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## *Where Will Business Find the Next Best Food and Nutrition Innovations?*

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I AM THE MANAGING DIRECTOR OF PHYSIC VENTURES, ONE OF A NUMBER OF PARTNERS in a firm whose mission is to invest in keeping people healthy. I think we are the only venture-capital firm with a mission expressly focused on preventing disease and preventing the degradation of the environment rather than trying to fix something that is already broken. By no means will I be comprehensive in terms of where all nutrition innovations are coming from, but I want to frame how a venture-capital investor might think about this.

A venture-capital company manages other people's money. We have about \$200 million under management, from a variety of institutional investors. Some are big pension funds. We have investment from two of the largest pension funds in the world, both of which are in California, as well as some of the world's largest corporations. We have, as major investors in our fund, two of the largest food and beverage companies in the world, with whom we have deep collaborative relationships in terms of using their expertise to gain insights into the market and into science and, in turn, they use our view of emerging technologies and entrepreneurship as a means of understanding market opportunities.

### PHYSIC VENTURES

"Physic" comes from the Latin word meaning the science of healing. We got our name from the Chelsea Physic Garden in London, one of the most beautiful small protected gardens in the world which is now open to the public. It includes oncology, dermatology and rheumatology gardens, and is a beautiful reconnection to the roots of the science of food and medicine.

The Physic Ventures's thesis is built on the nexus of personal health and planetary health and the nexus of life science and lifestyle. Our investment landscape is rather unusual for a venture-capital firm because it includes sector-specific interests like information technology, biotechnology and semiconductors. Our linkage between personal health and planetary health also makes us unusual. One of our focus areas over the last couple of years has been the personalization of health, which brings in genomics, information technology and the management of very complex data relevant to the individual. Another of our themes is sustainable agriculture, as a subset of what we think of as sustainable living. We are interested in how technology comes to the consumer market. On our team is a person from Genentech, another from Cyron and a physicist and expert in nanotechnology from Lawrence Livermore National Lab. So we have expertise in the life sciences and material science, as well as in healthcare, healthcare delivery and consumer marketing.

Our insights for where innovations come from are gained in the midst of an ecosystem that includes industry, academia, government and others in the venture-capital community. At the heart of this are entrepreneurs; venture capitalists invest in entrepreneurs who have the magical transformative abilities to turn ideas into businesses using a combination of strategy, execution, persistence, patience, tenacity, vision of course, and—I have to say—luck. Any successful entrepreneur who doesn't admit that luck was involved is not providing full disclosure. But there are ways of increasing the chances of getting lucky, which is one of the functions of venture capitalists. They take a portfolio approach to investing. We see about a thousand investment opportunities a year in the “life science meets lifestyle” area. A lot of it is in the food and nutrition area, in which we make approximately four investments a year. Entrepreneurs should not be discouraged, but recognize that capital is constrained. Most people are very choosy about what they invest in, and venture-capitalist investors, in particular, have very specific ideas about what is an investable proposition. A number of the innovations I will discuss have not quite risen to the dynamic of having venture-capital-type characteristics, which tend to have ambitious returns on investment. Venture capitalists aspire to produce 25% to 40% returns on capital and tend to invest in companies that can scale up quickly and dramatically.

We are in the midst of a cultural upheaval, and our world view increasingly is that food equals health. For some of the large food companies, it's a new concept that they are being held up as accountable and responsible for health, rather than merely providing fun and calories, good taste and enjoyment. All of a sudden, it's about health. Furthermore, we are seeing convergence of the green movement, the sustainability movement, with the health movement with far-reaching implications. Venture capitalists and entrepreneurs always look for environments in which disruption is afoot. Where can we create a better mousetrap? Where can we create a model that is going to disrupt the incumbent leaders? The food industry is being chastised, criticized and held up as accountable—similarly to how the tobacco companies were—for the obesity epidemic. However, they are also on the offense, saying that they are concerned about these issues, while adjusting their portfolios. They are trying to transform their processes, their ingredients and, of course, they are spending a lot of money trying to reposition their identities.

