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The award-winning author sat down with Andréa Maria Cecil to talk about his career, his upcoming book and the task of correcting nutrition science.

BY ANDRÉA MARIA CECIL

It took six years and countless reclusive hours for investigative science journalist and best-selling author Gary Taubes to finish his latest book: "The Case Against Sugar."

He calls it "a prosecutor's argument." The work opens by examining whether sugar should be perceived as a food or a drug. Taubes is now fact-checking the book before publication.

The 59-year-old native New Yorker who today lives in Oakland, California, also penned the oft-cited "Good Calories, Bad Calories" and "Why We Get Fat." He's won the Science in Society Award of the National Association of Science Writers three times and was awarded an MIT Knight Science Journalism Fellowship for 1996-97.

I first talked to Taubes in August 2015 for an article focused on the folly of basing a human being's nutrition plan on the calories-in-calories-out law of thermodynamics. The age-old equation assumes the metabolic effect of all calories is created equal—regardless of whether they come from chicken, olive oil or Twinkies. The problem with that is human beings aren't incinerators.



The very next month, I talked to Taubes again, this time about the vilification of dietary fat. He was a great interview—a perpetual skeptic with an affinity for information mining and a belief that we are all making this diet thing too complicated.

In this third interview, I talked to Taubes in person at a middle-school library in Capitola, California. He was the keynote speaker at the Santa Cruz County Office of Education's seventh annual Together for Kindergarten, an event that this year was focused on child nutrition in particular, sugar. Attendees included preschool and kindergarten teachers, as well as K-12 administrators.

"This event is for those teaching young children with the intent to help inform their policies around the food they serve in their programs/classrooms," wrote Carol Mulford, child development department manager for the Office of Education, in an invitation to community partners.

> "There's no point at which I will say, 'l've had enough (sugar).' You'll stop eating it either when you feel guilty or you feel sick." —Gary Taubes

Before the event. Mulford had retrieved from the trash empty packages that once held snacks teachers gave to students. What she unearthed included Gatorade, sugar-covered raisins and candy. She sorted the wrappers into gift bags; attendees picked through the items and noted added-sugar content as part of an activity that preceded Taubes' talk.

During his hour, Taubes focused on sugar. He called it his "buzzkill lecture" in which he alluded to sugar as an addictive drug not unlike cigarettes. Taubes is a former smoker of 20 years.

He noted that eating sugar never makes him feel full.

"There's no point at which I will say, 'I've had enough," he explained. "You'll stop eating it either when you feel guilty or you feel sick."



Andréa Cecil: I was interested to hear how you got to become a journalist. Was that something you always wanted to do?

Gary Taubes: I wanted to be an astronaut.

Really?

Yeah, so I studied physics in college. And then I came to graduate school at Stanford. And it didn't seem like the world had any call for 220-pound astronauts in 1978. I was getting a master's in aeronautical engineering and I wasn't very good at it. And along the way I had read "All the President's Men" by Woodward and Bernstein and decided it would be cool to be an investigative journalist. So I applied to Columbia Journalism School, and at the time the future looked like science writing so they bought all my physics and aeronautical engineering background.

I actually wanted to do investigative reporting, but the newspapers were a little more savvy about my background, so I couldn't get any good jobs. And the only job I could get that would allow me to stay in New York City, where I lived, was science writing, so I became a science writer. And a few years in it turned out that there's some pretty bad science out there and that somebody who thinks critically and skeptically and is industrious as a reporter could do some pretty interesting stories. So I just kind of fell into my version of investigative iournalism.

(For my) my first book ("Nobel Dreams") I lived at this physics laboratory, CERN, outside Geneva, and I thought I was going to be covering a great breakthrough in physics. It turned out that they had made a mistake and screwed up, and the head of the experiment was busy



trying to cover this up. This is an experiment with, like, 150 people on it-I mean huge, expensive experiment. Some of the physicists were trying to figure out how they screwed up and do good science. The kind of Machiavellian Nobel laureate who ran the experiment was trying to cover it up as long as he could so he didn't have to be embarrassed, and a book that I thought was going to be about a great breakthrough turned out to be an exposé on the kind of politics and sociology of this particular experimental world.

