of the distillate (methanol, ether) and its characteristic odor of solvent. The distillation tail (fatty acids, acetic acid, alkaloid) is avoided by too high a heating temperature which causes the evaporation of molecules "heavier" than ethanol, some of them dangerous for health. The brewster continuously tests the temperature of the water in the *khataw* cooling bowl. It must remain lukewarm.



Fig. 40: testing the cooling water temperature inside the *khataw* bowl

The old and best utensils are made of copper, especially the *arazang* cauldron. The *barzam* and *khataw* bowls are terracotta. Today, tinsplate and aluminium have gradually replaced copper, which has become a rare metal. The metal tripod replaces the wooden sticks, except in areas where bamboo is widespread (southern and eastern Bhutan).

Variants are distilled by adding dried yak meat, garlic or mint. A medicinal *ara* is prepared with either wasp larvae, bovine marrow, fish, chicken or eggs.

For distilling, utensils and gestures are very similar in Bhutan and neighboring areas¹⁸. The variations concern the initial composition of the *chang* (grains and ferments). *Ara* tends to take the place of the *chang* beer in the household and village customs, so much so that *chang* is no longer considered a beer in its own right outside the family but as the raw material for distilling *ara*. Nevertheless, most rural families still brew their *chang* beer to be drunk as their daily beverage. This is no longer the case in towns such as the capital Thimphu, where the population is increasingly remote and cut off from the rural lifestyle.

¹⁸ In Nepal and Sikkim, a more sophisticated dual-heater device distills the raksi. The vat of beer is placed on a kind of steam cooker, a cauldron filled with boiling water, and put over a fire. This indirect heating is ensured never to exceed 100° C at which the beer is vaporized. This technical device is obviously inspired by rice steam cookers.

3 Drinking circumstances and manners

Chang and *ara* are two major facets of the Bhutanese culture which favours the rules of hospitality. The honour implied by a cup of beer is for the one who receives it as for the one who offers it. *Chang* beer and *ara* are a medium for social reciprocity. A guest in a family or village will have to offer counterpart for food and drink offered to him. In everyday life, *chang* paces the main events of family life, meals, agricultural and craft works. When birth, wedding, death, illness, family conflict, etc ... are celebrated or grieved over, the pots of *chang* are not far away. When laypeople attend major Buddhist celebrations, it is customary to offer *chang* and more often *ara* today. There are many ways of drinking, many kinds of *chang* beer, and many contexts for drinking them.



Fig. 41: *ara* poured from a *palang*

Bangchang and *singchang* are two basic variants, the first one being the ordinary and everyday beer for the family, the second a beer brewed specially to be served to guests. Because *chang* is brewed at home, it gives to Bhutanese women great licence to adapt their recipes, the strength and quality of their beers. If a brewster lets the *lum* ferments for 5 to 15 days or more, she can brew either a "normal" or a "premium" *chang* beer. Adding more or less water when she serves her *chang* affects its strength. The initial grain composition changes the taste, density, and quality of the beer. The brewsters of Bhutan have all the means and know-how to infinitely vary the flavours of beer, depending on the circumstances and rules of hospitality. A brewster sometimes earns a good reputation among her community.



Fig. 42: cup and *palang* for *ara*

The Bhutanese domestic beer has nutritional qualities that industrial beers have long since lost. Its minimal filtration and lack of pasteurization protect essential nutrients and vitamins. The complex fermentations that lead to the preparation of the *lum* make a beverage of great nutritional value.

Bhutanese traditional formulas associate the *chang* with moments or events (*dong-chang*, *thug-chang*, *log-chang*, *mar-chang*, etc.). The domestic context remains a privileged place to drink *chang*. The *chang* beer is not easily brought to a public place of celebration, unlike the *ara-palang* which is a tube of wood or bamboo provided for this purpose. *Ara* is a luxury drink compared to beer. Modern Bhutan slowly glides from *chang* to *ara*, from the domestic beer to the distilled alcohol. This historical trend affects all countries of the world. Modern Bhutan is not spared. Men and women equally

drink *chang* and *ara*. We will review the many circumstances involving these beverages, the markers of social boundaries¹⁹.

3.1 The *chang* in the family's daily life

"*Za shen myen, Za mashen dug*" – « Well eating-drinking [is a] medicine, wrong eating-drinking [is a] poison » (Bhutanese saying).

Beer is with tea one of the main daily drinks. The *bangchang* is prepared for every meal and drunk by adults. Two to three cups per person concur with the mean 3 dilutions in the pot of *bangchang*. The first is tasty and invigorating; the last one delivers a much-diluted beer, good to rinse the mouth and to quench one's thirst. With two daily meals, one consumes on average 2 litres per day per person. As the brewster always keeps a good amount of *lum* in fermentation, the work required to prepare the daily *bangchang* for the family is quite light. In the morning, the brewster puts a portion of *lum* in a pot, adds the needed water and lets it macerate a few hours. She completes her stock of *lum* in fermentation with newly cooked grains and possibly a little sprinkled beer-ferment, to maintain a constant volume of fermented *lum* and a source of *chang* always available for daily consumption by her family.

Serving *chang* consists of filtering and serving the liquid part, the beer itself. This work is often entrusted to the girls of the house. The women keep control of the brewing and serving of the beer from start to finish. The beer is served with a ladle into the personal cup of each adult guest or family member, starting with most elderly.

Beer (*bangchang*) or *ara* are served before, during and after meals, at least when available. The beer drunk with a meal is called *toh-chang* (ཐོ་ཆང་), *toh* referring to the food. This applies to meals and group parties. When beer is served after tea (*ja*), it is called *ja-chang* (ཇ་ཆང་). The *shey-chang* (ཤེ་ཆང་) closes a meal, *shey* meaning to *rinse* or *wash* the mouth after eating.

¹⁹ This overview is based on texts posted by K. Phuntsho and S. Chopel. mandala.shanti.virginia.edu/subjects/7371/text-node/51191/nojs. Sonam Chopel is a researcher at the Shejun Agency for Bhutan's Cultural Documentation and Research. Karma Phuntsho is a sociologist, President of the Loden Foundation and author of numerous books and articles, including *The History of Bhutan*. By Singye Namgyel, *Arak Culture: An Intangible Cultural Heritage of Bhutan* in "The Essence of Bhutanese Culture", Proc. of the Fifth Colloquium 2001. Vol. II, 2nd ed. in English 2009.

Beer fulfils three main functions in Bhutanese family life. Firstly, it supports the physically demanding agricultural work of men and women throughout the year. Bhutan is a predominantly agricultural country²⁰. Secondly, beer plays a little-known and underestimated role in retribution in kind whenever a family asks for the help of one or more other families for important projects (building a house, clearing land, irrigating, harvesting, preparing manure, etc.). Finally, beer is used to celebrate major family events, both happy and unhappy.



Fig. 43: agricultural work done equally by men and women in Bhutan

Agricultural works:

Clearing, ploughing, sowing, harvesting, collecting wood, irrigating rice fields, gathering forages and bamboos, and producing manure²¹, etc. are exhausting works. Tiredness increases with altitude and the mountainous landscapes.

Farmers always keep a pot of *lum* diluted in the water to drink *bangchang* beer at night next by the fireplace. This beer invigorates, comforts, and calms the muscular tiredness of the day. This is its primary function, more nurturing as a liquid food than festive and intoxicating as an alcoholic beverage. Therefore it is necessary to prepare in advance 4 or 5 pots of *lum* in full fermentation to drink one each evening, that is about 2kg of fermented grains per pot of *lum* to drink 2 to 3 litres of *bangchang*. The agricultural calendar set the rhythm of the brewing of *bangchang* in the farmhouses. Pots of



Fig. 44: resting and drinking beer in the fields

²⁰ 70-80% of Bhutan's population lives from the land, livestock and handicrafts (weaving, basket making, woodworking, etc.). Part of the population is urbanizing in Thimphu, the capital, and in the towns of the southern border with Assam (India).

²¹ The manure (*lui*) is a compost of pine or cypresses needles, ferns and dung from cows, yaks or pigs. It requires the collection of heaps of branches and ferns in the forest, a gruelling task often done by women. These compost piles are set in the fields without chemicals.

bangchang are often brought with food provisions in the fields when the summer seasonal work requires large manpower teams for full days.

The mutual assistance and the competence of the master craftsmen:

The collective works are organized at the village level: clearing, canals to irrigate rice fields, harvest, tree cutting, etc. All the beneficiary families take turns to offering *chang* beer or *ara*, and food to those working a few days for the common benefit. It is a very effective way of mobilizing a workforce beyond the limited resources of a single family. In turn, families, which benefit from a collective labour, must offer a reciprocal work to other families, generally after some weeks, months, or even years. The cycle of mutual benefits can last several years among a community. Only one obligation: offer beer and food to those who work.