About 5 years ago at a UC-Davis conference, I talked about functional food and food as medicine and, since then, that theme has cooled as an area for innovation and investment. We launched four functional-food companies four years ago in a rapid incubator process taking technologies out of universities like Davis, Brandeis and MIT, putting them in very tasty, convenient, healthy natural foods, and today, two of those four companies are thriving and two had to be closed. One that is thriving is Corazon Foods. It produces the world's first healthy potato and tortilla chips—delivering phytosterols in a snack-pack form—which licensed intellectual property and clinical studies from Brandeis. And the other one that's still in business is Attune Foods, which delivers probiotics through healthy food bars. The two that didn't make it were in the satiety space and the sleep space.

It has become clear to us that, with the regulatory environment and with the claims landscaping so ambiguous, even diligent companies that are doing the clinical studies are finding it difficult to gain differentiation in the marketplace. Also, the cultural ethos has shifted dramatically through voices like those of Michael Pollan and Marion Nestle who are talking about a “back to the land” movement. The idea of “more science in my food” has become a lot less desirable from a commercial perspective. Therefore, we have not made an investment in a functional food business or platform since about 2007. Part of that was the downturn in the economy, making it even more difficult for early-stage businesses to gain traction and get off the ground.

## INNOVATION THEMES

On the science front, chemistry is moving to the biological realm, as did pharmaceutical companies 10–15 years ago. Food companies are moving in this direction too. PepsiCo has a new chief scientific officer, a Mayo-Clinic-trained epidemiologist who had been head of global R&D at Takeda Pharmaceuticals, Mehmood Khan, who has been talking to me about shifting their entire R&D apparatus from a chemical processing basis to a biological basis requiring more understanding of metabolism, nutrigenomics, metagenomics, and personalization. Transparency is an important theme throughout the supply chain and throughout the consumer market. And we are seeing movement from innovations being product based to being integrated-service based or systems based. We've seen our investment practice move from investing in brand platforms to investing in integrated systems, at the core of which is behavioral science rather than biological science. With respect to linking food and health, there's a lot of interest in how to promote, incentivize, enforce, and sustain healthy behaviors that relate to food. Food is becoming connected to exercise, community, *etc.* I also want to talk about the movement that we are seeing towards local and artisanal food. Finally, my fifth theme will be food equity.

### *Biobased Approach*

In the Physic Ventures portfolio, we have a company called Chromatin, which is a good example of a venture-backed intermediary. Scientists at Chromatin are working closely with UC-Davis. A recent publication in *Nature Biotechnology* was a collaborative effort involving Chromatin's CEO and Davis scientists. Chromatin is a venture-backed company.

It has raised a little over \$15 million, providing an intermediary platform to rapidly commercialize technologies from academia by forming fast-moving partnerships with industry players for proof-of-concept and pilot-scale developments. Such companies are important because large institutions cannot be so flexible. This is a corollary to how biotech changed the pharmaceutical industry. It's now happening in agricultural biotechnology

### *Transparency*

On the transparency side, GoodGuide provides information on the health, environmental and social attributes of products we consume. It was started by a scientist at UC Berkeley. We developed the business plan for this company in my social-venture development class at Berkeley. Physic led the series-B financing of this company. New Enterprise Associates (NEA) and Draper Fisher Jurvetson (DFJ) are co-investors. The iPhone has an application to scan the barcode of a product and bring up on the screen the GoodGuide health, environment and society ratings. The consumer can appraise the health attributes of a product being considered for purchase, as well as the environmental practices of the company and how they treat their workers. In 5–10 years, this kind of intermediate layer of information will become part of almost everyone's purchasing behavior. GoodGuide started by providing information like that found in *Consumer Reports*. Surprisingly, over the last year, the company has formed partnerships with Walmart, Safeway and Clorox—retailers and manufacturers that wish to disseminate this information for their own competitive purposes. Walmart is committed to a significant sustainability initiative and is using GoodGuide to manage the complex data set involved in making purchasing decisions that integrate health, social and environmental concerns.

