

Book and Film Reviews

Author, Title

Cross Media

Dashi and Umami: The Heart of Japanese Cuisine

Reviewer

Peter Musolf

Jonathan Nossiter (director)

Mondovino

(screenplay by Jonathan Nossiter)

Tony Lima

Norma Schroder

CROSS MEDIA: *Dashi and Umami: The Heart of Japanese Cuisine*. Eat-Japan/Cross Media, 2009, 160 pp., ISBN-13: 978-1-897701-93-5, \$29.81.

Translating from its native Japanese as “deliciousness,” umami is a fundamental flavor our tongues pick up along with salt, sweet, bitter, and sour, the other basic tastes. A coffee-table showpiece, Cross Media's unexpectedly detailed volume brings much precision to this delightful word surfacing often in recent talk on food and wine. It does this by first dissecting dashi, the broths at the center of authentic Japanese cooking. Drawn from seaweed, fish, or mushrooms, these extracts are naturally loaded with umami's chemical constituents. Apart from an intriguing passage on sake, the book says nothing about wine. Umami, nevertheless, appears to occupy a significant part of the wine flavor spectrum, and wine thinkers on to this are giving a revolutionary twist to pairing wine and food (see Tim Hanni's, MW, interview at umamiinfo.com). *Dashi and Umami* would be helpful to anyone trying to grasp these slippery notions and explore them in kitchen and cellar. And it might improve your health.

Dashi comes in four basic types according to ingredients. There is dashi made from *kombu* (kelp), dashi made from *katsuobushi* (bonito shavings), dashi from *niboshi* (tiny dried sardines), and dashi from dried shiitake mushrooms. We can be grateful we're not required to make dashi from scratch. Processing bonito for *katsuobushi*, for instance, involves special fishing techniques, exact filleting, simmering on form-preserving racks, more knife work, a minimum ten days alternating oak smoke and cooling, repeated inoculation with mold, then fermentation and sun-drying. The result is a short, hard bar of skinless fish flesh resembling wood more persuasively than quartered skipjack. The bar is then worked with a special plane to produce rosy, curled shavings. Harvesting and preparing kelp, sardines, and shiitake is similarly baroque, well-left in the hands of

professionals, whose techniques are themselves a kind of dashi, the distillate of age-old culinary practice.

Purists like to plane the dried bonito themselves, but most prefer buying shavings ready-made. Cooking the fragrant, faintly smoky *katsuobushi* dashi, therefore, is simple, requiring only boiling water, a handful of the shavings, a square of dried kelp, and (in contrast to long-simmered Western stocks) very little time. Likewise the fishier *niboshi*, the elegant and marine *kombu* dashi (in some cases this one doesn't even need heat), or the potent *shojin* dashi, calling for nothing but dried shiitake, *kombu*, water, and, like all these recipes, so few tools you will sack your Vita-Mix in embarrassed disgust.

We really shouldn't have to ask how umami tastes, because not just Japanese food, or Chinese, contains it. Every cuisine does, and with surprising prevalence. It's found in cheese. It's in beef and pork, especially when cured or reduced in bouillon. It's in sauerkraut. Africans eat it in beans. Bovril. Vegemite. Tomatoes. Ketchup. Truffles. Southeast Asians love it in fish sauce. The ancients adored it as garum. Incredibly, it's in the amniotic broth we swim in before birth, and it provides much of the flavor giving mother's milk its appeal. Think of chicken stock before you add the salt. That, to a significant degree, is umami, admittedly something of an under-the-radar presence, operating on the senses in stealthy contrast to the unmistakable salvos of its better-known mates. Yet what would your broth be without it?

Serious J-chefs are in imperturbable agreement that virtually everything in their cuisine benefits from dashi in one form or another, and they rarely cook without it. The broths seem to sharpen the flavors of a dish's individual ingredients, they feel, balancing them without melting them into one another, and adding richness. Even where dashi isn't used (plain rice, sushi), fresh versions of its components or other umami-abundant fare (pickled plums, miso, soy sauce) are served, giving a meal its proper gustatory force.