Fig. 45: rice cultivation and community work

Commercial contractual relations recently copied from foreign models limit nowadays this living source of reciprocity and sense of the common welfare. They create a "labour market" managed by private intermediaries and exploit foreign workers often coming from the South (Assam, India, Nepal)²².

At every moment of life, there is an opportunity to drink and eat. *Tsug-chang* (beer-of-start) signals the beginning of the work. The *bar-chang*, the beer-in-middle, is explicit. The *toh-chang* (beer before the meal) is drunk as an aperitif. The *shey-chang* (beer after meal) is used to wash the mouth. Every beer round has its meaning.

Building of new house is a massive project that will require the help of stonecutters, masons, carpenters, joiners, etc. for several weeks or months. Beer and food are served by the building owner 3 times a day. The head Carpenter and Mason chief receive special treatment with improved food and superior *ara*. Otherwise, the house risks hidden defects.



Fig. 46: building a house

²² This is notably the case for great infrastructure projects decided by the Bhutanese state (roads, dams, state buildings, and so on). Young men work in abominable and dangerous conditions, they handle hot tar or chemicals without any protection, live in unsanitary shelters along roadsides. This is a striking counter-example of the GNH policy that does not seem to concern a quasi-servile foreign workforce originating from India or Nepal.

Family events:

The *men-chang* (མེན་ཅང་) is the beer offered when relatives or friends visit a sick person at home or in hospital. If a patient cannot drink alcohol, the visitors drink to his or her health. These drinks can be accompanied by food.

The birth of a baby is celebrated by the preparation of a fermented rice soup, the *changkhoy* (§ 1.5). The family and the guests rejoice, the mother also, for whom the *changkhoy* is a nourishing, comforting and lactogenic thick beverage. The new-born are given a name that makes them symbolically enter into their community and links them to the family lineage. A proverb says « **To a new-born child a name, to the *chang-beer* to be drunk a talk** » (*bu kye chin ming; chang drangpa chin tam*).

A wedding brings about an exchange of gifts and invitation to drink beer, the *log-chang*. In Bhutan, the groom joins the family and home of his future bride, lives and works for her family for several years before confirmation of the wedding and definite links between the two families.

Tashi-chang and *tende-chang* are the beers to celebrate a happy event. Archery competitions are a national sport in Bhutan. Archers must hit targets at 145m. The *chang* beer, or almost exclusively the *ara* in modern times, is offered during and at the end of the competitions, and every time the archers return to their seat row. This serving of beer service is similar to the *tshog-chang* organized when a village receives a distinguished guest. It is opportune to quote here Kunzang Choden's memories of what usually happened during Losar annual festivities in the 1950's, for the archery games:

« **Our household liquor lady stood at the strategic spot halfway between the two targets with several flasks of *ara*. She warmly gave full cups to those who hit the target, to a few lucky ones whom she personally favoured and to the bold ones who intimidated her for a cup or two, and to the others to whom she could not refuse a cup or two for compassionate reasons, so no one was left out.** »²³



Fig. 47: burning the corpse in Bhutan and beer offering inherited from the Bon religion

²³ Kunzang Choden, *The Noble and Religious Family Of O Rgyan Chos Gling (Central Bhutan)*, p. 35, in *Proceedings of the Tenth Seminar of the IATS, 2003. Volume 5: Bhutan*.

3.2 The *chang* and the overall rules of hospitality

'Keep cup and knife with you at all times, for it is uncertain when one will encounter beer and trouble.' ²⁴

The *dong-chang* (གཞོན་ཆང་) is the welcoming beer offered to guests. Omitting this custom shows a lack of courtesy or hospitality. Both the beer and the event are called *pheb-chang*.

When a lama comes to celebrate a ritual or bless an event, the family or the community comes to meet him and offers a cup of *ara*. This also applies to distinguished visitors, district officials and government officials. This welcome is called *suwa* (བསུ་བ་) and for this very reason, the offered alcohol is called *suwa-chang* (བསུ་ཆང་).

A host offers to a distinguished guest the *zim-chang* (གཟེམ་ཆང་) when the latter prepares to sleep at his home. It is usually heated *ara* in a little cup. In the morning, another little cup of *ara*, the *zheng chang* (བཞེངས་ཆང་), is offered to the guest on his wake up. It is drunk as a special mark of courtesy.

A distinguished visitor is accompanied at a distance along the paths as a sign of respect. At the place of parting, a farewell beer *kel-chang* (ཁེལ་ཆང་) is offered by the host family. The visitor sits for a moment before leaving for good. The guest may offer at this time a present of thanks. The hosts sing a melancholy song and shout "*awu awu*" while shaking their khadar scarves until the guests are out of sight.

These customs must be contextualised in the economic context of the country. Each year farmers in the central valley of Bhutan exchange their products with herders living in the upper valleys. Long caravans of donkeys travel from north to south, in both directions, once in winter during the agricultural slack season and once in summer when the yak herds graze in the high valleys. Lasting ties between farmer and pastoralist families



Fig. 48: woman offers a cup of *ara* to a monk



Fig. 49: precious metal vessels for *ara*

²⁴ Proverb quoted by Gengop Karchung, INTANGIBLE CULTURAL HERITAGE OF BHUTAN – 2015, p. 132.

have developed over centuries, between ethnic groups as well. Bhutan was socially less compartmentalized than it is believed. These economic and social relationships also existed between Bhutan and Tibet before China invaded the latter in 1959.

Here again, the modern opportunity of buying grains, utensils, butter, leathers, and clothing from shops is gradually putting an end to this ancient economy of bartering, to social ties between families and distant clans, and to the ethnic melting pot.

For a simple traveller or friend, setting out on the roads is an opportunity to serve *lam-chang* (ལམ་ ཆང་), the beer for the road or departure.

Tshog-chang (ཚོགས་ ཆང་) refers to beer or *ara* offered by a community when an important person travels in the area. Fermented beverages and food are brought to the meeting place. Literally, *tshog* refers to the *chang*-beer for the meal or dinner (*tshog*). In eastern Bhutan, *tshog-chang* is a widespread custom. Women welcome guests by bringing *ara* jars and food.



Fig. 50: golden-silver gourd to serve *ara*

The traditional container for keeping and serving the *ara* is called *ara palang* (ཨ་པལང་). It is a cylinder made of wood, bamboo or horn, decorated with pictorial metal bands. Its two holes with stoppers in its upper part allow the *palang* to be filled and the *ara* to be served. A rope is used to carry the *palang*. It holds one to several litres. The bamboo *palang* is the oldest form. It is carved out of a variety of large bamboo with two knots on either side, keeping the two walls in between. It is about 30 to 60cm high. The top wall has two holes for pouring. The whole vessel is covered with a decorative woollen weave. Large yak horns were used in the past to store, transport and serve the *ara*. This is still the practice of the yak-breeding mountain people.

During a *tshog-chang*, *ara* is served, but also *singchang* beer, which is the highest quality beer. The women bring eggs, red chillies, rice, cooked grains, vegetables, etc. The guests are served first. Beer and alcohol are served on their own or with eggs and grains fried in them. Women insist on serving drinks even to a teetotalter, a monk, a devotee or a practising Buddhist guest. All other participants, men and women, are served.



Fig. 51: *sing-chang* beer offered during a *tshog-chang* ceremony

Everything used for the guest of honour's food and drink is kept by him when he leaves. A *tshog-chang* is accompanied by lively conversation, jokes, singing and dancing and lasts for several hours. It is an opportunity to be together in a country where farms and villages are isolated. It is also a time to create a friendship or *thunlam* (མཐུན་ལམ) with the guest. At the end of the celebrations, the guest offers gifts or *soelra*

(གསོལ་པ་རྩེ་) to the *tshog-chang* organisers. The gifts must be equivalent to what was spent for the *tshog-chang*. Strict reciprocity is required. Otherwise, a kind of social debt would be generated that would fall on the family members in subsequent years.

When guest(s) are hosted for several days, two *tshog-chang* are held, one on arrival and one on departure. The *tshog-chang* have become widespread since 1952 with the modernisation of the state of Bhutan and the reception of officials and administrators on their tours of the villages²⁵. The *tshog-chang* culture, which originated in the eastern districts, has gradually spread throughout the country.

3.3 *Chang* and *ara* in religious life

“*Chang thungmi mila yonten med, Chang ma thungmi mila sonam med* ”
 - “ The *chang* drinker gets no sense, the *chang* abstainer gets no luck. ”
 (Bhutanese saying).

