

A Short History of MSG

Good Science, Bad Science, and Taste Cultures

MSG IS A PART OF OUR CULTURE, however unwelcome it may be. If you are an adult English speaker, you have almost certainly seen the acronym. You may not know any organic chemistry, but you can probably rattle off the name of the compound: monosodium glutamate. And chances are you know that it is associated with a set of adverse physiological symptoms sometimes called “Chinese Restaurant Syndrome,” or perhaps you have experienced these symptoms yourself. Yet MSG was not always the despised additive it has become, and its origins are not Chinese. It is a Japanese invention, and despite the vaunted naturalness of Japanese food, it was extraordinarily popular in Japanese kitchens at one time. To understand how it got from its place of birth into Chinese restaurants and the global food system, we must take a culinary tour through East Asia and North America. The story of why it was first embraced and how it later came to be vilified—even as it continued to be consumed in vast quantities worldwide—reveals much about the entwined histories of food science and food marketing in the twentieth century.

MSG and Japanese Housewives

The first stage of the story begins in 1908 with chemist Ikeda Kikunae’s isolation of the ingredient in sea kelp that gave flavor to konbu dashi, the standard Japanese broth. Trained in Germany, the center of organic chemistry at the time, Ikeda shared with his German colleagues a desire to develop a cheap and mass-manufactured source of nutrition. Justus von Liebig, the founder of the field, was renowned for his beef extract, which fed German armies—and incidentally made the inventor fabulously wealthy.¹ Ikeda later recalled that he had received inspiration from an article by Japanese doctor Miyake Hide claiming that flavor facilitated digestion:

Having always regretted the poor diet of our nation, I had long contemplated how it might be remedied, but had found no good idea until I

read this article. It then occurred to me that manufacturing a good, inexpensive seasoning to make bland, nutritious food tasty might be a way to accomplish my objective.²

The product that emerged from Ikeda’s laboratory, monosodium glutamate, was quickly patented in Japan, the United States, England, and France. In domestic announcements of his invention, Ikeda proposed calling its distinctive taste *umami*—a term derived from the colloquial masculine word in Japanese meaning “tasty.” Ikeda brought the powdered substance to iodine manufacturer Suzuki Saburō, whose Suzuki Chemical Company began marketing it in 1909 under the brand name Ajinomoto, meaning “essence of taste.” The combination of the Suzuki Company’s state-of-the-art technology and Ikeda’s proposed dietary reforms placed MSG at the intersection of chemical science and nineteenth-century progressive concerns regarding the health of the nation. Science was important to its marketing as well as its production. Ajinomoto began building its domestic market in the final years of the Meiji era (1868–1912), when Japan was rapidly developing its industries to join the club of the Western powers. Educated Japanese of the era invested great faith in the benefits of modern science. As business historian Louisa Rubinien has noted, Ajinomoto offered “predictability, efficiency, convenience, and scientific guarantees of hygiene and nutrition—attributes consonant with the Meiji-period goals of ‘civilization and enlightenment.’”³

Yet the Suzuki Chemical Company initially had difficulty attracting customers. MSG brought no profit during its first four years on the market. Finding their product rejected by soy sauce brewers and by restaurateurs, the company shifted gears and began targeting housewives. Bourgeois women, bourgeois kitchens, and Japanese cuisine were in the throes of a momentous transformation at the beginning

Right: *Ajinomoto advertised in a Chinese magazine from the 1920s. From Ajinomoto kabushiki gaisha shashi [Company History of Ajinomoto Incorporated] (Ajinomoto kabushiki gaisha, 1971), volume 1.*





Above: “The Invention that Astounded the World! Ajinomoto and the Ajinomoto Factories!!” (1915). From Ajinomoto kabushiki gaisha shashi [Company History of Ajinomoto Incorporated] (Ajinomoto kabushiki gaisha, 1971), volume 1.

of the century. A new domesticity was emerging as a critical component of class identity for the elite who had come to dominance under the tutelage of the Meiji state. The enlightened bourgeois housewife sought to manage her kitchen according to the precepts of hygiene, Taylorist efficiency, and scientific nutrition. To do so, she was exhorted to take on all the tasks of food preparation herself, since the well-being of her family could not be entrusted to ignorant servants. Many bourgeois women embraced their new role in the kitchen, enthusiastically taking up the challenge to concoct new and nutritious meals daily as a way to please their families and a means to personal fulfillment. In this, they broke with a long tradition of kitchen work characterized by seasonal cycles of production and heavy tasks involving multiple hands. Thus, twentieth-century Japanese women whose mothers had learned to cook from their mothers—or whose mothers had only overseen the household accounts and allowed servants to do the actual cooking—consumed

recipe books and newspaper columns filled with new hybrids like *teriyaki* and *tonkatsu* and attended cooking courses where male chefs imparted the secrets of their art. These developments all made bourgeois women of the late Meiji generation particularly receptive to new culinary devices and ingredients, particularly ones that claimed rationality and convenience based on scientific research.⁴

Even among housewives eager to try the latest culinary innovations, however, MSG had barriers to overcome. At fifty *sen* for the “home size” bottle in 1912 (when fifty *sen* would have bought close to ten pounds of flour), it was not cheap. Women in whom frugality had been inculcated as the highest virtue had to be convinced that the unfamiliar powder

was a necessary addition to their kitchens. Ajinomoto targeted them with several devices to achieve this goal. The company logo depicted a woman sporting a white apron and a Western-influenced *sokuhatsu* hairstyle, both marks of the modern bourgeois housewife. To appeal aesthetically to bourgeois women, the product was sold in slender glass bottles that looked like they might hold perfume. Most important, Ajinomoto marketers appealed to the Japanese housewife's newfound sense of herself as a culinary professional and of her kitchen as a laboratory.