So what is umami *chemically*, to go on in the vernacular of our time. How do we experience it *physiologically*? Why do we crave it? The scientist establishing umami as the flavor of glutamate was Kikunae Ikeda in 1908. Ikeda was a Japanese chemist, and though he studied under Ostwald in Germany his breakthrough clearly had to do with the gargantuan quantity of kelp consumed at home in Japan. *Kombu* is the most generous source of umami yet discovered, every hundred grams carrying 2240 mg of glutamate (see Table 1). Ikeda's student Shintaro Kodama, building on von Liebig's beef broth studies, went on to identify the inosinate suffusing *katsuobushi* as a second key umami trigger (shaving the fish enables a fast, nearly 100 percent extraction). Later, in 1957, Akira Kuninaka unearthed the third great source of umami, guanylate, on hand in cornucopian amounts in dried shiitake mushrooms.

Glutamate, we learn, is an amino acid, and a key metabolic player. Plentiful in protein, we can also build protein from it, building ourselves in the process. Inosinate (IMP) and guanylate (GMP) are nucleotides and likewise mandatory to the human chemistry set: sources of muscle energy, vehicles of cellular signaling. Deep dietetics turns out to be a charming subject, and I would have welcomed a fuller account of these matters in the book.

Table 1
Umami Substances in Food (mg/100 g)

Glutamate		Inosinate	
Kombu	2240	Bonito Katsuobushi	474
Parmegiano Reggiano	1680	Tuna	286
Nori	1378	Chicken	283
Cured Ham	337	Pork	260
Emmental Cheese	308	Beef	90
Tomato	246	Nori	9
Cheddar	182	Snow Crab	5
Scallop	140	Sea Urchin	2
Green Asparagus	106		
Green Pea	106	Guanylate	
Onion	51	Shiitake Mushroom	150
Spinach	48	Morel (dried)	40
Green Tea Extract	32	Nori	13
Chicken	22	Fungi Porcini (dried)	10
Snow Crab	19	Oyster Mushroom (dried)	10
Beef	10	Chicken	5
Potato	10	Beef	4
Pork	9	Snow Crab	4
		Pork	2

Source: *Dashi and Umami: The Heart of Japanese Cuisine*, Eat-Japan/Cross Media, 2009.

Still, it emerges clearly enough why the flavor of such molecules should please us. Umami tastes good because our body wants us to eat things tasting that way.

The Japanese researchers were occupied with finding umami's chemical origins. More recent science elsewhere has cleared up the other end of the business, the lingual-neural mechanism by which we sense these chemicals and, in the case of glutamate, tell the stomach to get ready to break down protein. Work published by Nirupa Chaudhari in *Nature Neuroscience* (February 2000) and by Greg Nelson in *Nature* (14 March 2002) has determined our taste buds possess dedicated glutamate and, more broadly, amino acid molecular receptors. These results have led to a wide acceptance of umami as an official member of the fundamental flavor club, a list many assumed would not expand beyond the big four. Readers eager for more detail on this topic in lay terms will want to take up Hervé This's microscopically focused *Casseroles et éprouvettes* (2002) (the English translation is called *Molecular Gastronomy*).

Balancing the flavor of *Dashi and Umami's* technical sections is a richly photographed chapter of seasonal menus by Japanese star chefs Takashi Tamura, Eiichi Takahashi (with son Yoshihiro), Kunio Tokuoka, and Yoshihiro Murata. Recipes are given for exquisite dishes like *hamo nimonowan* (pike eel soup with summer vegetables) or *kintsuba ise ebi* (golden spiny lobster bisque). Should your market happen to sell daggertooth pike conger

or golden spiny lobsters and you swish a *hocho* accurately enough to present them in any meaningful way, you inhabit a strange pocket of the English-speaking world indeed and have probably archived too much *Iron Chef*. Another chapter, though, includes everyday cooking. Here the recipes are straightforward by comparison, their ingredients ready to hand for most urbanites and Internet shoppers. Skill expectations seem realistic, too. So not only does the book give you what you need to know about dashi and umami, it shows you some practical ways of increasing their place in your diet and enjoying their taste and physical benefits.