And after that, I was kind of hooked. I'd interview scientists and they would say, "Boy, if you think this guy, this Nobel laureate you wrote about, was particularly Machiavellian, you should write about this guy. He's really bad." And every field had some very (influential), very ambitious, successful scientist who was kind of cutting fast and loose with the evidence, and the other scientists were more than happy to find a journalist who was interested in that stuff. So one thing led to another.

You were a rarity at that time. I would imagine.

Yes, very much so. Science journalists tend to be translators of science. They see themselves as taking these complex subjects and making it entertaining and palatable. I enjoy doing that, but this sort of digging to find where the truth was was a lot of fun.

What was your first job?

Discover magazine in 1981 when it was owned by Time Incorporated back before Time Inc. became Time Warner and then became Time Warner AOL. And then it was 1984-I went off to write my first book, and I never really went back to a job afterwards. I stayed freelancing and writing ever since.

How do you like writing?

I don't. But I love reporting. < laughing> One of the reasons I prided myself on my reporting is because as long as you're reporting you don't have to write. So it's a great procrastination tool to just keep asking questions and reading. One of the problems with the Internet right now is that there's sort of an infinite amount of material you could read, if you want to. So you could procrastinate forever. And if you get to the point where you have a little bit of financial freedom-ya know, usually you start writing when the specter of going bankrupt forces you to. < laughing > And now it's like, "OK, my books are doing well." You have to find another reason to force vourself to actually do that hard work of writing.

Right. There's that ubiquitous quote about writing: "Writing is easy. You just have to sit down and open a vein."

up the hill.

up?

It's finishing the sugar book and then the Nutrition Science Initiative work, which is always fascinating and challenging in a different way.

What can you tell us about the sugar book at this point?

It's almost done. The title is gonna be "The Case Against Sugar"-very straightforward. The argument I make is if this was a criminal case, you've got tens of millions, hundreds of millions of people suffering from obesity and diabetes; you've got these unprecedented epidemics of obesity and diabetes, and sugar should be the prime suspect. And this book is sort of the prosecutor's argument. Here's why, even though I actually think the evidence is ambiguous. I mean if it was a criminal case, you would have enough to indict but not to convict because all the research has holes in it-short-term studies when you're looking at long-term chronic problems. It's very questionable epidemiology. But there's just a hell of a lot of circumstantial evidence.

Yeah. Sisyphus is always my metaphor. Wake up, push the rock

Exactly. So there's also this stereotype about writers that I encounter frequently that we're sort of introverted and reclusive. Do you think that's true about you?

It's certainly become true. <quick laugh> I don't know about introverted. I rarely leave my house anymore. It's a little frightening. People on the block are beginning to think of me as the reclusive writer who they see, like, once a month at the market. But I hope that's more of a function of my workload than my personality.

And right now it's mostly the sugar book that you're finishing



And it's a fascinating story about how the sugar industry and the research establishment sort of conspired. One because of self-interest, and the other because of dysfunction conspired to keep sugar from being perceived as a primary suspect for about 30 years past the point where we should've just said, "Hey, enough is enough. This stuff seems too dangerous to consume in any quantity."

Now you have obviously been outspoken about these very topics in the past. Has your life ever been threatened over it?

No. I always wondered what I did wrong. <wide smile> No, it's funny, Rob Lustig-I think it was Rob, and forgive me, Rob, if I'm wrong about this-found at one point a sort of "enemies list" of the sugar industry. It's how he described (it) or how I perceived the description. And I wasn't on it. And I thought. "What am I. chopped liver?"

Were you disappointed?

A little bit. But the sugar industry (is) quite brilliant at the public relations-or at least my perception of their public relations-which is they have a just tremendous product. People love it, children love it whether or not it's addictive. It'll pretty much sell itself as long as they stay out of the way. And they've been so successful for so long that the best way to deal with challenges to your product is you let somebody else, maybe you can find a third party to say, "This paper wasn't written well" or "This article had holes in it." But you pretty much stay quiet and just keep doing what you're doing 'cause it's worked until then. You start drawing attention to people arguing that your product's toxic by challenging them; you create more and more discussion about something you don't want people to talk about. Better to just let everything pass and we'll just keep having our Coca-Colas. That's my take

on the public relations.