Toward this end, experts in the fields of Western cuisine, nutrition, medicine, and domestic management were brought in to endorse the product. Many of these figures were staples in the women's journals and newspaper columns.⁵ One to lend his name to the brand was the popular author Murai Gensai, whose endorsement appeared in Ajinomoto's first newspaper advertisements. "Added to miso soup it brings out the flavor most admirably," he wrote, calling the powder "indispensable every morning" and "extremely convenient." Murai's endorsement carried weight, since he had written the tremendously popular serial novel *Shokudōraku* (The Gourmet's Delight) just a few years earlier. More than a novel or a culinary tract, *Shokudōraku* was a broad call to arms for social and moral reform of the Japanese nation, beginning in the kitchen. This was a vast work, which in final form ran to four volumes, featuring hundreds of recipes. Its success established Murai as a household name and recognized authority on matters of food and nutrition. Murai advocated increased protein consumption, greater dietary variety, and cooking methods that broke down food components on the theory that increased energy and labor in food preparation saved digestive labor. In Murai's view, culinary reform would lead the benighted Japanese toward civilization.⁶ The association with this illustrious dietary crusader gave MSG that whiff of salubriousness the company was after, even if they could offer no evidence of actual health benefits.

Ajinomoto made its most direct appeals to students and graduates of the nation's higher schools for women, secondary institutions where daughters of the elite were trained to manage bourgeois households. Imbibing an American-influenced home economics curriculum, these women were awash in talk of beneficial science; they made an ideal target for pitches from experts in medicine and nutrition. Home economics textbooks praised Ajinomoto as a substitute for the kelp and bonito flakes used in making traditional broth.⁷ Ajinomoto advertisements in turn emphasized that the product was "pure white," lending it a hygienic quality that accorded with the strong emphasis in contemporary women's education on bleaching and disinfecting.⁸ Between 1922

and 1937, the company sent a sample bottle and cookbook to every graduating student from the higher schools for women. The accompanying letter touted Ajinomoto as the result of years of scientific research and noted it had been recognized by the Imperial Association for Inventions. Ajinomoto was described as the most economical seasoning in terms of cost, effort, and time and as indispensable to modern living (or, more literally, to *bunka seikatsu*—"the cultured life," a favorite catchphrase of the day for everything enlightened and up-to-date).⁹ The 1920s saw the number of women in secondary and higher education multiply, and an array of new media promoted rationalization of the home with images of a lifestyle in which enlightened housewives enhanced their families' health and happiness using the latest scientific innovations. Dressed in the language of rationalization—with regard to both kitchen labor and the digestive labor of the body—Ajinomoto situated itself well within programs to modernize the Japanese home.

Soon it became common for cooking columns in newspapers to include Ajinomoto in recipes. Yet chefs in Tokyo's restaurants were more reluctant to welcome the white powder into their kitchens. Artisan's pride compelled them to reject a seasoning with which any amateur could make the traditional native *dashi*. However, the company's history reports that increasing numbers of restaurants came to use it secretly. By 1939, a prominent chef interviewed for the company journal *Aji* (Taste) admitted that using Ajinomoto had now become a necessity; since people used it in everything at home their taste buds had become so accustomed to the seasoning they didn't enjoy dishes without it.¹⁰

The year 1931 symbolically marks a point of arrival in this first phase of MSG's diffusion. This was the year the Ajinomoto Company began general marketing of a glass salt-shaker-style bottle for use at the dining table rather than in the kitchen.¹¹ It was also the year the product was officially designated for use at the emperor's table. Between 1918 and 1931, production at the company's Kawasaki factory had increased over twelvefold, from 85 to 1,077 tons annually.¹² By this time penetration of urban markets in the Japanese home islands had reached a high enough level that sales efforts could concentrate more heavily on rural areas, the colonies, and other overseas markets. The glass shaker symbolized Ajinomoto's complete acceptance by urban Japanese housewives, who were now prepared to put it out on the dining table to be applied directly to food by each member of the family, like salt or soy sauce. Thanks to the women's higher schools and Japanese women's embrace of beneficial science, it had become a part of the Japanese home.

MSG in Taiwan, China, and the Chinese Diaspora

In contrast to the experience in Japan, where MSG first reached into homes and only subsequently into eating establishments, in Japan's colony of Taiwan MSG appears to have taken the opposite route, moving from public venues to private homes. Ajinomoto's company histories report that Taiwanese cooks generally showed little resistance to it. In fact, when company president Suzuki Saburō visited Taiwan in 1914, his product was already in use at some street stalls and eateries.¹³ As a small island colony, Taiwan provided Ajinomoto with a captive market of a manageable size. The company put enamel signs on every lamppost in Taiwan's major cities, blanketing the streetscape with the brand name so thoroughly other advertisers complained. With few female secondary school students to target, they advertised to primary school pupils, sending samples together with little MSG quizzes for teachers to use in every primary school on the island.¹⁴

Some Taiwanese restaurants and noodle shops helped market the product unsolicited. If the tabletop glass shaker symbolized Ajinomoto's mature position in the metropolitan Japanese food system, in Taiwan it was the square, gold-colored, one-kilogram can, which was first imported in 1928. Food vendors and noodle shops displayed these cans to show customers they used Ajinomoto.¹⁵ Presumably they did so in part to announce they were not using an imitation brand, several of which had appeared in the 1920s. The large gold cans had particular significance for individual consumers, too, since Taiwanese merchants began opening them in the shops and selling small quantities by weight. When Suzuki returned in 1934, he found that even a ferryman bought Ajinomoto—in daily amounts costing about 5 *sen*.¹⁶ These stories of Ajinomoto's success in Taiwan suggest MSG had a markedly different cultural position here than in Japan: on the streets and in the homes of Taiwanese of all classes, it had established itself simply as a cheap and commonplace part of the diet, without the experts' seals of approval, the rhetoric of hygiene and efficiency, and the connotations of modern living that had been important to Ajinomoto's propagation in Japan.

