
FENNEL POLLEN
STAR ANISE
PINE POLLEN
PINE POLLEN
LAVENDER
LONG PEPPER
HAWAIIAN SALT
FENUGREEK PWD
FENUGREEK PWD
CANE JUICE
METHOCEL F50
CALCIUM LACTATE
XANTHAN GUM
GELLAN LT100
SOY LECITHIN

POSTMODERN PANTRY

MARK McCLUSKY

My moment of clarity at Alinea came with an order of salsify. It was a gorgeous dish: a spiral of the root vegetable—sometimes known as oyster plant for its hint of seafood flavor—garnished with impossibly intricate steelhead roe, mustard seeds, and parsley leaves (page 314).

Near the edge of the plate sat a vegetal green sauce. A taste of it and I was bombarded by parsley, the workaday herb taken to its very essence, a distillation of everything herbal and fresh I had ever eaten. It was like having parsley injected into my cerebral cortex.

After my meal, I asked Grant how he made the parsley sauce. He came back at me with the same question: "How would you make that sauce?"

"That's simple," I said. "I would take parsley and purée it with olive oil, let it sit for a while to infuse the flavor and color of the herb into the oil, and then strain it."

Grant smiled. "Then you'd have parsley oil. It will taste like parsley and oil." What Grant does instead is cook the parsley, season it, run it through a blender, and then thicken the liquid with a modified food starch called Ultra-Tex 3. "It imparts zero flavor but gives it the same viscosity as oil," he told me. "That liquid will taste intensely of parsley because that's all it is."

Of course, it's easy to say that's all it is, especially when you're in a restaurant like Alinea, where the beauty of the room, the warmth and wit of the servers, and the sheer otherworldliness of the food placed before you can obscure your focus on the flavors. New ingredients and techniques like Ultra-Tex 3 can make the place feel more like a chemistry lab than a restaurant. But they shouldn't. In fact, seeing Grant and Alinea in those terms fails to grasp the relationship between innovation and taste.

How do I know this? Because after my first dinner at Alinea, I got my hands on some Ultra-Tex 3. It's magical stuff, able to turn anything you add it to into a lovely *nappe* sauce with no effort whatsoever. I am an experienced amateur cook, and I spent weeks playing with it. And guess what: I never got it to work right. Oh, sure, I could thicken anything. Root beer sauce for vanilla ice cream? It was okay, but the play on a root beer float that I was hoping for didn't come through. Bourbon thickened to sauce a bread pudding? It was too strong and alcoholic. And the less said about my orange and cranberry juice sauce the better. It was more suited to stripping paint than spooning over a dessert.

Simply put, the great cooking at Alinea isn't about the technology used to create it, no matter how formidable that technology is. It's how these new ingredients, techniques,

and equipment are used to intensify flavor. "The overriding arc at Alinea is purity of flavor," says Grant. "We like explosive tastes. We don't dilute flavors, period."

According to an old saying, "It's a poor craftsman who blames his tools." But the flip side of that aphorism is that crediting tools for mind-blowing, innovative work overlooks the importance of knowing how to use those tools well.

Go into your kitchen and open your pantry. You're staring at a lab's worth of chemicals. Baking soda? That's calcium bicarbonate if you want to be technical. Cream of tartar? More accurately, it's potassium hydrogen tartrate. Vinegar is a friendlier name for acetic acid. You can even give your salt its due and refer to it as sodium chloride. Cooking is chemistry. Even the techniques are the same: heating, cooling, purification, dilution, distillation, fermentation. The difference between a saucier and an Erlenmeyer flask, a cooktop and a Bunsen burner, is one of familiarity.

Take another example: flour. It's the primal building block of Western cooking, the result of grinding the endosperm of the wheat grain—basically, the starchiest part—into powder. In chemical terms, starch is a hydrocolloid thickener. Hydrocolloids are a mixture of water and molecules that attach to the water and to one another. That slows down the flow of a liquid (giving it a thick, saucelike consistency) or stops the flow entirely (turning the mixture into a gel). At a set temperature, starch granules can absorb an amazing amount of water, a process known as gelation.