So even though you're not on the enemies list-

Not yet.

How effective do you think that you've been?

Hard to judge. I mean, sugar consumption in this country is coming down and soda consumption's coming down, but that dates to about 1999/2000. So it's hard to tell whether I've had an effect or I've just been riding a wave. It's an association. My work associates in time with changes in the American diet, but that doesn't mean it's had a causal effect. I'd like to think I have but everyone would.

You mentioned the idea of putting sugar on trial.

Yes.

What are your thoughts about an actual warning label on sugarv beverages?

I mean, I'm all for it. I think everything that draws attention to what I believe are the probable metabolic effects of this substance is a good thing. Matter of fact, I'm skeptical of the benefit of sugar taxes other than they continually remind people that this is something they should think of as unhealthy. Or probably unhealthy. Or sufficiently unhealthy that they should avoid it, if possible. I used to be a smoker and (it) certainly helped to guit to know-or at least to think-that cigarettes were gonna shorten my life.

How long were you a smoker?

About 20 years. And I still chew Nicorettes.

Really?

Fifteen years after I quit, yes, It's another very effective drug.

Absolutely. So the question always comes up about how much is too much sugar. And it kind of aligns a little bit with the argument about how many cigarettes are too many cigarettes. What would be your response to that? How much sugar is too much sugar?

Well, it's funny because the epilogue of my book, the title is "How Much Is Too Much," question mark. I compare it to cigarettes and I said, "The problem is we don't know." First of all, if it is addictivewe can talk about that in a second—then as long as you're eating it, you're gonna want more. As long as you're drinking it, you're gonna want more. So you keep your sweet tooth alive. Like, I could not have

quit smoking by trying to smoke in moderation. Matter of fact, I tried to smoke in moderation my whole life. It's a failure. As soon as life gets a little stressful, moderation goes out the door and you're back up to whatever you were before. If somebody had said, "Gary, you can smoke two cigarettes a day. It's not gonna increase your risk of cancer or heart disease. You won't even have bad breath in the morning when you wake up," I still wouldn't have been able to stay at two cigarettes a day. And I would have thought about cigarettes all the time. At least anecdotally there's a similar phenomenon with sugar.

Like when I first gave up carbohydrates as an experiment, the hardest thing to give up was orange juice in the morning. I thought it was God's way of getting the taste of the night out of your mouth, but in retrospect it was so difficult to give up that I suspect it was all about the sugar content. I can't imagine having a glass of orange juice anymore, weirdly. And the same phenomenon happens with, like I said, cigarettes. That issue makes it virtually impossible to talk about how much is too much.

The other story I was gonna tell: In (the) 1730s, this British doctor named (Frederick) Slare writes an article defending sugar against the charges of another doctor who came 60 years before him. This one doctor (Thomas) Willis condemned sugar in, like, the 1670s. Slare comes along in 1730, writes an article called "Vindication of Sugars Against the Charges of Dr. Willis, Dedicated to the Ladies." And it's completely dedicated to vindicating sugar. "There's nothing wrong with this. It's a completely healthful substance, it's terrific, but," he says, "women who are predisposed to get fat shouldn't drink it, eat it 'cause it'll make 'em fat." This doctor who wanted to convince everyone that sugar was harmless was still willing to warn women away from consuming.

And then 140 years later—1868 or so—a Harvard student writes a thesis on diabetes in which he discusses the possible role of sugar in diabetes, and he discusses the work of this Portuguese physician named (Abel) Jordao who thinks that sugar might actually make people fat. And the Harvard student and this award-winning thesis (say), "This would explain why the women who tend to be too thin now drink sugar water in order to put excess flesh on their arms." Scientifically those are meaningless observations.

But there might be some truth to them. And you wonder how we've changed even as a race over the past 200 years as we've consumed sugar. Basically (in) 300 years we've become this sugar-eating species.

People talk about sugar and say, "Well, it just really boils down to calories in and calories out."