A combination of culinary and social factors contributed to MSG's rapid acceptance in Taiwan. Ajinomoto company historians note the importance of soup bases and the wide variety of ingredients used to produce complex flavors in Taiwanese cooking—and Chinese cooking in general—as reasons why their product was a good fit.¹⁷ Taiwanese chefs were certainly more accustomed to using powdered spices than were the Japanese, which would arguably have made

the exotic white substance less alien to them. One social factor that may have been particularly important was the prominence of street food in Taiwanese diets. Selling a form of fast food, street vendors had incentives to flavor their food heavily, using MSG as a strong taste stimulus. At the same time, Ajinomoto's saturation marketing clearly played a role, too, and Taiwan today remains number one worldwide in per capita consumption of MSG.¹⁸

Although the cuisines of Taiwan and southern China were closely related, Ajinomoto encountered greater obstacles in China. The company began marketing in Shanghai and Canton in 1918 and in 1922 initiated an advertising blitz akin to that in Taiwan, but the conspicuous billboards helped make Ajinomoto a symbol of Japanese imperialism and thus a favorite target of protest. As a result, sales suffered.¹⁹ A company survey in the late 1920s reported that Ajinomoto had reached restaurants and households of the middle class and above in cosmopolitan Shanghai but was struggling in Nanjing and several other urban markets.²⁰ At the same time, the nationalist response spurred development of native equivalents, which undersold the import. The largest Chinese manufacturer, the Tian Chu (Heavenly Kitchen) company, founded in 1923, touted its product as “The national taste essence! An entirely domestic product! Not the same as the import! Better than Ajinomoto and fairly priced...!”²¹ Tian Chu consciously imitated Ajinomoto packaging and advertising. In the cat-and-mouse game of market competition, when boycotts and attacks on retail shops hurt Ajinomoto again in 1930, the company responded by inventing a Chinese name and imitating the packaging of its Chinese competitors. By this time, the cumulative sales of Chinese-managed imitators had come to exceed Ajinomoto's sales in China.²²

Ajinomoto's advertisements in China, which were designed by a firm in Shanghai, touted the product's modernity much as the advertisements did in Japan, but without the images of the rationalizing housewife in her kitchen. In one, a bourgeois family awaits a servant; in another, a couple eat together; and in a third, a modern woman sits alone at a table. None of these advertisements suggested the woman had prepared the meal herself. Instead, the product was simply up-to-date, and it made food taste good.

The first generation of advertisements in Japan had highlighted MSG's emergence from the chemical laboratory by placing the words “invented by Doctor of Science Ikeda Kikunae” at the top. Similarly, the name of the company founder, Wu Yunchu, appeared prominently in Tian Chu advertising. The aim, however, was to emphasize native Chinese manufacture, not to claim an association with

beneficial science. As sales of Tian Chu's seasoning grew, Wu became a national hero, and his name in turn helped to sell the product.²³

Tian Chu's marketing differed in one other noteworthy respect, one that suggests a peculiarity of MSG's niche in Chinese diets. The brand was called "Buddha's Hand" (*foshou*), and the label was colored blue and gold—colors symbolic of paradise and the immortals, according to an official biography of Wu.²⁴ This imagery bespeaks the fact that MSG found its way into mainland Chinese diets not only as a cheap substitute for soup stock ingredients but also as a vegetarian one. In an English-language pamphlet, the company claimed this as the premier virtue of their product, noting it was made only from wheat.²⁵ Although the vegetarian cuisine of Buddhist temples was one significant avenue for reception of MSG in Japan, too, it seems to have been of greater importance in China—perhaps because more Chinese abstained periodically from meat.²⁶

MSG thus entered the Chinese cooking repertoire as a cheap way to make instant stock, as an up-to-date import—and soon a triumphant import substitute—and as a flavor enhancer for vegetarian meals. Company statistics and popular cookbooks suggest it was already a common household item in the Chinese diaspora before World War II. Both Ajinomoto and Tian Chu were exported to Hong Kong, Singapore, and other Chinese population centers in Asia, as well as to cities on the West Coast of the United States. Henry Low's *Cook at Home in Chinese*, published in New York in 1938, included MSG in every recipe. Low called it "gourmet powder" and listed it as one of the five "Chinese staples" one needed to start cooking Chinese in an American kitchen.²⁷ But such acclaim was not universal: Buwei Yang Chao's classic *How to Cook and Eat in Chinese*, first published in 1945 (with an introduction by Pearl Buck), included a special note to explain the author's disapproval of MSG, observing that "the widespread use of taste-powder in recent years has resulted in a lowering of the standard of right cooking and a leveling of all dishes to one flavor."²⁸ Due to Ajinomoto's saturation of urban markets in the 1930s, many Japanese chefs—and perhaps many Chinese chefs as well—had developed the same distaste for it.

MSG in the United States

Clearly we are closing in on the feared Chinese Restaurant Syndrome. If Chinese cooks writing in English in the 1930s and 1940s were taking "gourmet powder" for granted or complaining of its overuse, it seems safe to assume that Chinese restaurants in the United States at the time made

regular use of it. It was in these same years that numbers of white Americans made their first visits to Chinese restaurants. Sympathy for the Chinese during the Japanese invasion as well as the cultural exchange that accompanied official recognition of Chiang Kai Shek's China as an ally helped change American attitudes about Chinese food. Non-Chinese started exploring the Chinatowns in their cities, and the Chinese who ran diners and grocery shops for non-Chinese clientele began selling Chinese food.²⁹

Yet before we casually trace the etiology of American MSG consumption to Chinese immigrants, there is another important channel to explore, one that is less visible: factory-processed foods and the US military-industrial complex. The Ajinomoto company had tried marketing its little perfume bottles to American housewives already in the 1920s, but with limited success. Yet the United States quickly proved fertile ground all the same. In fact, from the mid-1930s until 1941, the United States bought more Ajinomoto than any other country outside Japan proper and Taiwan.³⁰ American manufacturers of canned foods, chief among them the Campbell's Soup Company, were responsible for this demand. Like the inventor, they recognized the capacity of MSG to make bland, inexpensive foods flavorful. Having identified its American market, Ajinomoto repackaged its product again. In Japan, MSG had become an integral part of meal-time in glass shakers designed for personal use. In Taiwan, it had found its niche in native culinary habits in the form of one-kilogram containers from which shopkeepers sold a pinch at a time. After 1926 it crossed the Pacific to North America in crates containing ten-pound tins bound for industrial customers.³¹

Food generally was more industrialized in the United States than anywhere else in the world at the time. Technology transfer from an increasingly high-tech military contributed significantly to developments in food processing. After World War II the military took an interest in MSG's virtues, since, in the words of Colonel John D. Peterman, quartermaster of the Food and Container Institute for the armed forces, "flavorless rations can undermine morale as quickly as any other single factor in military life."³² Two symposia sponsored by the Food and Container Institute assembled an industrial brain trust to discuss new applications for MSG, domestic production of which had begun under Ajinomoto tutelage in the 1930s but had met with limited success before the war. The new field of frozen foods offered particularly promising territory for expansion, as Miss Nell M. Snavely of the institute noted at the second symposium. A representative from the National Restaurant Association described future prospects enthusiastically.³³

Midcentury American consumers by and large preferred to entrust the use of food additives to the restaurants and the manufacturers of ready-made foods rather than do the adding in their own homes. Several Ajinomoto equivalents were manufactured in the United States for the supermarket shelf, beginning with Ac'cent in 1947.³⁴ Although common enough in kitchens and at cookouts in the first two decades after World War II, none ever won the universal pride of place Ajinomoto achieved in Japanese households. Yet in the same years that MSG spread through the processed food industry, Chinese restaurants became a ubiquitous part of the American landscape. Thus, regardless of whether or not individual consumers applied bottled MSG intentionally to food at home, two other common eating experiences—canned and frozen foods along with prepared Chinese food—delivered large quantities of the flavor stimulant to American taste receptors.