Log-chang (ལོག་ཆང་) refers to the specially brewed beverage brought by the hosts and guests of a feast, a religious event, a funeral ceremony, generally any family or community celebration involving families from far away. They bring with them beverages, grains and vegetables for sharing. The organising family or community does the same, coming earlier to the spot. Food and beverages brought by everyone are displayed by the host to the guests. Words of respect are exchanged, or condolences when a decease motivates the meeting. Then the host or hostess offers a round of beverages, usually *ara*. This toast called *log-chang* is the beer of reciprocity.



Fig. 52: *log-chang* served by the hostess

²⁵ In 1952, [Jigme Dorji Wangchuck](#) acceded to the throne and launched Bhutan into a program of development and international exchanges. The National Assembly (*Tshogdu*), the Royal Court of Justice and the Royal Bhutanese Army are established. In 1956, serfdom was abolished and an agrarian reform was carried out with the redistribution of land on the basis of 30 acres (12 ha) per household, taken from the lands of the large landowners and the large agricultural estates of the monasteries. This was an exceptional political measure in the history of the world if one compares it to the aborted agrarian reforms in Latin America, Africa or South-East Asia.

Lhaseol is an annual religious festival for praying and begging the deities and spirits to grant wealth and happiness to the people of a village. The organising village offers *ara* and food to all visitors as a welcome. The elders and the elderly are especially pampered. They are a tangible proof of the blessing granted by the deities to deserving people who live long.



Fig. 53: a Buddhist monk may receive *ara* but must not drink alcohol and has to throw it away.

Buddhist laypeople are given a few drops of *ara* as a sign of welcome, *ara* collected in their joined hands. The social and religious symbolism is more important than the actual consumption of alcohol. Strictly practising Buddhists do not drink it. As for the beer offerings left on the altars in the chapels and temples, they are thrown away by the monks whose vows forbid them to drink alcohol.

In each household, *lum* is prepared months in advance for the annual celebrations: *losar-chang* to celebrate the new year, *thru-chang* to celebrate the first rainy days of the calendar, and so on.



Fig. 54: offerings of *chang-beer* in pots ornamented with butter during annual celebrations

Mar-chang (མར་ཇང་) is a libation of beer with butter (*mar*), offered to the deities and spirits that one wishes to honour or appease. This ritual has its roots in the [Bön](#) religion, integrated and modified by Tibetan Buddhism. The *chang* or *ara* is offered in a metal vase decorated with yak butter spikes or horns. The beverage is poured with an ornamented ladle as a sign of respect and devotion. This offering is accompanied by religious chants.

Villages in Bhutan celebrate their local deity every year. In the village of Rinchengang, for example, men gather early in the morning in front of the temple that guards the arrow (*tsendha*) of the deity Langdrap. They make *mar-chang* offerings of



Fig. 56: Rebney festival of Shingkar

food and beer. Then beer or ara is served to the audience in the temple. In the village of Shingkar in the Ura Valley (Bumthang district), the Zhungdrel ceremony of unveiling Thongdrel is held on the 5th day of the Rebney festival (9th lunar month). Attendees sit in the courtyard of the Dechen ling Temple (Dechen ling Lhakhang) and serve fruit and food, along with *chang* beer or *ara*.

The *dutsi-chang* (*dutsi* = nectar²⁶) is especially associated with *tshechu* ceremonies. The *ara* is offered. A skull in the centre of the altar receives the *dutsi-chang*. A small spoonful of *dutsi-chang* is distributed to the attendees after the Buddhist prayers that transform the common beer into *dutsi-chang*, a blessed and beneficial beverage.



Fig. 57: offering of *dutsi-chang* in a double bowl

The *serkem* (ལམ་ལྷོ་ལྷོ་ལྷོ་) is also a libation of beer or ara. It is part of the rituals that every family performs on the domestic altar, which is set up in a special room or corner of the house. What is considered the best part of the *chang* brew, or the best quality *ara* (the one from the first distillation) is poured. The libation is accompanied by the *serkem* prayer. This libation is also offered when the traveller crosses a mountain pass. It is poured on an altar when there is one, or thrown to the sky.



Fig. 58: a family altar with *chang*-beer offering

When the woman brewer tastes her first brew or distillation, she throws a few drops of *chang* or *ara* on the ground in honour of the local spirits, and says a few words of the *serkem* prayer.

In the morning, the Bhutanese burn incense on the domestic altar. This incense (*sang*) is made from ingredients called *dze* in which some *ara* is incorporated. This is called *sangdze chang*.

The *serkem* libation is also part of longer and more complex temple rituals. It may, for example, be performed in conjunction with a person's prayer to the local deity for auspiciousness on a distant journey, perhaps reminiscent of a time when mountain passes were haunts of bandits.



Fig. 59: special golden bowl to offer *ara* (*serkem* libation) in a Buddhist temple

²⁶ *Dutsi* (*amrita* in Sanskrit) refers to an immortality beverage rising from the bottom of the ocean of milk brewed during 1000 years by the Devas and Assuras Hinduist deities. The Devas thus regained their partially lost immortality. In Tibet, a *dutsi*-drink is part of the long *drubchen* collective meditations, made of brown-black grains dissolved in alcohol, a kind of medicine for keeping awake rather than a forbidden alcoholic drink.

Cham-chang (འཇམ་ཇང་) is the beverage offered to dancers at the end of the *Cham* dances. It has no religious significance. It refreshes the dancers who are exhausted by the physical performance and is a sign of the village's gratitude for this apotropaic ritual that keeps malevolence and bad luck away from the village. When a quarrel breaks out between families or villages, *cham-chang* is served if the protagonists reach a (re)conciliation or *chamkha* (འཇམ་ཁ་). The

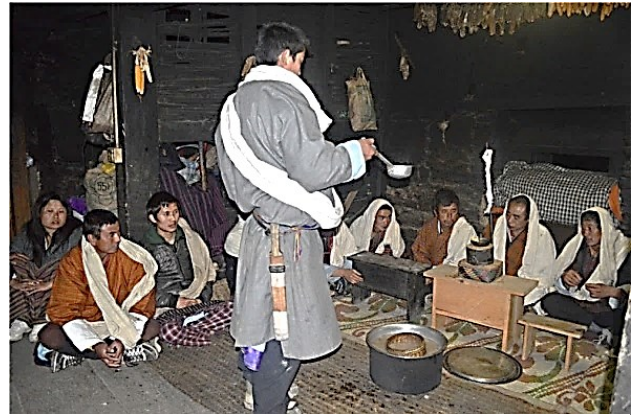


Fig. 60: *cham-chang* offered to dancers

village elders act as mediators. They will witness and guarantee the solution agreed upon by all. Once drunk, the beer seals this agreement and forbids anyone to contradict it, on pain of losing their word and honour in everyone's eyes. These words, given, memorised and sealed by the beer, are stronger than a paper contract.

Tshog-chang (ཚོག་ཇང་) refers also to the beer or ara served during *tshog*, a tantric ceremony that is part of Vajrayana Buddhism developed in Tibet and Bhutan. This *tshog* is not related to the *tshog-chang* of lay meals described above.

Organisers of religious festivals or dances often offer drinks to the entire audience in thanks for the beauty of the songs and dances. This beverage is called *Nyen-chang* or *Lek-chang* (སྙེན་ཇང་ལེགས་ཇང་). It evokes the social structure of ancient Bhutan, dominated by local potentates who, in return for chores and taxes, had to entertain the local rural population several times a year, either within the walls of a *dzong* (a Bhutanese stronghold) or on a meadow.

The *tor-chang* is linked to the making of *torma* coloured cakes that are offered on the altars. Barley flour and butter can be mixed with *ara*, depending on the destination of the *torma*. The *torma* preparation sessions can also be preceded and followed by a cup of beer or *ara*.

The *maag-chang* (མཎམ་ཇང་) is served at the end of a ritual battle or *maag*. This battle mimics exorcism rituals and displays of valour staged during religious festivities.

The slightly heated *ara* is often offered to priests when they conclude long religious ceremonies at dusk. This *drol-chang* (གྲོལ་ཇང་) is accompanied by a salad called *changpa* (ཇང་པ་གསལ་).

Jinsek is a ritual of submission of wrathful deities who harm humans. The lamas perform it to appease them. The ritual consists of burning a mixture of grain, fruit and *ara* while reciting prayers.

The people of Bhutan pray Jambhala, the deity of wealth, to bring them material benefits. Specially brewed *chang* and *ara* distilled from it are kept for this occasion and offered during the celebration. This *ara* is called *yang-chang*. Here again, *chang*

has taken on the generic meaning of alcohol since a distilled beer is materially offered to Jambhala.

The *ngo-chang* is the beverage offered to the lama who officiates so that the deceased beings are freed from the circle of suffering in their next existences. He recites the *ngowa* prayer. Beer is served to the participants. This prayer is also addressed to living people to whom well-being is wished in their present and future lives.



