

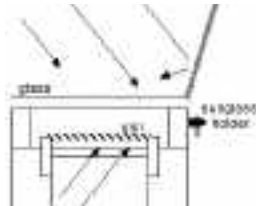
BoomChef Mark I Development Notes

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4/2 First warm weekend of spring. Got out the Weber grill, hunted around in garage for leftover charcoal. None left from last summer.

4/4 Filled up car with gas. Pump prices tied at all-time high, reflected on the miserable state of alternative fuel. Reflected sunlight from next car's windshield made me squint. Grabbed sunglasses off dashboard which promptly scorched the bridge of my nose. Reflected on how I could probably fry a hotdog on my dashboard, it must be 120 degrees. If only it weren't so dusty and gross and if the sun could be moved a little closer to the Earth or ... reflected on reflectivity.

4/5 Sketched out design for solar-powered grill with mylar reflector panels. It would be perfect for boomerang tournaments where you've got plenty of time for slow-cooking and where event delays usually postpone lunch until 3:30pm. Needs to be wind-resistant as these competitions always happen on the windiest days, and needs to use a router somewhere in the building of it in order to justify my earlier purchase of a router.



4/6 Sent proposed design to engineers. The response was uniform in its level of enthusiasm.

James K. Sprague, Ph.D, PE:

Your design would result in an exceedingly well-illuminated hot dog ... I suggest shoving a foil-wrapped Frank up your tail pipe.

Ken W. Dreier, Proton Energy Systems:

You will have temperatures slightly above ambient ... I recommend placing the foil wrapped hotdog on the exhaust manifold instead.

4/7 I made some critical changes in the design concept including eliminating the grill and using it as a solar roaster with a three-dog rotisserie skewer instead. Resubmitted to engineers.

Ken W. Dreier, Proton Energy Systems:

Recommend painting the hotdog black.

James K. Sprague, Ph.D, PE:

Mash it flat and then dip it in tar.

Lori M. Sprague, electrical engineer

I advise you to drop the whole thing.

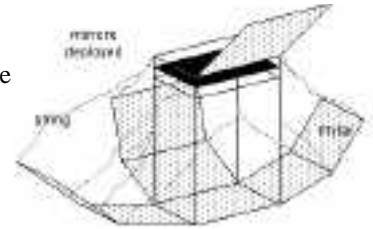
Sanna Stanley, spouse

I can think of better uses for your time.

With the support for my project at an unbelievable nadir, I began to suspect there's more to this than meets the eye. I looked through our tax filing to see if Sanna had received payments from the fossil-fuel industry. Nothing there. What is stilling work on renewable energy?

Regardless of the source, I resolved to complete the project

before such massive disapproval energy focused on a single idea created a tear in the space-time continuum, allowing pseudo-human petroleum executives from other dimensions in to take over the government.



Dr. Sprague followed up with a diatribe headed "Dear Liberal Arts major" in which he admonished me for attempting to operate a brain without a license. In particular, he suggested a degree in Heat Transfer might be applicable to the issue at hand. Not having several years and thousands of dollars allocated for the BoomChef project, I spent four minutes with Google learning Heat Transfer. I made a diploma with my name on it suitable for framing using Word clip art: "Doctorate in Heat Transfer, Connecticut School of Culinary Boomerangers".

My newfound knowledge included the stunningly relevant fact that there are three types of heat; Convective, Radioactive & Confucianist. So I tripled my temperature estimates that were based only on Ordinary Heat. My original calculations that my dashboard must have been 120 degrees led to the logical conclusion that a reflector panel should be able to double that to 240 degrees. With more panels on the bottom that would be ... wait, maybe I better do this in Celsius. So 30 degrees multiplies out to 200 with the reflectors, times 3 types of heat transfer and I can reach 600, which is a good top end for a pizza oven. I decide to stick with the original design.

4/12 Purchased a black aluminum grill surface and an oven thermometer that goes up to 600. Melting point of aluminum is 1220 F or 660 C, need to check with manufacturer if it's made of Fahrenheit or Celsius aluminum, might get into trouble if it's Celsius. Started to frame out the structure. Sanna came downstairs to the workshop. "You're not working on that solar grill thing are you?"

"Um, no," I said.

"Yes you are, and you just sawed up the shelves I painted for the bookshelf I want the first chance you get to build something. We have books piled on the floor in every room."

"Um," I said. This is the price of marrying an author.

"And why are you making it out of wood? If it ever does get hot it will burst into flames."



My heart leaped. Sanna had let slip acknowledgement of the possibility that it might get hot. I knew it! With renewed vigor I attacked the project.

4/14 Developed BoomChef logo with sunglasses for the O's.

What if a wayward 60-meter boomerang smashes BoomChef into a lukewarm diaspora of shiny flinders and glass? Need to develop some defenses.