Right. <smiling>

"They come up with this idea that foods that make you fat are foods that have too much energy. You're consuming more than you're expending The problem is science evolves." — Gary Taubes

Can you address that?

of the day.

want and to be lazy.

The modern history of nutrition starts in the late 1860s with the creation of room-sized calorimeters in Germany. And these are roomsized boxes that allow the researcher to measure the energy expended by dogs or humans under different conditions.

So from the 1860s to the 1930s nutrition science is calorimetry—the science of energy in and energy out, and its vitamins and mineral deficiencies. These are the tools they had and these are the things they can study. So they come up with this idea that foods that make you fat are foods that have too much energy. You're consuming more than you're expending-that's how you get fat because that's the science

The problem is science evolves. Like the whole field of endocrinology. of hormones and hormone-related diseases. (was) basically born in the 1920s and exploded in the 1960s with the invention of another technique that allows you to measure hormones in the bloodstream. The obesity researchers and the nutritionists are just locked into this 100-year-old science. They perceive any discussion of obesity as a hormonal disorder as an excuse for a fat person to eat as much as they

And, of course, the researchers tend to be thin. The ones who are dominating the discussion were exceedingly thin, so it's very easy for them to think that it's a behavioral defect. And when the endocrinology explodes in the 1960s and researchers basically learn that the hormone insulin is primarily involved with regulating fat, now that implicates carbohydrates in fat accumulation, and we're busy blaming the fat in our diets, saturated fat for heart disease and telling people to eat more carbohydrate. So it's very inconvenient to have a field of science that implicates carbohydrates.

Between the late '60s and 1980 or so, this whole idea that endocrinology and hormones are involved is kind of removed from the discussion. This is what I documented in "Good Calories, Bad Calories." It's a little bit crazy. You're dealing with diseases.

I mean it's funny—the research community, they're willing to assume that 100 calories of fat (has an) entirely different effect than 100 calories of protein and carbohydrates. All metabolize different and in different organs, and they're partitioned differently. One hundred calories of saturated fat has a different effect, as far as they're concerned, on the accumulation of atherosclerotic plaques on our artery walls than 100 calories of unsaturated fat. But if you tell them that 100 calories of sugar has a different effect on the human body than 100 calories of starch or 100 calories of fat, they treat you like you're a quack.

Tell us about NuSI. What is its mission? What does the acronym stand for?

NuSI stands for the Nutrition Science Initiative. I co-founded it with a physician named Peter Attia four years ago. Our belief when we started it is that there was one study we really thought could be done that could dislodge the research community from this energy-balance perspective, show them that basically you could reduce fat accumulation in the human body without changing the caloric intake of a human. You can do it in rats effortlessly, but they don't pay attention to the rat studies.

Our mission is to reduce the burden of obesity and diabetes. This isn't an academic exercise. We want to have an effect, and we believe we can have an effect by fixing the science. Our motivation was more like a Manhattan Project where we have an obesity and diabetes epidemic, we have conventional thinking that it's caused by eating too much and not enough exercise, maybe the dietary fat content of the diet. (The) alternative hypothesis that we find compelling (is) that it's the carbohydrates, the sugar and the grains, so let's raise the money to do major studies that have the ability to resolve these controversies that we've been discussing, including the role of sugar in the diet.

We've got four studies up and running. One of 'em, a pilot study, has been completed, and a paper has been submitted for publication. The results are interesting but they're very hard to interpret. We're working with this group of investigators, very influential investigators; our goal was to get the research community themselves to do the studies necessary.

See, you can find people who believe what we believe, and if you fund them and they do the studies, nobody else pays attention to them. So the idea was let's find influential researchers. It's a challenge to get the right studies done. It's challenging to work with researchers who have a sort of a fundamentally different world view on the cause of these disorders, so we're constantly clashing because we have a tendency to talk by each other. We'll see what happens.

The goal sounds very grand. Do you think that you can accomplish what you set out to accomplish?