Fig. 61: Bon tradition and invocation of Bon deities

A *Tsan* is a non-human spirit inhabiting the mountains. It is believed that every human being is bound to a *tsan*, a protective deity to whom offerings must be made every year, or when the person suffers from an illness caused by disrespect for his or her *tsan*. The *chang*-beer specially brewed on this purpose is called *tsan-chang*.

Tshe means life, especially long life. *Tshe-chang* is brewed especially for the long life of a person. It is offered with other rituals or a celebration held for this purpose.

Each human has his own astrological sign, his *khando*, such as Shaza Khando, Leki Khando, etc. Each person has to offer beer called *khando-chang* brewed for the ritual appropriate to his *khando*.



Fig. 62: Bon tradition and a sacred place

Singye Namgyel quotes the testimony of a Punakha elder about the symbolism and manners attached to brewing beer in its religious function: « *The use of chang has been in the dzong, gonkhang [sanctum of the protector deity] and lhakhang [local temple] for regular offering of changphu and serkem. While preparing ara not only sanitation and cleanliness should be maintained but there should be faith and loyalty as well. Since the time of great grandparents, ara is brewed for changphu, an offering to Kenchosum during annual choga. Preparation of the same should coincide on an auspicious day and the quality of the ara would indicate peace and prosperity of the family for the year. During the choga, neighbours are also invited and offer ara after meal. After the choga, the host would send ara to the lama, Lupon and high officials of the area in the barrel made of horn as their share.* »²⁷

²⁷ Singye Namgyel, *Arak Culture: An Intangible Cultural Heritage of Bhutan*, p. 59, in *The Essence of Bhutanese Culture, The Proceedings of the Fifth Colloquium (English version) Volume II Second Edition 2009*.



Fig. 63: pouring *ara* from a *palang* pot as a welcome

4 The *chang* & *ara* economy in modern Bhutan

The Bhutan Living Standard Survey (2007) estimates that consumption of alcoholic beverages accounts for 4.8% of the average monthly income per person spent for food and drinks in rural Bhutan. These beverages are mainly *singchang* and *ara* brewed and distilled at home.

As in Bhutan's other neighbouring countries, beer brewing highlights several aspects of Bhutanese social life and economic mechanisms, pointing to a more or less bleak future for traditional fermented beverages such as the following:

- ✚ The brewing of the *chang* beer, strongly related to the cultivation of cereals in the context of a rural and domestic economy, is within the reach of any family having some lands or being able to buy grains. This historical Bhutan is still today (2010-2020) the country's economic backdrop.
- ✚ The distillation of beer offers the opportunity to sell *ara* in a country that slips from a social economy of barter and trade in kind to a market economy (in the Western sense of the term).
- ✚ The brewing of the *chang* and distillation of *ara* grow as sources of income for family entities left behind by a "Westerner development logic". This was already the case a few decades ago in local markets where one could sell and buy dried cakes of ferments, and *ara*.
- ✚ The importation of beers and industrial spirits currently fractures the consumption patterns and generates income-based social discrimination. Traditional domestic *chang* beer is for the poor, foreign industrial beer is for the rich. *Ara* is for farmers, while whiskey, gin, and foreign spirits are for the economic winners of modern Bhutan. Beer and alcohol become signs of social belonging.
- ✚ *Chang* and *ara* previously played the role of social binder, at least creating egalitarian relationships during ceremonies and village festivals. Every

Bhutanese drank, and shared on social events, the same fermented beverages. This does not imply that daily consumption in the past was egalitarian, let alone the ancient Bhutanese society (§ 7).

- ✚ Beer becomes the mirror of a changing society. Domestic *chang* beer only survives in religious ceremonies and the daily life of rural communities. Its image becomes negative, most of time equated with the old-fashioned Bhutan and "village folklore". The inhabitants of the cities and the young generations do not drink *chang* except on occasions of episodic visits to their grandparents in their villages.
- ✚ Branded beers and industrial spirits are sold even in the smallest village of Bhutan, destroying the traditional economy of domestic brewing and exchanges between neighbours. Worst of all, an authentic and rare knowledge concerning natural plants for making beer ferments is quickly lost.
- ✚ Then, each Bhutanese inhabitant becomes a potential customer for industrial beverages made in factories, far away from fields, with a hidden process protected by industrial rights.

Interviews conducted by Singye Namgyel in Tsirang District, southern Bhutan, explain the income from distilling beer²⁸. The interviews talk about *rakshi*, not *ara*. It is the same thing. This district and the Sarpang district bordering the southern frontier with Assam are populated by inhabitants of Nepali origin. *Raksi* (or *rakshi*) is the name of *ara* in Nepal and Sikkim. The brewing and distillation processes are very similar, or even identical, only the cereals and plants that make up the beer ferments differ from those collected and used in central Bhutan.

« Tshering Yangden, housewife, who sells *rakshi* has found the rate of *rakshi* increasing over the period of time. Both she and Rupa agree that they could remember their relatives selling *rakshi* at Nu. 5 per bottle in 1980s and Nu. 10 per bottle in 1998²⁹. Now they sell at Nu. 20 per bottle. Some villagers say that it was Nu. 1 per bottle in 1960s. Though they have not seen the rise in demand, the rise in price of *rakshi* is mainly due to rise in price of the ingredients. Their customer ranges from civil servants to farmers with the majority being the latter. »

Although increasing, the price of the bottle of *ara* (or *raksi*) is much more affordable than that of foreign spirits (gin, whiskey, vodka, liquors, etc.). Social fracturing is at work. It is also remarkable that people in urban areas prepare *ara* for sale to supplement their incomes. They do not farm cereals themselves; they buy grains on the markets or directly from the farmers.

A 2004 study conducted in the districts of Haa, Bumthang and Trashigang has looked at the issue of rural use of cereals. These three districts were chosen because they are respectively located in the west, centre and east of the country³⁰.

« Haa: Very few families have any agricultural surplus for sale, only a small percentage of households, 5% reported of marketing their produce. 53% of the major

²⁸ Singye Namgyel, *Arak Culture: An Intangible Cultural Heritage of Bhutan* (op. cit.), p. 62

²⁹ [Nglutrum](#), the Bhutanese currency has the same exchange rate parity as the Indian rupee. 1 € ≈ 75 Nu (2019 rate).

³⁰ Singye Namgyel, op. cit. p. 63.

food crops are used for consumption. 15% of the crops produced are used for cattle feed while 14% is reserved as seeds. 13% of the food crops produced is used for making chang or alcohol [ara]. »

« Bumthang: There are no instances of crops being sold as surplus. 61% of the total food produced in the Dzongkhag is used for home consumption. A sizeable amount, 17%, is used for brewing alcohol or arak, 11% is left as seed reserves and another 11% is used for cattle feed. Buckwheat and millet are used for cattle feed while barley and wheat are used for alcohol making. »

« Trashigang: 61% of the total food produced in the Dzongkhag is used for home consumption. 6% is reserved for cattle feed. 10% is kept as seed reserve and a sizeable amount of 22% is brewed as arak. 1% of the total produced is marketed. »

The six major cereals grown in Bhutan fall into five categories of use. Rice, corn, wheat, millet, buckwheat and barley are used for: 1) human food, 2) animal feed, 3) seeds for next year, 4) brewing chang beer 5) sale on markets. The percentage of grain reserved for beer brewing in farms increases along a West => East axis: 13% in Haa District, 17% in Bumthang, 22% in Trashigang. The interpretation of these data is more complex than it seems. Eastern Bhutan has a strong and very old tradition of brewing in the farm. This may explain heavier grains use for beer and *ara*. Nevertheless, the faster economic development in the West also explains a changing behaviour that diverts drinkers from traditional fermented drinks toward foreign liquors. That trend disfavors *chang* beer and *ara*, and decrease the use of grains for local brewing and *ara* distillation in Bhutan.

Historically classic questions arise for the authorities of Bhutan. Does brewing beer divert cereals from a better use as food?

Developing African countries in the 1960s and 1970s fought domestic brewing, politics based upon studies paid for by large foreign brewing companies. Village brewsters' beer has been replaced by canned industrial beer, which was considered healthier, transportable, refrigerated. Subsequent independent studies have shown that the nutritional qualities of industrial beer are poor compared to those of traditional African beers. Too late, these domestic beers had almost disappeared in the 1980s, except in some remote villages or culturally resilient ethnic areas. In the meantime, the consumption of alcohol by the inhabitants had not declined, nor the share of cereals dedicated to the brewery, mainly maize, sorghum and rice, since the foreign breweries established in each country were taking a part of the local harvests to brew their branded beer. In villages and cities, the beer brewsters became alcohol distillers in order to earn some money and support their families, until their local alcohol was also replaced by industrial alcohol, as beer has been. This African example is not unique. Similar cases are found in Latin America and Southeast Asia. The war against the local mastery of fermented beverages has never been a good long-term policy, especially in the fight against alcohol abuse.