These benefits go some ways beyond the molecular necessities sketched above. Umami foods, for instance, can suppress your appetite, inducing you to eat fewer calories by convincing the stomach it's had enough protein and, as Hervé this explains, prompting heat production the way eating steak does. Vegetables simmered in dashi, a J-cuisine winter standard, are as satisfying as stew, great news for people trying to lose weight or lower their meat intake. By rounding out flavors and deepening them, moreover, umami keeps us from adding salt or fat to food. Drinking dashi isn't compulsory, of course. The body can manufacture glutamate and the nucleotides in other ways. Yet the infrequency of obesity in Japan and the long lives of its residents (particularly Okinawans, who are human sequoias and astonishing kelp consumers) make a good argument for learning how to shave bonito.

Umami and wine is a connection alluring to oenophilist gourmets. Experts say amino acids of several kinds are on hand in fermented grapes, the decay of yeast proteins after fermentation also contributing aminos to the finished product. Still, many tasters have a hard time picking out the subtle umami swirling within their Musigny and Krug. Not so the Japanese, in my view, whose diet gives them a rigorous umami sensitivity training and can easily differentiate not just between dashi types but also, mindbogglingly, between the grades of bonito or shiitake used or the source of the *kombu*. A Japanese chef, for instance, will tell you what sets apart his clear soup is that he only uses the *rishiri* kelp variety and only that taken from the bed off Rebun Island's Funadomari beach, the *kombu* equivalent of a *grand cru* vineyard in the Cotes de Nuits. Japanese wine tasters, consequently, use the relative amount of umami they sense as a handy means of categorizing. *Dashi-kei* wines ("dashi family") are those with much umami, ones an American taster might say, a little vaguely, have "minerality," or as a French tasting friend of mine will flare his nostrils and remark: "mushroom!" *Dashi-kei zya nai* wines ("not dashi family"), on the other hand, are wines a Westerner might praise for "well-extracted fruit." In Japan, this last category is also known as "Parker type."

Within the dashi broth palate in Japan there is a division between "light taste" and "dark." The first of these, a complimentary term, is used to describe the tendency in Kyoto cuisine and that of the surrounding region to season less with salt and oil (and never with sugar), relying mainly on the umami of highly concentrated dashi. Dark taste is typical of Tokyo and northern Japan, where the same dish would include more salt and soy sauce, oil (for example, pork fat), sugar, and a weaker dashi than the Kyoto version. This division parallels the "dashi family"—"not dashi family" dichotomy in wine. Hence wines like fine

champagne, with which Japan is fairly obsessed, and first-rate Riesling are felt to pair best with light taste cooking. “Parker type” wines go better with Tokyo seasoning. At the same time, a wine like an Henri Bonneau Châteauneuf-du-Pape stands with a foot in both camps, and it would be wrong to suggest all Japanese tasters think of their wines in black and white, or to imply that Robert Parker can’t see the dashi for the fruit.

Parker’s biography, nevertheless, reports the *maitre*’s fondness for Chinese food and his habit of drinking wine with it. (There’s a picture of this in the *Emperor of Wine*.) It’s interesting to wonder whether Parker’s potstickers contain monosodium glutamate. MSG, originally patented by umami researcher Ikeda, is produced not from *kombu* but wheat gluten. Now largely vindicated as a health hazard, it is widely used as a flavor enhancer in Chinese cooking, not to mention in tortilla chips, barbecue sauce, and salad dressing. Getting too much of the crude knockoff spoils your taste for real umami, many Japanese tasters think, and robs you of the ability to distinguish the various kinds of broth. Is this conceivably why Parker takes less pleasure in wines of cooler vintages, especially burgundies, while Japanese drinkers often find a way to appreciate them?