Consumer trust in the food industry broke down famously in the 1960s. Environmental, health, and product-safety movements focused public attention on the risks of chemicals in the food system. The public clamor about pesticides, initiated by publication of Rachel Carson's *Silent Spring* in 1962, grew louder toward the end of the decade and coincided with new warnings about food additives. Scientists in 1968 warned that the artificial sweetener saccharin had possible carcinogenic effects. In October of the following year, the Food and Drug Administration banned cyclamate, another artificial sweetener, forcing recalls of millions of dollars worth of soft drinks.

The “discovery” of Chinese Restaurant Syndrome came just as American consumers were turning against the industries that fed them. In April 1968 the *New England Journal of Medicine* published a letter from Robert Ho Man Kwok, a Chinese-American doctor in Maryland, who wrote that “for several years since I have been in this country, I have experienced a strange syndrome whenever I have eaten out in a Chinese restaurant, especially one that served northern Chinese food.” Kwok's symptoms included numbness and palpitations. The journal gave the letter the heading “Chinese Restaurant Syndrome,” and the term stuck, as other physicians adopted it in the flurry of letters and reports that quickly followed. Although salt, tea, duck sauce, and imported mushrooms were also proposed as possible culprits, a consensus soon emerged that monosodium glutamate was to blame. Questionnaire and laboratory studies followed.³⁵

On October 23, 1969, just days after the FDA announced its ban of cyclamate, Jean Mayer, chair of the White House Conference on Food, Nutrition and Health, recommended

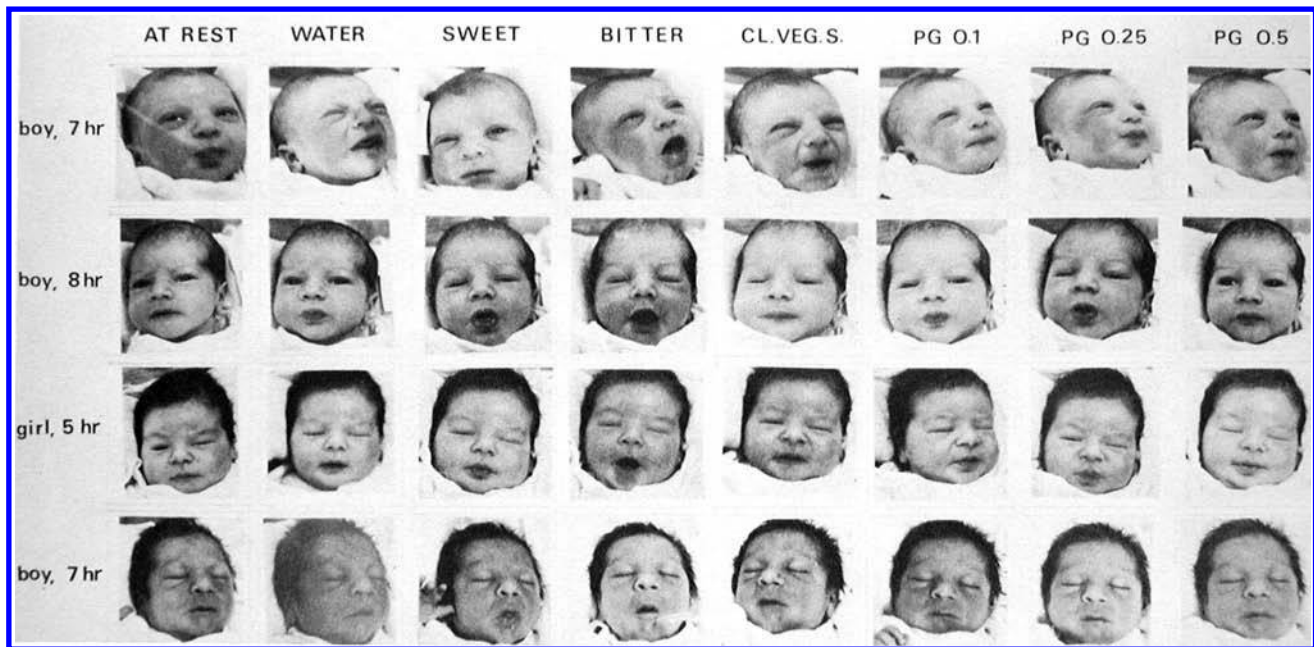
MSG be banned in baby foods. Mayer based his recommendation on a report earlier in the year by Dr. John Olney stating injections of monosodium glutamate had caused brain damage in mice.³⁶ In light of the cyclamate controversy, President Nixon ordered the FDA to review all of the food additives on its list of substances generally regarded as safe (GRAS).³⁷ Despite testimony from Olney, further animal studies, and anecdotal evidence reported by numerous doctors through the 1970s, MSG was never banned or subjected to further regulation. Like saccharin and many other ambiguous substances in the contemporary world food system, MSG continued to be consumed even as the controversy about its health effects persisted.