After gelation, the starch granules start to break down, leaking two sorts of starch molecules, amylose and amylopectin. They are the reason flour is such a good sauce thickener. As they are released, they form a mesh that traps the swollen granules and prevents their movement. If you continue cooking a sauce past this point, the heat will break down the molecules and they will rise to the top, causing the sauce to thin again. That's why classic French sauces are cooked for hours and meticulously skimmed to remove the starch molecules as they emerge from the suspension.

But as anyone who has ever tried to thicken a sauce directly with flour knows, it doesn't work. If you throw a starch straight into a hot liquid, its outer layer gels almost instantly, trapping its dry center from the liquid. That's how you make lumpy gravy.

In classical cuisine, you avoid lumps in one of three different ways: You make a roux, which coats the starch with a fat (usually butter) and breaks down some of the starch, lessening its thickening power. You mix the starch with cold water or another cold liquid to create a slurry that separates the granules. Or, you make *beurre manié*, in which starch and fat (again, butter classically) are kneaded together into a paste that releases the starch gradually as the fat melts.

But what if you didn't have to mess around with making a roux or its kin? The postmodern pantry is stocked with a slew of unfamiliar ingredients with seemingly magical properties. There are thickeners that don't require any heat to activate, and ones that thicken only when they are hot. There are agents that allow you to make gels that can be heated after they have set. There are even emulsifiers that will blend two liquids that normally would stay separated no matter how long you stirred them.

This brings me back to Ultra-Tex 3. It's a modified food starch derived from tapioca, a hydrocolloidal thickener that can be added directly to cold liquids without clumping, giving the cook more control over the texture of the final product.

Modified food starches are indispensable in the industrial food industry, where they are used to thicken puddings, emulsify salad dressings, and even stabilize the toppings on a frozen pizza as it cooks. But it's only recently that chefs have started looking past those uses, and started thinking about how these starches might be applied in the restaurant kitchen.

If you're looking for a modified food starch to play with on your own, you can track down Ultra-Tex 3 online. Or, crack open your cupboard to see if you have any Wondra flour, which General Mills markets as a way to ensure lump-free gravy. It is modified wheat flour in which some of the starch has been pre-gelatinized to help it dissolve quickly in hot or cold water.

When most cooks want to make something firmer than a sauce, such as a gel, they usually reach for an old standby: gelatin. Despite its familiarity, it is actually a deeply weird thing. It's a protein, found in the collagen in animal and fish tissues. Just about every other protein hardens when it's heated—the molecules bond to one another and the protein becomes more solid. That's why steak, fish, chicken, and the like firm up when we cook them.

Gelatin isn't particularly good at forming those permanent bonds. Instead, its molecules disperse into the cooking medium when they are heated. But gelatin has another trick—the molecules are extremely long, so they easily tangle with one another, an action that forms a mesh that traps water. Use enough gelatin and the mesh locks up enough of the water in any liquid to solidify it.

Gels are a big part of the cooking at Alinea; few chefs see more possibilities in them than Grant. "I love their texture," he says, "and I love the way they release flavor." Sometimes it seems like every plate in a twenty-four-course meal at Alinea includes some sort of gel.

But with so many ideas for using gels, Grant needs ways to create them that go past gelatin, which works well in only some applications. For instance, once you have created a gel with gelatin, you can't heat it again, or the gelatin will simply melt as the protein bonds are broken.

If you want hot gels, you need to look to a whole group of hydrocolloids derived from algae, seaweed, and even bacteria that use carbohydrates to stabilize mixtures, rather than a protein mesh. Agar agar and carrageenan are both extracted from red algae, and both form gels that can be heated. While they might be less familiar in the United States, they have been used in Asia for centuries.