In Bhutan, a prevention policy drastically limits the consumption of alcohol. *Chang* beer and *ara* have been forbidden from sale since 1983. Paradoxically, foreign beers and spirits are imported and sold freely. Their relative high prices limit sales,

but their commercial distribution reinforces the cheap alcohol market, the *ara* distilled at home to be illegally sold or simply bartered.

5 The Beer of Enlightenment of Tantric yogins

Brewing techniques have many facets. From the perspective of Buddhism and tantric practices specific to Tibet, Bhutan, Nepal and Sikkim, beer and its making have inspired the most beautiful songs composed by famous yogins. The brewing of beer is described step by step to allude the transformation of the body and mind of disciples on the path of enlightenment.

John A. Ardussi published in 1977 an essay with a provocative title, *Brewing and Drinking the Beer of Enlightenment in Tibetan Buddhism: The DOHĀ Tradition in Tibet*. In his own words, he intends to explore a « *thematic innovation from Tibet, the contemplative practice of brewing and drinking the "beer of enlightenment."* ». Being neither Tibetologist nor specialist in Buddhism, we will modestly summarize his paper.

Accomplished yogins composed songs based on the rituals and contemplative techniques of tantric literature, emphasising the need for intense individual effort to attain enlightenment. This technique aimed at rapid but difficult enlightenment in "one life and one body" through powerful contemplative methods restructuring the practitioner's own reality of mind. [Milarepa](#) (1040-1123) used such techniques and composed many chants, and after him [Brug-pa Kun-legs](#) (1455-1529?). In Tibet, these chants became an important medium of religious instruction for monks, yogins and lay people.

These songs and poems borrowed themes from the agricultural lifestyles and social reality of Tibet, adapting Indian models from the Dohā tradition. Beer and alcohol as symbols of nectar (Skt. *Amṛta*; Tib. *Bdud-rtsi*), the distilled essence of teachings or contemplative experiences, are common in Tibetan Buddhist writings and initially derived from Indian usage. In songs about beer, the brewing techniques and the drinking habits all evoke the yogin's effort. The fermented beverage is moved to a different symbolic level.

Here is an example in which the progress of brewing is followed step by step, according to details that show Milarepa's perfect knowledge of the brewery. Every verse, every word carries a double meaning:

*They busy themselves first with their useless crops,
And then with the making of beer from yellow barley.*



Fig. 64: Milarepa (1052-1135). A Bhutanese thanka, late 19th early 20th century, Dhodeydrag Gonpa, Thimphu

*We, too, brew a batch of beer and drink.
Now to explain our method for the brewing of beer:
Set out the hearth stones of Body, Speech and Mind;
Within the copper pot of Emptiness
Pour the barley of Purest Faith;
Pour in also the water of Mindful Compassion;
Light the fire of Great Wisdom,
Then cook to a mash of Dimensionless Uniformity.
Spread it out in the central plain of Sameness,
Upon the rug of Great Joy;
Add the starter of Sacred Instructions, then
Keep it warm in the bed of the Four Immeasurables.
When it has risen and become the ferment of Many-with-one-flavour,
Pour it into the pot of the [five] Impulses;
Infuse it with water to a union of Wisdom and Means;
Strengthen it into the beer of the Five Knowledges.
From the spigot, the source of all desires,
Tap the beer, the endless flow of nectar.
Its raw material is the Pure Heruka;
Its other ingredients are the Heruka of the Dharma-realm;
Its colour is the Lotus Heruka;
Its flavour is the Diamond Heruka;
Its smell is the Various Heruka;
Its touch is the Heruka of sensuous beauty.
And now one drinks the beer of yoga.
With the first [drink] he clarifies and purifies himself as Diamond Body;
With the second he perfects his Buddhahood as Enjoyment Body;
With the third he appears visibly as Emanation Body.
The suitable man will drink of this unending flow of beer, which becomes nectar;
There is no chance for the unsuitable to drink it.*

One can recognise the main technical steps involved in the brewing of *chang*-beer: the boiling of grains, the inoculation of the mash with the beer-ferment (*phab*), the maturation-fermentation of the *lum*, the three filtrations of the *bang-chang*. *Phab* is the *starter of Sacred Instructions*. If *Its color is the Lotus Heruka*, Milarepa speaks symbolically of a *chang* brewed with white rice, a pure beer white as a lotus.

Ardussi cites another poem by a Tibetan yogin, Loras-pa Dbang-phyug brtson-'grus (1187-1250), who weaves an analogy between the delightful intoxication given by the *chang*-beer and the salvation afforded by enlightenment, in contrast to the excess and disgusted vomiting of the Circle of rebirths and endless suffering (the Samsāra):

*While the beer is tasty in Dol Ma-ma-gser-stengs,
Yogins, too, become intoxicated from beer.
To explain a bit about this system of intoxication from beer:*

I - that from the excellent barley grains from the fields of faith;

II - that from the practices of the Wisdom-Dakinis;

III - intoxication on the beer of the dance of the instructions.

*In due time, when these three are in abundance,
One spews out the vomit of disgust with Samsara;*

Having vomited and become free from drunkenness, how happy am I!



Fig. 65: Lorepa Wangchuk Tsöndrü (1187-1250)

Another example is that of Drukpa Kunley (1455-1529) in a tavern of Lhasa being asked by the hostess to brew some *chang*-beer. Drukpa tells:

« She put down four measures of barley and said, 'Brew a batch with this, Kun-dga' legs-pa'. Then she went off, carrying her cold weather clothing. In three days' time she returned and asked, 'Has the beer risen yet?' 'If it has risen it has risen; if it hasn't risen it hasn't risen. It's still in the winnow,' I said. And she replied, 'You're a disaster as a teacher! The knowledge you have, but still you didn't brew the beer!' To this I replied, 'Hostess, I [as a yogin] must know all things; but I also must not do them. What is achieved by doing everything who knows how? I even know how to kill goats [but don't do it]!'. »



Fig. 66: Drukpa Kunlegs (1455-1529), a Tibetan yogi

Ardussi concludes that, at the first glance, these songs and stories demonstrate a gap between the brewing of beer, a vulgar affair, and the yogin's quest to detach himself from the world. Beer brewing serves the propaedeutic purpose of the tantric master who teaches detachment. The Tibetan tradition draws on the habits and customs of the world of the women skilled as brewers-farmers by using a topic and a familiar appeal to Tibetans, that for *chhang* beer.