Crisis and Response: The Reinvention of *Umami*

The sea change in consumer sentiment toward food industries that swept the United States during the 1960s occurred among wealthy nations worldwide. In 1968 Japanese consumer groups fought for the ban of Kanemi oil, a common cooking oil that was found to contain PCBs. Thousands of Japanese claimed the product had caused them harm, and a basic consumer protection law was passed that same year.³⁸

Although news of the dangers of cyclamate and other additives caused as much public alarm in Japan as it did in the United States, the MSG scare had special resonance in Japan. Ajinomoto was still the world's leading producer of MSG and one of the largest firms in the Japanese food industry, with a long-standing relationship to Japanese consumers. Four decades earlier, when a Tokyo magazine had spread the rumor that Ajinomoto was made from snakes, the company had responded with newspaper advertisements promising that the rumor was false, and consumer trust had returned. At the time it was possible for food scandals to remain local even if the product was exported. Japanese manufacturers were also close enough to their domestic markets to be able to reassure consumers with a voluntarily made public vow.³⁹ By contrast, in the 1960s both the media and the industry issues they reported on were global, and consumers were more inclined toward suspicion of the executives of vast food corporations whose business practices were invisible and production methods incomprehensibly complex. Olney's mice were the top story in the Japanese newspapers for two days after the White House conference's recommendation, and the product's image was permanently damaged in both the United States and Japan.⁴⁰

Judging from the writing of Gunji Atsutaka, the leading Japanese critic of Ajinomoto, the newfound suspicion of



scientific food that threatened MSG producers had a special twist in the product's homeland. The distinctive feature of Ajinomoto marketing in Japan had been the product's association with new ideals for the bourgeois housewife. But removing the promotional façade of enlightened cuisine by no means liberated women from the domestic ideology to which Ajinomoto had played. On the contrary, Gunji invoked the special duties of Japanese womanhood in terms yet more extreme than those of Meiji domestic scientists. In two books, *Diagnosing Ajinomoto* (*Ajinomoto o shindan suru*) and *The Japanese and Ajinomoto* (*Nihonjin to Ajinomoto*), he recounted the most alarming portions of American medical reports, accused the company of concealing toxic impurities, and claimed MSG was being made from petroleum. These accusations, however, were merely the preamble to a larger polemic against mass-produced convenience foods in general, which Gunji deplored precisely for their convenience. As he put it in the preface to his second book: "The frightening thing about processed foods made by large corporations, in addition to the toxicity of the large quantities of food additives used, is that they cause the spiritual ruin of Japanese women." Unlike the rest of humanity and unlike other animals, Gunji asserted, Japanese and Americans happily ate food prepared by others, "as if they were prisoners." Japanese women had an obligation to master the food resources of nature and to cultivate the skills to make food delicious without the assistance of ready-made ingredients. "[As long as] housewives continue to make meals every day," he wrote, "praying in their hearts that their families will always be healthy, therein lies spiritual progress, ensuring a bright and peaceful life." This, he explained, was why he had written books urging readers

Above: The search for an umami gene: photographs of newborns fed several substances. In the three columns at the far right, the babies have received chemical formulae akin to MSG.

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not to eat Ajinomoto products.⁴¹ In effect, Gunji's critique took the very promise of rationality and convenience that Ajinomoto had been making to Japanese housewives since 1909 and turned it against both the company and the housewives themselves.

By the beginning of the 1970s, the bright aura of science surrounding MSG in Japan had become more like a black cloud. In 1970 sales fell for the first time in Ajinomoto's history. Company executives responded to this crisis in two ways: first, by diversifying their product line to reduce the weight of bottled MSG and, second, by embarking on a wholesale corporate image revamping. They had prepared themselves well to take the blow by beginning the process of diversification when signs emerged in the 1960s that MSG sales might be approaching their peak. By 1971 it was publicly acknowledged that the home market was saturated.⁴² Alongside the increasingly unfashionable little salt-shaker bottle, Ajinomoto introduced a line of "natural flavorings" such as the fish-based instant broth *Dashi no moto*.⁴³ The company also moved rapidly into other processed foods. Between 1966 and 1974, seasonings dropped from 52 percent of Ajinomoto's sales to 24 percent, while processed foods rose from 3 percent to 16 percent. Processed food production continued to rise until it reached 35 percent of total sales in 1980. The strategy ensured that company profits grew steadily throughout the decade.⁴⁴

Prior to the food additive scares of the late 1960s, state-of-the-art chemical technology had been a source of pride that the company made every effort to display. Organized efforts to shake off the product's association with laboratories and smokestacks began in the 1970s with the issue of nomenclature. The generic term for Ajinomoto's flavor enhancer, "chemical seasoning" (*kagaku chōmiryō*), long standard in company documents as well as in law and journalism, had become a clear liability. In its stead, Ajinomoto and other MSG manufacturers in Japan returned to Ikeda's original term for the taste he had concocted, the colloquial Japanese word for "tasty." In order to make MSG more familiar and natural sounding to Japanese consumers, they renamed it "*umami* seasoning." An Umami Seasoning Promotion Association was formed in 1982, together with an *umami* research center.⁴⁵ Authors of the third Ajinomoto company history, published in 1990, sought to associate MSG with nature rather than with science in a variety of other ways, including titling the volume itself with a phrase that evoked agriculture: *Cultivating Flavor (Aji o tagayasu)*. Commenting on the issue of terminology, *Cultivating Flavor's* authors suggested the term "chemical seasoning" had been foisted upon their product by national radio policy in the 1950s—this despite the fact the earlier company histories had used it consistently and had even quoted prewar company documents that used it.⁴⁶

The color plates introducing the 1971 and 1990 company histories tell the story of Ajinomoto's public relations makeover in striking terms. Volume two of the earlier history, which charts the company's progress after World War II, opens with photos of Ajinomoto factories around the world, beginning with the main plant in the gritty Japanese industrial city of Kawasaki. The Ajinomoto sign is shown gleaming in red neon from the roof of a brightly lit, glass-clad building overlooking a landscape of steel pipes and towers cast in an electric-blue twilight. Other plates show port facilities and the bland, modernist office blocks of overseas affiliates. The 1990 company history, written after *umami* had supplanted "chemistry" as the key term in Ajinomoto's public relations lexicon, opens with a remarkable sequence of plates titled (in English) "Ajinomoto Dream." Artfully evoking naturalness through the most archetypal images, this "dream" sequence omits direct reference to the product itself or its places of production. It begins with an underwater photo of coral and seaweed shimmering in sunlight refracted from the ocean surface, captioned "The Origins of Life." This is followed by pictures of fields, of children, and of naked and athletic human bodies, as well as a picture of three sets of cupped hands holding wheat ears and seaweed

and a close-up of an infant breastfeeding, captioned, respectively, "Encounter" and "Amino Acid."