In main a book of chemistry, recipes, and photographs, the volume also contains short tributes from famous chefs like Pascal Barbot and Heston Blumenthal. These aren’t just fluff but, rather, signs that Western cooks are understanding umami better and better, including its synergistic effect, how combining different dashi broths, that is, amplifies their flavor (and that of other ingredients) to a power greater than the sum of its parts. Blumenthal, who adds pulverized *kombu* to some of his creations, is following his interest beyond umami into theoretical proposals that carbon dioxide and fat are fundamental tastes, and into sherry’s capacity to boost the flavor of umami bombs like cured pork and anchovies – the chemistry behind the addictive delights of a tapas bar.

So is dashi a kind of *Ewigkeitssuppe*, as Thomas Mann called the time-slowng “broth of eternity” ladled out on the snow-swept magic mountain? Perhaps so, but with a singular advantage. For it appears if we swallow enough of it we can savor the sanatorium’s satisfactions right here in the warm valley of the everyday, and without the soul freeze Mann’s characters undergo. Having our dashi and eating it too, we can relish our food, our wine, our lives a little longer, a little more intensely.

Peter Musolf
Yokohama

References

- This, H. (2002). *Casseroles et Éprouvettes*. Paris: Belin.
 This, H. (2006). *Molecular Gastronomy: Exploring the Science of Flavor*. New York: Columbia University Press.

JONATHAN NOSSITER (Director): *Mondovino*, Screenplay by Jonathan Nossiter, Velocity/Thinkfilm, 2004, 135 minutes.

Mondovino is billed as, “A documentary on the impact of globalization on the world’s different wine regions” (Internet Movie Database, 2009). The film’s *cinema verité* style intersperses clips from interviews with 39 wine professionals. Featured winemakers include California’s Mondavi family (Robert, Margrit, Michael and Tim), and Burgundy’s de Montilles (Alix, Etienne, and Hubert). Naturally there are wine writers such as prolific wine critic Robert Parker; the old lion of British wine auctions, Michael Broadbent; and the French winemaking business consultant, Michel Rolland.

Unfortunately the film just doesn’t work. It lacks focus, wandering aimlessly through short clips of vineyards, of M. Rolland as he visits various wineries, and of interviews with Mr. Parker and Mr. Broadbent. Frankly, *Mondovino* is a mess.

Despite the disjointed mis-en-scène, the viewer will readily notice that writer-director Jonathan Nossiter has an axe to grind. He believes that globalization together with the combined influences of Mr. Parker and M. Rolland have homogenized wine aromas and flavors around the world, reducing diversity and encouraging production technologies that mask “terroir.” Rolland and Parker hold the opposite view which was expressed in a 2006 article in *The New York Times* (Asimov, 2006). They believe that the wine market has more variety today than it ever has in the past and wine quality has improved steadily. Others have noted that it is actually quite difficult to make a bad wine with the technology and expertise available today (Buechsenstein, 2009). In the film Rolland’s winemaking savvy is portrayed as quite shallow. He is presented as dealing with all winemaking ills with the same recommendation: “micro-oxygenation.” The film implies that, by hiring M. Rolland, a winery will begin to produce “his favored style of ripe, voluptuous fruit flavors and supple textures ... making wines taste the same from Pomerol to Napa to Argentina” (Asimov, 2006).

To make the case that wine globalization is evil, *Mondovino* relies heavily on the opinions of British wine writer and auctioneer Michael Broadbent. Consider the situation of Château Kirwin. According to Mr. Broadbent, Ch. Kirwin once produced an average quality Margaux that expressed the terroir. The winery hired M. Rolland as a consultant. According to Mr. Broadbent, Ch. Kirwin’s wines now taste like a Pomerol. (M. Rolland was born in Pomerol.) Mr. Broadbent concludes, “I’d rather have an individual wine not up to scratch than a global wine that’s innocuous” (Asimov, 2006).