Those aren't the only fascinating ingredients we can get from the ocean. One of the strangest hydrocolloids is sodium alginate, which comes from brown seaweed. Alginates only form gels in the presence of calcium, so a clever cook can manipulate his or her ingredients to take advantage of that. At Alinea, spheres of butter that has been spiked with additional calcium are bathed in a sodium alginate solution until a gel forms on the outside. Then the spheres are heated, melting the butter in the center, and served with cake (page 377). The effect for the diner, who breaks what looks like an egg yolk of melted butter over the cake, is magical.

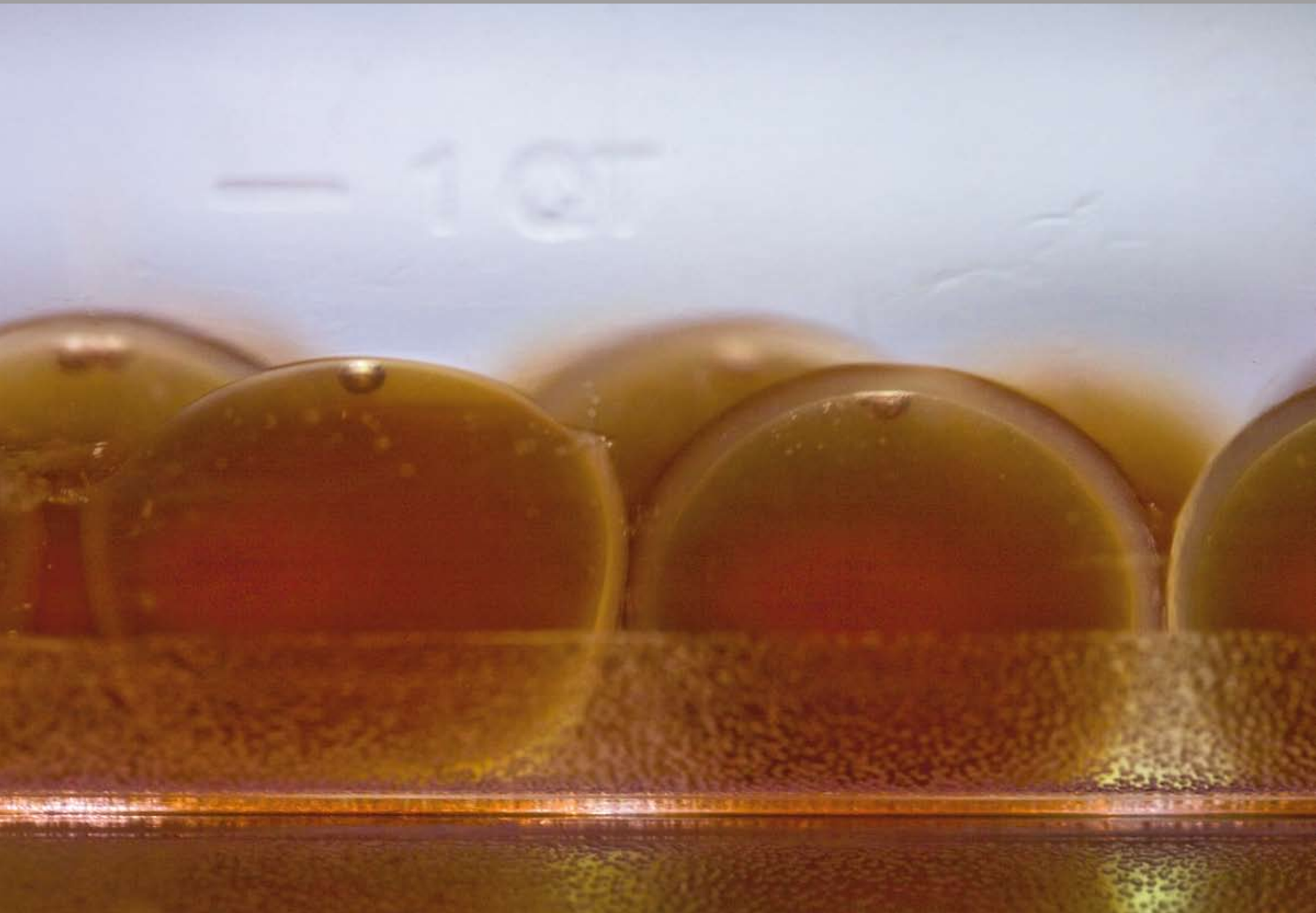
These hydrocolloids vastly expand a chef's options when it comes to manipulating texture. The turbot dish on page 102 features the delicate white fish served in a hot shellfish custard. If you made a traditional custard using eggs, the temperature required to set it (175°F/80°C) would overcook the turbot. You could try gelatin, but you can't serve gelatin-thickened mixtures above about 100°F (38°C), or they melt. So Grant uses carrageenan, which thickens the eggless "custard" and can be served at the warm temperature he envisions.