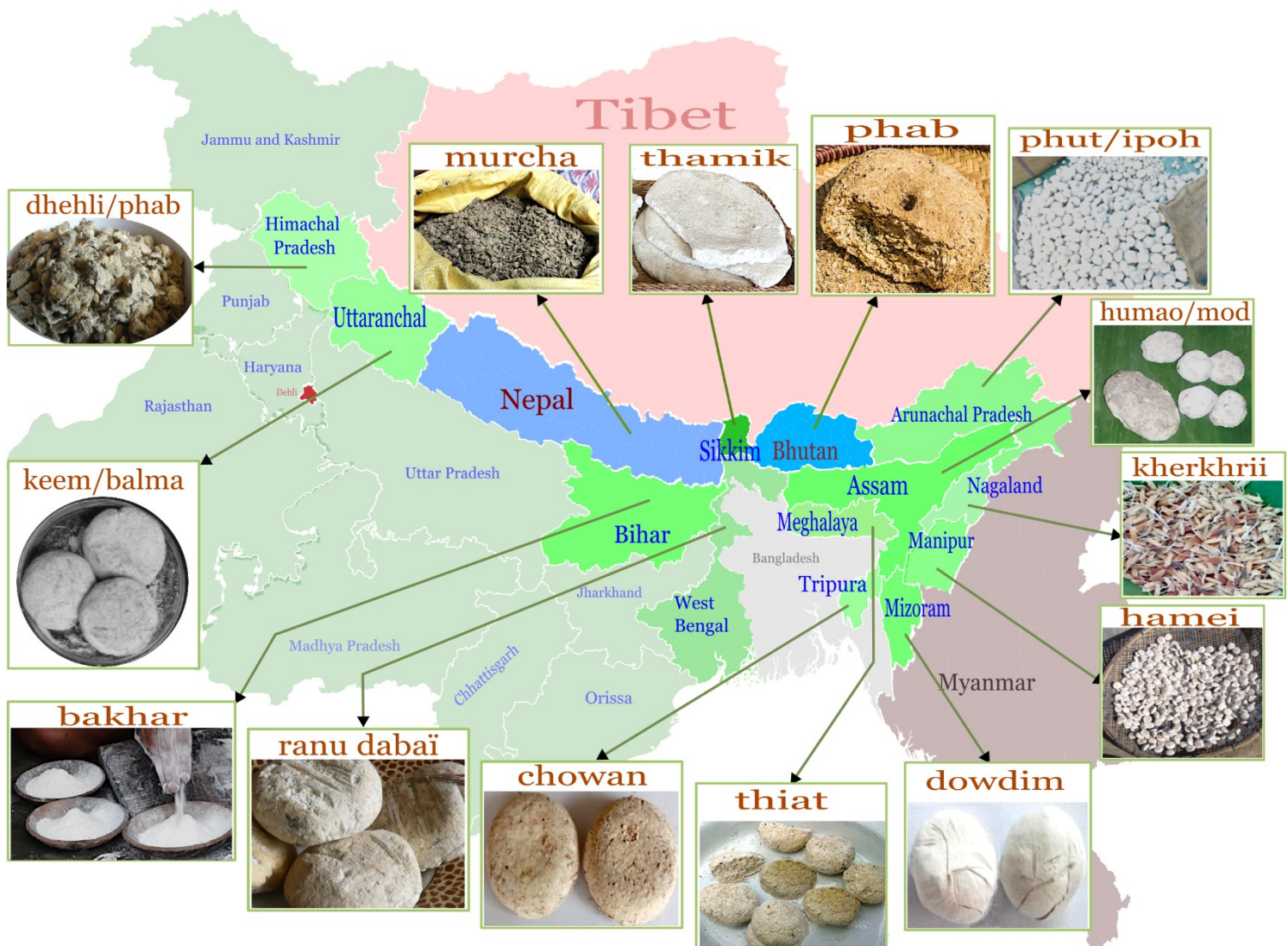
A second level of reading shows that the ultimate teaching of the yogins relates to the true absence of duality, which is only created by the human mind between the worldly and the spiritual realms. There is no dissociation between drinking *chang* beer and drinking the “beer of enlightenment”. Rather, a fictitious separation is generated by the human mind that fixates on worldly appearances, creates false ultimate realities, and in the long run keeps human beings into the circle of the suffering and never-ending rebirths (*samsāra*).



Fig. 67: the Wheel of Life or Reincarnations (*samsāra*), mural in the Trongsa dzong (centre of Bhutan). (Photo Stephen Shephard)

6 Brewing methods in the Himalayan regions

Brewing ferments are not exclusive to Bhutan. This technology is widely shared among the peoples of the Himalayas and its Indian foothills. From Tibet to West Bengal, from Ladakh in the west to Arunachal Pradesh in the east, this brewing technique is mastered by rural populations who live in a traditional way (not at all or hardly urbanised, in synergy with their plant environment).



The shared technological background of the beer ferments and his cultural heritage in the Himalayan areas

Adapted from Sha SP, Suryavanshi MV and Tamang JP (2019), Fig. 1 p. 3. Das, A. J., Deka, S. C. and Miyaji, T. (2012) : 377-392. And personal data.

Map 3: beer ferments in Himalaya and neighbouring regions

These ferments, their names, their compositions and, above all, the plants that carry the fungi, bacteria and yeasts, exhibit an extraordinary diversity reflecting that of their biotopes. The Map 3 identifies these regions and shows just one example of a type of ferment in each of them.

However, the diversity of the ferments is based on the same technological foundation and common processes. The principle is always to make pellets from cooked grains that are still wet, on which amylolytic fungi, yeasts and bacteria from certain plants are grown. Once dried, these pellets keep well and are used to seed brews. In the literature, they are sometimes called "starter" or "yeast cake", the latter being an ambiguous or even inaccurate name as explained in § 1.1.

The processes vary in only minor respects. The brewers can add ash rich in mineral salts that promote the metabolism of fungi and yeasts, also cane sugar for the same reasons. Depending on the region, pine needles are replaced by banana leaves, palm leaves, bark or even cloth. The ripening time is faster in the hot and humid regions of northern India such as Assam, Bihar or Bengal. On the other hand, the colder mountains of Uttaranchal, Nepal, Sikkim or Arunachal Pradesh require the ferments to be grown in warm places within the household. Finally, the drying of the ferment cakes is adapted to domestic techniques. Dry ferments come in the form of pellets, cakes, granules or powders.

Who uses them? Mainly, the rural populations of the Himalayas and the northern states of India, often scarcely or not at all Hinduised, categorised by the dominating classes as 'indigenous', i.e. not fitting into the Hindu caste system. They often keep refuge in forests, mountains, deep valleys and swampy deltas, fleeing the cultural and economic pressure of their majority neighbours, or the exactions of the administrators and military. The foothills of the Himalayas have long provided such shelter for minorities. Some ethnic groups have their roots in the old peopling of northern India, others in migrations originating from the margins of the Indian world. Some ethnic groups have as few as 60,000 people (a very low number for the Indian subcontinent), while others have tens of millions. These peoples, sometimes referred to as tribes, constitute a geographical and human mosaic in the midst of the majority Hindu population ([Ethnic groups in India](#)).

Their customs, ways of life and traditions have been studied since British colonisation. Their resilience is astonishing, considering that the Islamic (712-1210), Turco-Afghan (1210-1526), Mughal (1526-1707) and British (1750-1947) conquests, followed by globalisation, all sought to subjugate them and foist on them a way of life and beliefs deemed 'modern' by each of these colonisations.

Since the 2000s, ethnologists, biologists and food specialists have been closely studying these beer ferments, their composition and their use, and have highlighted their nutritional, economic and environmental benefits. With simple, inexpensive and environmentally friendly means, entire populations are brewing nutritious fermented beverages, rich in trace elements and vitamins, thanks to beer ferments. Local studies are accumulating that cannot be summarised here.

The very common occurrence of beer ferments among the ancient populations of the Indian subcontinent raises the question of their origin and history. The data, still sketchy, open up a completely new chapter in the world history of brewing. The Near East provided the oldest traces of beer 13,000 years ago, and in China 9,000 years ago. Ancient India, the Himalayan belt and the vast Tibetan plateau are an unexplored geographical block in the history of beer. Its eastern margins hold the secrets of a brewing hotbed that is undoubtedly very old. During the time of the Maurya Empire (322-187 BC) and King Ashoka, beer was already brewed in the Ganges Valley (beer-studies.com/world-history/.../ancient-empires/maurya-empire). The surā beer was brewed from rice, barley or wheat in northern India and Pakistan during the 1st millennium BC ([Vedic-brahmanic-India/Sura-brewing-process](http://beer-studies.com/world-history/.../ancient-empires/maurya-empire)).

During their protohistory, the peoples of the Near East and Egypt developed the germination of cereals to hydrolyse the starch of the grain for brewing purposes. This technique of malting grains was transmitted to Europe through the migrations of the first farmers. The protohistory of brewing in China is partially known. Grain malting and amylolytic ferment making coexisted for a long time, until the latter technique predominated from the 7th-8th centuries. For their part, Japan and Korea have also preserved the ancient technique of amylolytic beer-ferments to brew respectively their *sake* or *makgeolli*.

The protohistory of beer brewing in the Indian-Himalayan-Tibetan geographical cluster remains to be elucidated. The new techniques for analysing ancient chemical residues and starch granules introduced in archaeology may help in this respect.

7 A sip of beer history in Bhutan

The *chang* bears the traces of its historical origins. Its brewing technique is shared by the many ethnic groups in the Himalayan region, which are an ancient substratum of peopling. The fermenting technique bears witness to a deep knowledge of the plant environment, the work of peoples who have remained in symbiosis with nature. Their ability to brew any natural source of starch points to a technique suitable for all ecosystems. Nevertheless, these elements do not provide a historical framework, apart from the relative antiquity of *chang* beer itself.

This *chang* beer, or rather a family of beers similar to the actual *chang*, was born when the three conditions for the birth of a historical brewing tradition had been fulfilled in the Himalayan region and the Indo-Gangetic plains:

1. The valleys of what was not yet modern Bhutan were cleared and cultivated to produce a source of starch (1st condition of a technical nature).

2. Clans of warlords or primitive kingdoms had dominated these peasant communities and created a social hierarchy, monopolising a part of their grain crops for storage and disposal throughout the year. These primitive kingdoms were able to brew beer for their followers whenever they wished (2nd condition of a socio-political character).
3. A local religion had instituted rites, collective representations and offerings of fermented beverages to the deities, which were also consumed by part of the population during sacred celebrations (3rd condition of a spiritual character).

The first condition was met in Bhutan around 1500 BCE, if one relies on the polished stone tools discovered, witnessing a proto-farming associated with the land clearing and a slash-and-burn agriculture of grains³¹. The other two conditions for the setting up of a brewing tradition are of a later period.