But what would an economist think? It’s clear that M. Rolland is simply helping wineries make wine that will sell with less aging and at a higher price.¹ If helping a winery match its output to the public’s taste is bad for the wine industry, what in the world would be

¹ The 21st century wine market is considerably more complicated. In reality, what M. Rolland must do is determine the goals of the winery owner and help them match their wine to the taste of a market segment large and wealthy enough to allow the winery to stay in business. For more details, see Lima and Schroder (2008).

considered a healthy development? More wineries operating on the edge of bankruptcy? As for changing the wine's flavor and the homogenization issue, M. Rolland says, "A winemaker never, never changes the character of a wine. The character comes from the grapes." (Asimov, 2006).

The importance of the grapes has not changed over the years. However, as M. Rolland explains, today people want to drink wine a few years after it's bottled. Born in Pomerol in 1947, he grew up in the vineyards of his family's winery, Château Le Bon-Pasteur. His father managed the winery, but his grandfather selected the wines the family drank. Those wines were never younger than 12 years old (Asimov, 2006). Today Rolland helps make wines that are good and can be sold in one-fourth that time. Turn the inventory, get the cash, and financing a huge cellaring operation becomes irrelevant.

By contrast, Mr. Broadbent's economic interests are never explored in the film at all. Mr. Broadbent is a wine critic, but he is also a wine auctioneer. In the auction market, older wines usually command a higher price – and a higher auction fee. The trend of making wines that can be drunk within a few years of bottling means less wine that must be held for a dozen or more years before it's drinkable, and less wine going to auction.²

So what do we make of *Mondovino*? On the one hand we have a number of winemakers extolling the virtues of the small, family-run vineyard, traditional winemaking methods, ending with wines that may require a long aging period before they are approachable. On the other hand we have those who favor modern interventionist winemaking techniques, producing wines that are drinkable after a year or two of winery aging and perhaps another couple of years in the consumer's cellar. For the winery, shorter aging means improved cash flow. The consumer is not required to have a large cellar with several hundred carefully cataloged cases. In the market, it is clear that the modernists are winning. And why not? As noted earlier, one successful American winemaking consultant believes the only way to make a bad wine today is to make a serious error during the process (Buechsenstein, 2009). This is best accomplished by refusing to use modern technology; that appears to be what *Mondovino* and Mr. Broadbent are advocating. Refusing to use modern viticulture and winemaking techniques is analogous to a parent refusing to take a dentally-challenged child to the orthodontist. The parent prefers the child have a bite that displays the family unique dental characteristics – uneven spacing here, a few crooked teeth there – rather than that perfect movie star smile.

Tony Lima
California State University, East Bay

Norma Schroder
Blue Weasel Productions

² For more information about Michael and Bartholomew Broadbent see Broadbent Selections (2009).

References

- Asimov, E. (2006). Satan or Savior: Setting the Grape Standard. *New York Times*, October 11, 2006. Available at <http://www.nytimes.com/2006/10/11/dining/11pour.htm>. Accessed June 4, 2009.
- Broadbent Selections (2009). <http://www.broadbent-wines.com/founders.cfm>. Accessed June 4, 2009.
- Buechsenstein, John (2009). Personal communication at wine seminar, University of California, Davis, April 25–26, 2009.
- Internet Movie Database (2004) (<http://www.imdb.com/title/tt0411674/>). Accessed June 4, 2009.
- Lima, T. and Schroder, N. (2008). The new structure of the California wine industry: further evidence and additional theory. Paper presented at the annual meeting of the Western Economic Association International, Honolulu, Hawai'i, June 29–July 3, 2008. Available by request from the authors.