Ajinomoto's revival of Dr. Ikeda's term *umami* had implications reaching far beyond the pages of company histories. It signaled a generalized corporate attempt to regain the company's former image as proponent of beneficial science. Ikeda had proposed that *umami* was a fifth basic taste, distinct from the recognized basic tastes of sweet, sour, salt, and bitter. In the 1980s the company set out to prove this through the latest laboratory methods in the physiology of flavor. The Good Science of flavor, company executives hoped, would arrive like the good witch to declare the Bad Science of chemical additives dead and set Ajinomoto boldly on the road of progress again. Toward this end Ajinomoto sponsored a series of research projects, beginning with an international symposium held in Hawaii in 1985. Here Japanese and American researchers reported on experiments involving stopwatches, color-coded taste samples, and liquid-infused filter-paper disks applied with forceps to subjects' tongues.

The researchers' conclusions tentatively endorsed *umami* in the language of beneficial science. Bruce Halpern's report "Human Judgments of MSG Taste," for example, concluded: "the results of the anterodorsal tongue, fungiform papillae psychophysical experiments are compatible with the claim that MSG evokes possibly unique taste responses."⁴⁸ Although some symposium participants questioned the logical coherence of claims about either four or five basic tastes,⁴⁹ this sort of qualified support was sufficient for Ajinomoto to assert its product had indeed been scientifically proven as the source of a fifth basic taste.⁵⁰ Announcing this view, the English volume based on the first symposium was titled *Umami: A Basic Taste*.

Since 2000, American physiologists have announced several findings indicating a group of molecules on the tongue that respond specifically to the stimulus MSG induces. The journal *Nature* reported in February 2002 that "researchers have pinpointed the receptor that allows us to taste proteins' building blocks. The amino-acid receptor triggers the lip-smacking *umami* taste that flavour enhancers exploit. Its discovery might help the design of new additives."⁵¹ The Ajinomoto company was thus poised to claim a scientific victory, but the wicked witch of Bad Science had not yet been vanquished: in late 2001, scientists at Hirosaki University in Japan reported finding that rats fed diets high in MSG developed thin retinas, leading to blindness.⁵²

It bears noting that the writer from *Nature* quoted above refers to the taste in question as *umami* rather than "MSG flavor," "savoriness," or something else, an indication Ajinomoto's campaign to divert attention away from the

maligned MSG and toward the more appealing *umami* is yielding results.⁵³ Use of the untranslated term hints that the flavor has some ineffable Japanese quality, encouraging people to imagine the product's bad reputation might derive from a cultural misunderstanding that beneficial science will overcome. At the same time, the coincidental fact that the researchers making these recent taste discoveries were Americans while the researchers who found adverse physiological effects from MSG were Japanese is also telling. The field in which monosodium glutamate's meanings are produced no longer maps onto national territories. Commodity nationalism embroiled MSG in battles in the streets of Shanghai in the 1930s (sometimes escalating to physical violence); in contrast, the battles today are waged for global causes, and the human body itself is their turf.

Whatever name is used and whoever does the research, the *umami* taste receptors scientists are pursuing act as tiny physiological legitimizers for MSG. If it can be established that human tongues are as receptive to this taste as to salt or sugar, then MSG may be able to take its place in the pantheon of taste essentials rather than being considered an additive. The Good Science practiced here is thus distinct in nature and motives from the science of taste in which Ikeda originally engaged. When Ikeda coined the term *umami* in 1908, he was naming a flavor brewed in the laboratory to heighten consumers' desire; when the company redeployed the name in the 1980s, it was as part of an effort to reassure consumers in an environment where the mysteries of the laboratory had imbued all consumption with the disquieting sense of an encounter with the unknown. In this way Ikeda's science served the traditional capitalist production of material commodities, while the more recent *umami* science serves the postindustrial capitalist production of images and affect.

Conclusion: Food Science as Food Culture

What lesson can we draw from this brief transnational history of a commodity? Clearly there is nothing peculiarly Asian about MSG or *umami*: any number of other flavorings and food additives have entered diets around the world through mass-manufactured foods. The global success of canned and instant products containing MSG suggests that, at least within the low gourmet standards of this "cuisine," it appeals to palates without respect for national origin and often without marketing directly to consumers. But a closer look at the ways it was sold and used reveals that, although odorless, colorless, and frequently consumed unconsciously, MSG has never lacked cultural character. Born of marketing campaigns,

national politics, scientific research agendas, funding institutions, and culinary systems, the culture of MSG has evolved in response to its environment. And tastes have evolved with it.

Simply put, the lesson is that our taste buds are historically shaped. In the 1910s Japanese food experts and educated housewives were persuaded MSG was enlightened and rational; they tasted it, and lo and behold, it was delicious. In the 1920s and 1930s, mainland Chinese saw MSG as a vegetarian substitute for meat stock and, in regard to the domestically produced versions, as a counterblow against Japanese imperialism; like the Japanese before them, they too found it delicious. In the 1970s and 1980s, Americans learned MSG was an additive associated with something called a "syndrome," so they decided it was bad and avoided it. Had Japanese, Taiwanese, or perhaps any other East or Southeast Asian cuisine made the inroads into North American diets that Chinese food had made in the middle decades of the twentieth century, the syndrome might just as easily have been called Japanese, Taiwanese, or What-Have-You Restaurant Syndrome. It was the misfortune of Chinese cooks to be caught with the white powder by their stoves when the once-praised flavor enhancer suddenly became a chemical additive. Now, thanks to Ajinomoto's recent campaigning and developments within the science of flavor, MSG is again winning new fans. Only time will tell whether this latest turn in the story will lead consumers back to an open appreciation of the powdered additive, or perhaps of some new form of it dressed in the garb of nature and accompanied by new promises.