<sighing, smiles> Um, yeah. My colleague, Peter, who has since actually left NuSI a couple of months ago, there was a period once where he was a bit discouraged and he needed a pep talk, and my pep talk was, "What we're trying to do is hopeless, you realize this. No one's ever done this before. Ya know, there's a saying in science that 'science progresses funeral by funeral'-you wait for the older generation to die off and the new, younger generation grows up with a new paradigm.

"(What) we're trying to do is to get the older generation to do the research to convince themselves that their paradigm—their world view that it's all about calories—is incorrect and they should be thinking about the hormonal metabolic effects of these foods, and we get them to do the experiments. Nobody's ever done this before. Even if we get the study done and it gets the results we expect, which is a big 'if,' then it's gotta be taken seriously. The researchers have to understand the (importance) at (stake). The press has to understand how important it is, the government does. It's gotta be communicated correctly. It's hopeless. How are you gonna let a little blip like this depress you considering then the long run-we can't win." And Peter went, "Yeah, it's a good point. I never looked at it like that."

But he still left. Why did he leave, and what's the plan going forward?

Oh, he had other very exciting things he wanted to do. It's a hard slog.

We say it's very important that we understand what's causing the obesity and diabetes epidemics. Why are people getting fatter? Which leads into the question of "What's a healthy diet?" And the nutritional community will say. "We know what a healthy diet is. It's whole grains and fruits and vegetables and lean proteins. We all agree that people shouldn't be drinking sugary beverages, and we all agree that white bread is bad. So what's the issue? Why spend money doing more research? Why not band together and communicate that this is a healthy diet?" And then we'll say, "Well, it probably is a healthy diet, if you're healthy. But a third of the country's obese, 30 million Americans supposedly have diabetes, two-thirds are overweight. Are they going to be able to become metabolically healthy just eating this generic healthy diet? Maybe they need a lot more fat in their diet. We think they do. Maybe they need a stronger dietary intervention to become healthy again." But now you start having a trickier argument to make. So it's hard. And there's a lot of different ways to attack it and approach it.

The funny thing is I'm optimistic. We are making progress already. We've been discussing this huge study with these obesity investigators. We keep saying, "The point of this study is we want to test this hypothesis that a calorie is a calorie. So we're gonna fix calories and we're gonna change the macronutrient content and see what happens." And the researchers we're working with are now saying, "Well, you can't

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—Gary Taubes



And it seems facetious, but in four years they've come closer to agreeing with us because (in) engaging with us they're thinking about it. And the country (is) the same. There's a huge low-carb, Paleo movement out there now. It competes with the vegetarian and the vegan movement. They have different belief systems, but both of 'em get rid of sugar and white bread for the most part.

There's a lot of physicians out there—maybe many hundreds to a few thousand-who are now kind of committed to this dietary intervention. It's not enough. I mean if we're wrong, it's too much-that's a given. What convinces these physicians, what makes this movement happen is that people become healthy eating this way. The physicians, if they can get their patients to eat this way, their patients who were obese become less obese or lean, the ones who were diabetic become less diabetic or healthy. It seems to be a very powerful phenomenon to these physicians and to the patients. So that's compelling.

It's like you're playing a poker game with this huge establishment and there are a thousand people at the table and they all cheat—they talk to each other, they communicate, they tell 'em what they have in their hand—but we still have the best hand. That's how it feels. That's why I'm optimistic. That's why I think eventually we'll win.

Do you still eat a piece of pumpernickel bread every morning?

bread.

Editor's note: Questions and answers edited for space and clarity.

have too much sugar in the test diet because that'll confound things 'cause of the metabolic and hormonal effects of the sugar." And so we say, "So what you're saying is we're right. You now agree that a calorie isn't a calorie < laughing > and therefore we can't test this hypothesis, so we can save 20 million dollars because you're now agreeing with something you wouldn't have agreed with four years ago."

We may not get as far as we would like, but there's something powerful that happens. People become healthy in a way when they stop eating sugar and grains, and maybe starches and fruit-that is pretty compelling, both to physicians and to their patients and the rest of us.

<smiling widely> Yeah, pretty much. Yeah, my wife complains: "You eat this way, there's no crunch in the diet anymore." So you toast the

About the Author Andréa Maria Cecil is assistant managing editor and head writer of the CrossFit Journal.