Perhaps a satellite-based shield that could continually assess incoming trajectories in real-time and dispatch a laser-guided missile to take out the boomerang before it can damage the grill. Need to email the Pentagon to see if they will make available existing technologies to the taxpayers who funded the research.

Or I could require all competitors to register their boomerangs, I

can build a database to rank potential threats based on weight and velocity metrics. I'll print a 'watch list' for tournament officials to raise flags of different colors indicating the appropriate level of fear the grill operator should be feeling.

4/17 Bennett helped me put together the top frame by swiping my tools and whacking other objects with them. At age three he considers Legos a part of anything worth doing, and tosses one onto the grill surface. Still need to do logistics for underside but I have enough that I can test with a single reflector.

Borrowed a piece of glass from Sanna's art supplies for the top heat trap. Set the legless unit out in the yard before going to church.

Upon returning from church, discovered that the sun had moved so as to not be actually shining on my creation. Oven thermometer registers "A" for Accurite, off the bottom of the scale, which starts at 150. Can't tell how hot it was in my absence. Now I see the wisdom of Bennett's Lego idea. If I had left it in there and it had melted, I could have shown that the temperature had reached the melting point, where now all I had was the current reading from the shady spot. Must look up melting point on the Lego web page.

Had to disassemble the unit so Vern could use the griddle to make pancakes. Broke the glass trying to put it someplace where Bennett couldn't break it. Swept it up before Sanna found out.

4/19 Set top unit without glass or reflectors in the back window of my Saab with thermometer. Cloudy day.

4/20 Sunny day today. Repeated experiment, this time with a bagel inside for four hours. Thermometer reached 150 by noon.

Ate bagel. A little dry, but palatable. Found a good paper on Shelton's Laws for Thermalizing and Moisturizing Foods. The idea is that moisture stabilizes temp and keeps food from drying out. My grill surface has grooves that can serve as water reservoir, need to make sure it's level.

4/26 Put on legs to hold box at working height, angled stance to be increase stability in heavy wind. Got new glass cut to size, four pieces to allow for some breakage. Acquired a suitable sunglass holder. Design calls for one piece of glass on top and one underneath. Need to figure out how to attach the bottom piece but still allow it to easily disassemble for transport to boomerang tournaments.

"Binder clips," said Sanna.

Brilliant. I could use my router to make the grooves.

"You know what else might improve it," she said. "Take out the grill part and maybe I could use it as a vacuum frame. We could write it off under art supplies."

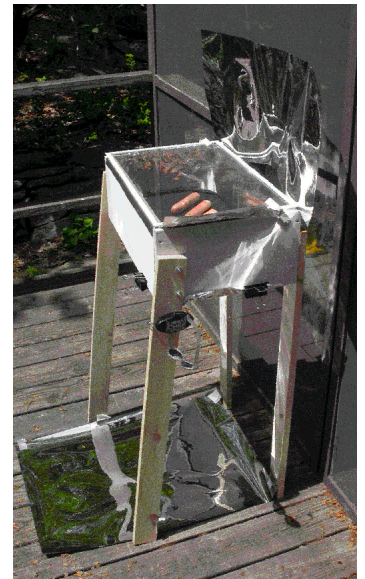
4/30 Prototype is ready for testing. Forecast: thundershowers. Testing postponed until next weekend. Some sun peeked out between clouds on Sunday. Discovered the only part of our 1-acre lot that is not completely shaded by trees is the top of the chimney. Need to develop chimney mount bracket, or cut down some trees, or wait a few weeks for the sun to arrive at a higher zenith.

5/7 Partly sunny this afternoon, but I missed the narrow window when the sunlight would have landed someplace useful. Testing postponed until next weekend.

5/14 Found myself inexplicably in San Francisco. Testing postponed until next weekend.

5/21 Saturday dawned bright and brilliant. List of Saturday chores:

- winter clothes to attic
- fix doorknob in basement
- fix lawnmower
- mow lawn
- landscape front yard
- clean house
- get Bennett to put away toys
- remove all cables from vicinity of desk but retain full functionality of phone, answering machine, laptop, modem, ethernet, external firewire drive, external keyboard & mouse, scanner, printer, radio and lamp
- test BoomChef Mark I



By skipping the BoomChef item forward several places I was able to set it in a sunny place by 10:30am. Then I fixed the lawnmower. I checked in at 11:00 to tune the reflectors, it was already at 170F. By 11:30 it had reached 200F and the first cloud passed overhead. I found a package of hotdogs in the freezer and broke four of them off for testing. They made an actual sizzling sound when I put them on the grill, and I went to mow the lawn.

The sky clouded over. Sunlight broke through fitfully and I left the lawnmower idling several times to run and check on the hotdogs. The temperature dropped to 190F within a few minutes and hovered around 180F. It clouded over completely by noon and the temperature had dropped to 170 by the time we were ready for lunch.

I took the dogs off and served them up. Extra ketchup for Bennett's. They were done but not crispy. Need more reflectors, and more sunshine.