MSG was born in the nexus between the late nineteenth-century ideals of civilization, Victorian science, dietary reform, and the modern profession of housewifery. Propagated through Japanese imperial expansion, it became a part of Taiwanese and Chinese cuisines, but in the process also became a political commodity inseparable from nationalist opposition to Japan. Carried to North America through the separate channels of the Chinese diaspora and the American ready-made food industry, it was consumed by most Americans unknowingly until the late 1960s, when environmentalist-era consumer consciousness brought it disturbingly into view. In the 1980s, the search for receptors of a unique *umami* taste played a key role in the Ajinomoto company's response to the perils of globalization, making *umami* research part of the culture of late twentieth-century Japanese capitalism. Although science may yet establish *umami* as a part of nature itself, the global trajectory of MSG has been closely tied to the history of twentieth-century society. ◉

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1. Mark R. Finlay, "Early Marketing of the Theory of Nutrition: The Science and Culture of Liebig's Extract of Meat," *The Science and Culture of Nutrition, 1840-1940*, Harmke Kamminga and Andrew Cunningham, eds. (Atlanta, GA: Rodopi, 1995), 48-73.
2. Hirota Kōzō, Umami no hakken to sono haikai [The Discovery of Umami and Its Background] (Chiba-shi: Hirota Kōzō private printing, 1984), 172-173; also Ajinomoto kabushiki gaisha shashi [Company History of Ajinomoto Incorporated; hereafter referred to as Ajinomoto shashi] (Ajinomoto kabushiki gaisha, 1971), 1:41-42. Hirota cites a memoir written in 1933.
3. Louisa Rubinfien, "Commodity to National Brand: Manufacturers, Merchants, and the Development of the Consumer Market in Interwar Japan," (Ph.D. diss., Harvard University, 1995), 8.
4. See Katarzyna Cwiertka, "How Cooking Became a Hobby: Changes in Attitude towards Cooking in Early Twentieth Century Japan," *The Culture of Japan as Seen through Its Leisure*, Sabine Frühstück and Seth Linhart, eds. (New York: SUNY Press, 1998), 41-58; Katarzyna Cwiertka, "Minekichi Akabori and His Role in the Development of Modern Japanese Cuisine," *Cooks and Other People*, Harlan Walker, ed. (Devon, UK: Prospect Books, 1993), 68-80; Jordan Sand, *House and Home in Modern Japan: Architecture, Domestic Space and Bourgeois Culture, 1880-1930* (Cambridge, MA: Harvard University Press, 2003), 55-94.
5. For a list of prominent figures that helped advertise Ajinomoto, see *Ajinomoto shashi*, 207 fn.
6. On Murai Gensai and Shokudōraku, see Murase Shirō, "'Shoku' o 'dōraku' suru manyuaru: Meiji sanjū nendai shōhi seikatsu no tebiki" [Manual for Making an Avocation of Food: A Consumption Guide from the Meiji 30s], *Diskūru no teikoku: Meiji sanjū nendai no bunka kenkyū* [Empire of Discourse: Cultural Studies of the Meiji 30s], Kaneko Akio et al., eds. (Tokyo: Shin'yōsha, 2000), 165-198; and Sand, 73-77.
7. For example, Yoshimura Chizu, *Jitchi ōyō kaji kyōkasho* [Practical Domestic Management Textbook], rev. 6th ed. (1919), 1:115.
8. In fact, the powder had a slight brownish tint until 1931, when Ajinomoto was designated for use in the imperial house and company chemists set to work making a whiter crystal form for that purpose. Suzuki Saburōnosuke, *Aji ni ikiru* [A Life in Flavor] (Tokyo: Jitsugyō no Nihonsha, 1961), 154.
9. *Ajinomoto shashi*, 209-210. The positive influence of the product's association with modern science is further suggested by the fact many middle-aged Japanese today recall that women of their mothers' generation believed ingesting MSG would make children smarter.
10. Ajinomoto enkakushi hensankai, *Ajinomoto enkakushi* [Historical Chronicle of Ajinomoto] (Ajinomoto kabushiki gaisha, 1951), 88, 91.
11. Hasegawa Tadashi, *Ajinomoto no keiei senryaku* [The Ajinomoto Business Strategy] (Tokyo: Hyōgensha, 1982), 223. Of course, the shaker could also be used in the kitchen, but the company explicitly labeled it as intended for table use.
12. *Ajinomoto shashi*, 148.
13. *Aji ni ikiru*, 106.
14. *Ajinomoto enkakushi*, 463-466.
15. *Ibid.*, 454. The gold cans actually held 1,125 grams, slightly more than a kilogram. *Ajinomoto enkakushi*, 383.
16. *Ibid.*, 455. Similarly, a Japanese visitor in 1938 reported visiting with a rickshaw driver whose wife bought three *sen* worth twice a day. *Ajinomoto enkakushi*, 916-917.
17. *Ibid.*, 201.
18. Aurora Saula Hodgson, "Some Facts about Monosodium Glutamate (MSG)," *Food and Nutrition*, November 2001, www.ctahr.hawaii.edu/oc/freepubs/pdf/FN-8.pdf.
19. *Ajinomoto enkakushi*, 467-468, 472-475.
20. *Ajinomoto shashi*, 233-234.
21. "Wu Yunchu yu Zhongguo weijing ye," www.novelscape.com/js/liuyuy/zgbn/011.htm. This Web site tells the life of Wu Yunchu, the chemist who developed the Chinese equivalent. Wu is presented as a national hero. See Karl Gerth, "Commodifying Chinese Nationalism," *Commodifying Everything: Relationships of the Market*, Susan Strasser, ed. (New York: Routledge, 2003), 235-258. See also Karl Gerth, *China Made: Consumer Culture and the Creation of the Nation* (Cambridge, MA: Harvard University Press, 2003). Gerth shows buying native was such a central political issue in China that nationality became a defining characteristic of numerous commodities.
22. *Ajinomoto enkakushi*, 479-480.
23. Gerth, "Commodifying Chinese Nationalism," 252 (caption).
24. Wang Pilai and Wang Yu, "Dongfang weijing dawang Wu Yunchu" [Wu Yunchu, King of the East's MSG], *Zhongguo da zibenjia zhuan 5: Gongshang dawang juan* [Biographies of Major Chinese Capitalists 5: Captains of Industry and Commerce], Zhao Yunsong, ed. (Changchun: Shidai wenyi chubanshe, 1994), 362.
25. Tien Chu Manufacturing Company, "A Century of Progress of Condiments" (Shanghai, 1932?), 6. Heroic biographies of Wu also perpetuate the mistaken notion that Tian Chu MSG's derivation from wheat distinguished it from its Japanese rival. Both were generally made from imported North American wheat, which was the cheapest source of gluten. MSG continues to be derived from fermentation of wheat, as well as sugar beets, corn, and other inexpensive forms of starch. Scandal erupted in Indonesia in 2001 when it was discovered Ajinomoto was also using pork enzymes in the production process, thus violating the halal laws observed by a large part of Indonesia's Muslim population.
26. It is interesting to note that although Ajinomoto and its equivalents do not seem to have been marketed in China with the claims of beneficial science, European beef extract and its Chinese imitators were. Beef extract was consumed as a tea, promoted specifically for its health benefits, and does not appear to have been used in ordinary cooking.
27. Henry Low, *Cook at Home in Chinese* (New York: MacMillan, 1958), preface.
28. Buwei Yang Chao, *How to Cook and Eat in Chinese* (New York: John Day Company, 1945), 28. Chao does recommend "taste powder" in a vegetarian dish called "Arhat's Fast" and a few other vegetarian dishes.
29. J.A.G. Roberts, *China to Chinatown: Chinese Food in the West* (London: Reaktion Books, 2002), 152-153.
30. *Ajinomoto enkakushi*, graph opposite page 512.
31. *Ibid.*, 513.
32. John D. Peterman, "Flavor: A Major Aspect of Ration Improvement," *Monosodium Glutamate: A Second Symposium* (Chicago: Research and Development Associates, Food and Container Institute, Inc., 1955), 3.
33. Miss Nell M. Snively, "Use of Glutamate in Pre-cooked Frozen Foods," *Monosodium Glutamate: A Second Symposium*, 23-26; Col. Paul P. Logan, "Monosodium Glutamate and the Restaurant Industry," *Monosodium Glutamate: A Second Symposium*, 59-62.
34. See www.accentspices.com. Ac'cent was owned by the Pillsbury company until 1999. My 1953 edition of *The Joy of Cooking* refers to monosodium glutamate as "the mysterious 'white powder' of the Orient... 'M.S.G.," as it is nicknamed by its devotees." Irma S. Rombauer and Marion Rombauer Becker, *The Joy of Cooking*, 3rd ed. (New York: Bobbs-Merrill Company, 1953), 834.
35. Robert Ho Man Kwok, "Chinese-Restaurant Syndrome," *New England Journal of Medicine* 278: 14 (4 April 1968), 796. The scandal is given witty treatment, and this quotation is reproduced in Jeffrey Steingarten, "Why Doesn't Everybody in China Have a Headache?" *It Must Have Been Something I Ate: The Return of the Man Who Ate Everything* (New York: Alfred Knopf, 2002), 91-99. A substantial bibliography of the medical literature on MSG is available at the Web site of Truth in Labeling, an organization campaigning against MSG (www.truthinlabeling.org/o-u-reactionsReferences.html). It is interesting to note Kwok, whose name suggests he is a southerner, singled out northern Chinese restaurants for criticism. This distinction, perhaps an unconscious expression of regional nationalism, went unnoticed by non-Chinese Americans, few of whom knew whether the Chinese cuisine they were eating was from the north or the south.
36. Ajinomoto kabushiki gaisha, *Aji o tagayasu: Ajinomoto hachijū nenshi* [Cultivating Flavor: An Eighty-Year History of Ajinomoto] (Tokyo: Ajinomoto kabushiki gaisha, 1990), 352-353.