It is likely that the rich and long political history of Bihar, Bengal and the Ganges valley has, since the dynasties of [Magadha](#) in the 7th century BCE, influenced the high valleys, driving warlords, undesirable ethnicities, and exiled princely families towards the northern margins. At that time, new social hierarchies were slowly built, forging the substratum for territorial political constructions that were more and more extended, giving birth to kingdoms, and soon to empires such as that of the Maurya dynasty (324-184 BCE). These heavy historical trends fulfil the second condition.

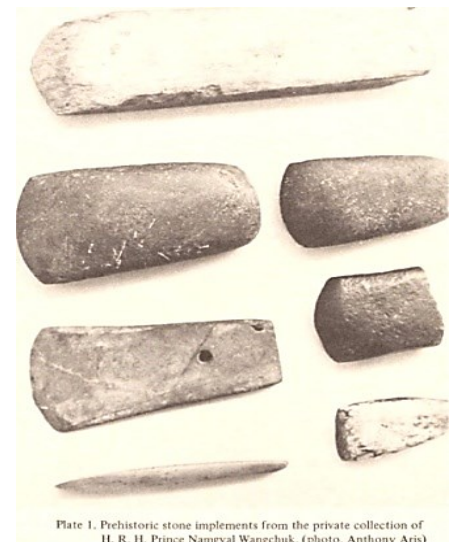


Fig. 68: prehistoric stone implements (collection of Prince Namgyal Wangchuk, cf. Aris Michael 1979)

Strabon (Geographica XV. 1. 53) reports « **They [the Indians] do not drink wine, except at sacrifices, but drink those composed of rice rather than barley. Also, their food is mostly rice-porridge** »³². He gets his information from Ctesias (Indika) and Megasthenes (340-282 BCE) whose texts have been lost. The first was a physician between 415 and 398 BCE of the Great King of Persia Artaxerxes II, whose empire extended to the banks of the Indus that Ctesias describes according to testimonies.

³¹ At the request of Michael Aris, Mr. Sieveking of the British Museum examined a polished stone adze specimen. His answer: « *In Vietnam, Thailand and Malaysia such adzes are common, and have been found in cultural association with decorated pottery and other forms, mostly in burial places. They are probably characteristic of an agricultural people whose culture at least in the central region appears to be fairly distinct. Few reliable radiocarbon dates are acceptable for this phase. On general grounds, I would suggest a date of 2000-1500 BC for the major period of use of such adzes.* » Aris Michael, *Bhutan Early History of a Himalayan Kingdom* – 1979, xxiii.

³² Aelian tells of war elephants in India: « **The elephant when feeding at large ordinarily drinks water, but when undergoing the fatigues of war is allowed wine, not that sort, however, which comes from the grape, but another which is prepared from rice.** » (*Hist. Anim.* XII. 8.). So, Aelian is speaking of an Indian rice beer.

The second was a Greek ambassador to the Maurya at Pataliputra (current town of Patna in Bihar). Rice beer was the common fermented beverage in Pataliputra, the imperial capital being 400km as the crow flies from the western borders of present-day Bhutan and Sikkim.

[*Arthashastra*](#), a treatise on political economy attributed to Kautilya and written between -200 and 300, tells us about the management of fermented drinks and beer ferments (*kinva*), by specialized superintendents working on behalf of the king (Book II, chap. 25). They must ensure that fermented beverages (beers, mead, wines from fruits, sugar cane or molasses) remain a royal monopoly, by levying taxes on this trade. *Arthashastra* talks about seven fermented drinks: *medaka*, *prasanna*, *svetasurā*, *āsava*, *arista*, *maireya* and *madhu*. The first three are beers whose composition and recipe are given by the text. *Medaka* is a rice beer, *prasanna* is a beer of various flours, *svetasurā* (lit. white beer) is a white rice beer whose aromas are similar to those of the *prasanna* beer.

More interestingly, the text gives the composition of the *kinva* beer ferment: « One drona of either boiled or unboiled paste of *másha* (*Phaseolus Radiatus*), three parts more of rice, and one *karsha* of *morata* (*Alangium Hexapetalum*) and the like form *kinva* (ferment). » In current units, this gives 13.2kg of *Phaseolus Radiatus* paste (*Vigna radiata*, that is the *mung*-bean from India) + 39.6kg of rice + 160 seeds of [*Alangium Hexapetalum*](#). The composition of the *kinva* ferment differs from the present-day Bhutanese or Indian ferments. But the technical principle is identical. On a cooked rice and *mung*-beans starchy substrate, the *Alangium* seeds provide the microorganisms (fungi). The *Arthashastra* proves that beer was a common drink along the banks of the river Ganges 2000 years ago, and the amylolytic ferments a known brewing technology, beer and ferments being already items of trade and financial profit for the then political power. For details beer-studies.com

The brewing tradition along the Ganges and Indus valleys is older than the Maurya dynasty. It has no doubt passed down to the people of the foothills of the Himalayas, on the assumption that these same peoples have not developed their own brewing traditions from local cereals and under their proper socio-political evolutions. Only archaeology can decide the question. These researches are nascent in Bhutan.

The few ancient documents available for Bhutan say nothing about its religion and political organization before Padmasambhava came in the 8th century from the northern today Pakistan to Bhutan, otherwise named the Mön country and its inhabitants the Mön-pa. For the inhabitants of Hindu valleys, this term refers to the non-Indo-Aryan mountaineers living on the North, and for the northern Tibetans it designates the peoples of the southern areas! Before that time, the Bon religion prior to Buddhism flourished in the Himalayan valleys and Tibet. Furthermore, animist religions worshiped entities and natural forces. Here is the third condition relating to the role of beer in religious practices. This meagre historical cache gives no clue to beer as a religious offering or as a beverage used in rituals of ancient Bhutan, unlike

the testimonies given by old Indian documents and the use of *surā*, a beer of the Vedic times³³.

We have no documents concerning Bhutan before the 8th century. The texts relating to [Padmasambhava](#) tell that a banned prince of Indian origin named Sindha Ra-tsa founded in the 8th century a kingdom in the region of Bumthang (eastern Bhutan), after being defeated by the Indian king sNa'u-che. Having subsequently lost his son in the lasting conflict with his enemy SNa'u-che, the desperate king commits ritual impurities and neglects the worship of his ancestors, the protectors of his political authority. Deprived of his *blah*, his vital spirits, he falls seriously ill and appeals to Padmasambhava, the only powerful tantric master able to subdue the local spirits of the valley who locked up the king's *blah*. The cured king offers a cup of *chang* beer to Padmasambhava and grants him what he asks for³⁴. He wishes of course to patronise the adoption of Buddhism in the kingdom. The *chang* beer was therefore part of the 8th century fermented drinks at the court of a prince whose kingdom lies in the valley of [Bumthang](#) (N-E of today Bhutan).

In 1668, the monk Ngagbang recounts the history of the clans and the founding families of the Bumthang Valley and eastern Bhutan. This pivotal document for the history of Eastern Bhutan delivers an interesting episode for the history of *chang*-beer. A local potentate meets Thangtong Gyelpo (1385-1464), the famous yogin founder of the Chakzampa Buddhist School and a builder of bridges with iron chains. He questions the auspices to predict the future of the king and his heirs. The *chang* beer serves as a vehicle, thrown in the air by the yogin and drunk by the king in a skull of a *dākinī*. He will have as many sons as the number of skull-fulls of beer he is able to drink: six and a half tells the story:



Fig. 69: a historical suspension bridge with iron chains. Tamchog Chakzam (XVth c.)

« At the time when Jobo Dargyas, the son of Sangs Dorje, has taken U-Sen from Ramgeng-ra as his queen and was residing [there ?], he invited to his home the *mahāsiddha* Thangtong Gyelpo who was going around begging alms and performing him excellent works of veneration. After he had consumed some *chang*, which had been served him to his full satisfaction, he filled a skull-cup with some *chang* and the *mahāsiddha* threw it to the sky. He gave to Jobo Dargyas the *chang* which fell into his hand without spilling and said: "Drink as much *chang* as you can and a special sign of the omens will come forth." Jobo Dargyas completely drank up six skull-cups of *chang*. When half remains from a [further] cupfull the *mahāsiddha* declared: "It seems that

³³ Madhavi Bhaskar Kolhatkar, *Sura, the Liquor of the Vedic Sacrifice*, New Dehli 1999. For a full historical sketch, please refer to beer-studies.com/en/world-history/First-kingdoms/Vedic-brahmanic-India

³⁴ Aris (1979) pp. 46-47. *Grape-wine*, translated by Aris, should be read *chang-beer* as noted by K. Phuntsho (2013).

you will have seven sons but one will be of no use. Of the six, sons one will be a bodhisattva of the tenth stage who will uphold the teachings pertaining to explanations of the doctrines and their realization, and who will be of infinite benefit to sentient beings." Filling the skull-cup with *chang*, he said: "Oh, Great Jobo ! Since this skull-cup is the cranium of the *dākinī* Groba Zangmo it is extremely valuable. I leave it with you as the support of your faith" and he gave it to him. »³⁵

In 1681, Tenzin Rabgay (1638-1696) becomes the 4th [Druk Desi](#) of Bhutan and reforms the state structures dominated by [Kagyu](#) monastic institutions. He strengthens the recruitment of monks and restores monastic discipline, two topics in decline during the wars with Tibet and internal political unrest. In 1690, this reform enacts the prohibition of drinking beer in monasteries, except for *gana-cakra* rites. This tells us that at that time, beer and Buddhist vows were not thought to be conflicting (Ardussi 1977, 373).