Many dishes at Alinea feature sauces with an almost pudding-like consistency, from thickened yuzu juice to soy sauce. The technique for these sauces is ingenious: First, the liquids are converted to a solid using agar agar. Then, that solid is run through a blender until it's a silky smooth, translucent sauce. You can put it on a hot plate, since agar agar won't melt once it has set, and the beautiful clear colors wouldn't be possible with starch-based thickeners like flour or cornstarch.

"The technology allows us creativity," says Grant. "And it lets us get to the essence of the food. If you do it right, it allows you to be more true with flavor, not less true. It's like transitioning from cooking everything on a big open flame to a sauté pan on a burner. If done properly, the end result either way is a beautiful piece of meat. It's just the way we get there is different."

Food plays so many roles in our lives. At the most basic level, it's fuel for our continued existence, the calories that we need to get through the day. At the highest level, it's a form of art, just as painting and sculpture are.

But somewhere in between is the great pleasure to be derived from food—the cultural and aesthetic joys that we get when we gather around a table. For some, food is a crucial



connection to their ethnic background, keeping alive traditions and providing comfort in a strange place. For others, it's a way to connect with family and friends, a bridge that facilitates communication.

And it is a powerful trigger for memory. A bowl of strawberry ice cream can transport you to summer days when you were a kid, begging for dessert, or when you had your tonsils removed and it soothed your throat. Pot roast can remind you of winter nights gathered around the table, safe with the people you love.

We call it comfort food for a reason. Our meals can gather us in a warm embrace. And most food, most cooking—even at high-end restaurants—is evocative. It looks to the past, reminding us of places we have been and meals we have eaten. That doesn't mean you can't innovate. But it's a fundamental outlook that reaches back to create emotion in the diner.

No one comes to a restaurant like Alinea simply to satisfy his or her hunger. You come to eat at Alinea to be removed from your daily life and surrender yourself to an experience that is managed down to the smallest detail. It's theater you can eat.

But the cooking at Alinea is also deeply disconnected from almost everyone else's. Alinea's food doesn't evoke, it provokes. It's not comfort food that looks to the past; it's challenging food that looks to the future, examining every aspect of eating to try and create new sensations, textures, experiences, and emotions.

"All I can hope for is that guests find some intellectual stimulation, that people find the food delicious, and that they leave satisfied on every level," says Grant. "I want them to be challenged, surprised, delighted, and, hopefully, find something life-changing."

A big part of that surprise and delight comes from the new ingredients, tools, and techniques used at Alinea, and the unusual and delicious results they enable. But for Grant, the focus is always on the flavor. Some other chefs might be comfortable highlighting techniques for their own sake, but at Alinea, technology is a means to an end, and not the goal itself.

"A lot of what we do is modernize—it's a reinterpretation of known techniques and ideas," says Grant. "Through technology, we try and make something great even better."

Technology isn't a break from the past. It's an expansion. Escoffier, when looking for a thickener, could pick from a variety of ingredients and techniques, like roux or cornstarch slurries. Grant, confronting the same problem, has those old ways at his disposal, as well as Ultra-Tex 3 and agar agar.

It's not a revolution or a movement. It's just a bigger tool kit for the chef.