37. "Milestones in US Food and Drug Law History," *FDA Backgrounder*, 3 May 1999, www.fda.gov/opa/com/backgrounders/miles.html.
38. *Nihon rōdō nenkan dai 58 shū*, 1988 [The Labor Yearbook of Japan, 1988], <http://oohara.mt.tama.hosei.ac.jp/rn/58/rn1988-361.html>. Sendai-shi shōhisha shien kihan keikaku honbun dai 3 shō: Kihan hōkō [Sendai City Consumer Support Basic Plan Section 3: Fundamental Orientation], www.city.sendai.jp/shimin/syohi-c/shienkeikaku/honbun5.html.
39. See *Ajinomoto shashi*, 138–139.
40. *Aji o tagayasu*, 353.
41. Gunji Atsutaka, *Ajinomoto o shindan suru: Kagaku chōmiryō no kikendo* [Diagnosing Ajinomoto: The Level of Danger of Chemical Seasoning] (Tokyo: Bijinesusha, 1972), 235; *Nihonjin to Ajinomoto* [The Japanese and Ajinomoto] (Tokyo: Subaru shobō, 1977), 4.
42. Nihon shokuryō shinbunsha, ed., *Shokuryō nenkan* [Foodstuffs Annual] (1972), 60.
43. *Shokuryō nenkan* (1971), 26. The *Foodstuffs Annual* reported in 1970 "natural seasonings" were booming, as there was "an extremely strong mood that 'no matter what it has to be natural.'" *Shokuryō nenkan* (1970), 61.
44. *Ajinomoto no keiei senryaku*, 52.
45. *Aji o tagayasu*, 496–497. For the research center, called Society for Research on Umami Taste, see www.srut.org.
46. *Aji o tagayasu*, 497; *Ajinomoto shashi*, 275.
47. Ikeda Kikumae, quoted in Hirota Kōzō, *Umami no hakken to sono haikei*, 162–163.
48. Bruce P. Halpern, "Human Judgments of MSG Taste: Quality and Reaction Times," *Umami: A Basic Taste*, Yojiro Kawamura and Morley R. Kare, eds. (New York: Marcel Dekker, 1987), 328.
49. O'Mahoney and Ishii, "Umami and the Dogma of Four Basic Tastes," *Umami: A Basic Taste*, 75–79. Although these *umami* researchers received funding for their work at least indirectly from the Ajinomoto company, as O'Mahoney and Ishii's article reveals, they were not necessarily compelled to produce findings tailored to the company's interests. I do not mean to impugn the research itself by noting its importance to Ajinomoto's corporate image strategy.
50. *Aji o tagayasu*, 498.
51. John Whitfield, "Yum, Amino Acids," *Nature News Update*, 25 February 2002, www.nature.com/nsu/020218/020218-21.html#b2.
52. Huda Majeed Saleh, "MSG Found to Injure Retina, Damage Eyesight," *ANI-Asian News International* 2001, www.rense.com/general33/found.htm.
53. Other recent uses of the term *umami* show its increasing acceptance in English-language food journalism. *Bon Appetit* magazine, for example, called it "the latest buzzword for chefs across the country." Maureen C. Petrovsky, "Umami Dearest: The Chef's Secret Fifth Flavor," *Bon Appetit*, September 2004, 45.