Other texts illustrate the uses of *chang* beer during the historical period from the 14th to 17th century. These are the biographies of llamas and yogins. The songs by Milarepa and Drukpa Kunley abundantly evoke the *chang* beer and its brewing methods, which seem at that time very well established and very close to present-day brewing techniques (cf. [5](#)).

In contrast, the *singchang* beer seems to be a form of *chang* elaborated for a social or religious aristocracy. The *singchang* requires, for an equal volume of beer, more grains of better quality. Only an aristocracy who owned large agricultural estates was able to make the *singchang* a beer of everyday life. Warlord and protector of Buddhism, this aristocracy had granaries filled of the best kinds of cereals, including rice.



Fig. 70: Left: Ugyen Wangchuk (1862-1926) and his ceremonial bodyguards in Tongsa (by White, 1905). Right: 51st Head Abbot of Bhutan (1851-1916) in Punakha Dzong surrounded by monks (C. Bell, 1910)

³⁵ Aris (2009), Sources for the history of Bhutan, p. 45. A *dākinī* ("one who goes into heaven") is a female deity of Vajrayana Buddhism in Bhutan and Tibet. She may be an ancient deity or local demon subjugated and forced to serve Buddhism by a great master, an angry female form of bodhisattva, a historical personality companion of a mahasiddha, or a mahasiddha herself, which seems to be the case in our story.

A recently discovered Bhutanese document, dated 1679, provides an accounting of households and annual rice taxes due to the Dzong, a fortress housing civil and religious authorities for the [Wangdi District](#) at large. Each household or agricultural farm brought together an extended family responsible to the civil or religious authorities to whom they had to provide chores and agricultural products. These households were duly identified as a "tithe unit" and were required to pay taxes in kind every year. This type of census for the year 1679 has recently come to light in Bhutan.

In all, 3232 households had to bring this year 1679 to the dzong 2,289 tons of paddy rice, that is to say a total of 1,144 tons of husked rice³⁶. This huge volume of rice was provided for the food and drink of local aristocratic families, their servants, their guards, and the monks of the monasteries of Wangdi District³⁷. The gigantic dzong of Wangdi Phodrang, built in 1638 on a rocky spur south of Punakha, controlled this central district of Bhutan, at the crossroads between east and west in a country launched at that time in a unification policy. Those who lived in the dzong did not lack rice or *singchang*. This tax tells us that rice was the privileged cereal of the political and religious aristocracy. Hence this Bhutanese tradition which considers *singchang* brewed from rice, especially a red rice, as the premium beer par excellence.



Fig. 71: Left: Wangdü Phodrang Dzong painted by Samuel Davis in 1783 (Aris 1982, 113). Right: Wangdü Phodrang Dzong built in 1638. The cantilever bridge destroyed in early 1970s (photo by Weir in 1931)

Whether in eastern Bhutan, its centre or its western part, the concentration of political and religious powers and the foundation of large agricultural domains that go hand in hand with them began in the 11th century. This concentration of power is reinforced until the unification of the country by Ngawang Namgyal, a Shabdrung of Tibetan origin (1594-1651)³⁸.

³⁶ Calculation based upon an average ratio of raw rice to husked rice = 50%.

³⁷ Dasho Karma Ura, *Massive Rice Offering in Wangdiphodrang in Zhabdrung Rinpoche's Time*, Journal of Bhutan Studies Volume 27, Winter 2012, pp. 1-14. The term « offering » is disputable. It was a mandatory and heavy yearly taxation system.

³⁸ Karma Phuntsho (2013), sets this historical period of competition between schools and Buddhist currents from the 10th to the 16th century. It ends with the prominence of the Drupka School. The historical knowledge of this period is based on documents of a religious nature:

The history of *ara* is harder to draw. Historically and technically, distillation necessarily rests on a well-established brewing tradition. The distillation seems to have been transmitted following the Muslim conquest of a part of India, first Sind in 712 (today Pakistan), then Gangetic plain in the 11th-15th centuries by Turco-Afghans (Sultanate of Delhi 1210-1526). Distillation is primarily a technique dedicated to medicine and preparation of plant essences. Note that the ancient Bhutanese texts speak only of the *chang*. The songs and the biography of Drukpa Kunley (1455-1570) evoke a great lover of *chang*, not of *ara*³⁹. Nevertheless, silent texts do not imply non-existent facts.

Karma Phuntsho reports that the settlement of the [Duars conflict](#), ratified in Punakha in 1910, provided, at the British request, that the Bhutanese authorities prohibit the brewing and distillation of beer in a land strip of 10 miles inside the new southern border. In compensation for the shortfall, the British paid Rs. 1,000,000 each year, in addition to the same amount for the occupation and exploitation of the Duars lands proper⁴⁰. The brewing of beer and especially its distillation were at that time already a fruitful trade for Bhutan, at least for the powerful families controlling its southern provinces.

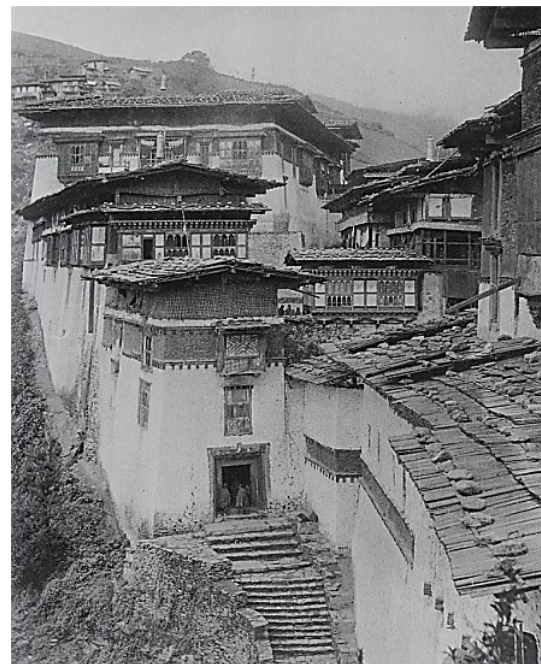


Fig. 72: monastic fortress of Chökhhor Rabtentse in Tongsa built in 1650s. Photo by White in 1905

Modern periods, and especially the most recent one, favour *ara* to the detriment of *chang* as a domestic beer that Bhutanese people desire to drink, even if it is necessary to brew *chang*-beer first to distil *ara*. We have pointed out the reasons above (4).

The story of this dominant trend remains to be written. Kunzang Choden's novel (2005) speaks only of *ara* distilled by the heroine who travels from Bhutan to Nepal.

biographies of masters and yogin, songs and description of the country written by lamas, texts-treasures rediscovered by yogins.

³⁹ The Divine Madman: The Sublime Life and Songs of Drukpa Kunley, by Geshey Chapu, Sonam Paljor, et al., 2000. *The Circle of Karma*, Kunzang Choden, 2005.

⁴⁰ Karma Phuntsho 2013 p. 559.

Measure	Weight (kg)		Volume (litre)
	Barley	Buckwheat	
<i>phuta</i>	0.33	0.29	0.4
<i>dre</i>	1.65	1.45	2
<i>ba</i>	33	29	40

Collection of traditional *dre*-measures of Bhutan used to calculate volumes of grains.
 After Kunzang Choden, Walter Roder, *The Ogyen Choling Museum*, 2006, p.25



Fig. 73: a collection of traditional *dre*-measures from Bhutan (approx. 2 litres)

8 A drop of bibliography!

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* * *

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Tshering Choden and friends from Khudung Pang village in Radhi, Trashigang make ara.

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Seldon prepares alcohol known as *ara* using home distillation.

mandala.shanti.virginia.edu/subjects/7625/audio-video-node/4316/nojs

Another Bhutanese wife prepares alcohol known as *ara* using home distillation.

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