There is also a lot of interest in transparency in the supply chain. FoodLogiQ provides traceability with a particular emphasis on local food and food safety. And Intuit is marketing a platform for small farmers in India to use their mobile devices to get market data so that, when they bring their crops to market, they can get real-time pricing information. This can be completely transformative by bringing transparency into the market for small, individual farmers equipping them with the information that they need to be competitive. This “disintermediates” what has often been a controlled environment and levels the playing field.

### *Integrated Services*

Recently I went to the iTunes library on the Internet and found 3,547 “health and wellness” applications (apps) for the iPhone. The most popular was called “Lose It,” a kind of calorie counter and personal diary. There are exercise logs as well. Before long, I will be able to choose the app that keeps track of how much I walk each day and link that to my food diary app and then connect that to my personal health record or my employer health system. All of this is coming. It will be transformative for personal behavior and have far-reaching impacts on the kinds of products people purchase.

Another example is an emerging company that we looked at, The Full Yield, which provides a behavioral system around fresh food. Similar to a Weight Watchers environment, it's run in a corporate or an employee health-plan program in conjunction with a food

retailer, encouraging people to eat fresher, healthier fruits and vegetables via convenient, prepared meals comprising nutritious, minimally refined ingredients. Dannon took an early stake in this company, which was co-founded by Gary Hirshberg, the CEO of Stonyfield Farm; it's an example of a product-based entrepreneur moving into a service business. Another company that we thought was interesting is Local Dirt. I view "local" as the new "natural." Companies are creating marketplaces for local produce using online platforms that help farmers connect with distributors, small markets and customers. Other themes in the local and artisanal area are urban farming, with greenhouses located in cities to minimize transportation, and, in "foody" cities, the explosion of high-quality street food. Entrepreneurship at its best, people are cooking food in their kitchens and selling it from trailers in the street, at fairs, *etc.*, for example, the Perieria Crêperie in Portland, Oregon.

The number of farmers' markets grew from 1,800 to 5,300 from 1994 to 2009, with a 13% increase between 2008 and 2009 alone. This has important implications for the food industry. Information technologies are available to underpin the disaggregation and the de-monopolization of the food-distribution network. However, progress will be uneven, percolating upwards initially only in certain markets.

## FOOD EQUITY

Most of the companies in which I have been involved—Republic of Tea, Odwalla, Whole Foods Markets, Stonyfield Farm—have catered to a segment of the population that I call the "worried well," *i.e.* people with discretionary resources to enjoy premium items, including natural and organic high-quality foods regarded as premium. However, the theme is shifting—with more attention to underserved markets and the linkage of food to health, in particular to obesity and cardiovascular disease—to healthy food for a healthy population. Kristin Richmond and Kirsten Tobey, former students of mine at UC Berkeley's Haas School of Business, founded a company called Revolution Foods, which is growing dramatically. They serve over 40,000 healthful meals a week to students from kindergarten to high school. With a lot of will and chutzpah, they started a company that focused on a market being overlooked. They brought ingenuity and resourcefulness to a very exciting company.

A lot of work is going into figuring out how to return grocery stores to inner-city neighborhoods. Some funding is being aggregated from mainstream investors, foundation investors and community-development investors to replace convenience stores that offer little fresh food. Some interesting initiatives are also coming out of large food companies. I happen to know about one in the Chicago area, Food for Good, in which an intra-preneurial team in a well known food company is preparing to bring healthy food to an underserved population.



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**William Rosenzweig** is co-founder and managing director at Physic Ventures. He focuses on creating and building early-stage opportunities that bring science to consumers in the areas of prevention, wellness and sustainable living. He also serves on the boards of directors of Attune Foods, EnergyHub, GoodGuide, and Pharmaca.

In 1990, Mr. Rosenzweig co-founded and served as president, CEO, and minister of progress of The Republic of Tea, an award-winning specialty tea company that is often credited with creating the premium tea category in the United States. In 1995, he was appointed as senior vice president of Odwalla, the nation's largest fresh-juice company where he directed the brand and strategy. He has served as faculty advisor to the Global Social Venture Competition and has been a visiting faculty member at London Business School and a guest lecturer at Stanford, Columbia, the University of California-Davis, the University of Southern California and the University of California-Los Angeles.

He has received awards for teaching from the Haas School of Business at Berkeley and from the London Business School, and has served as an advisor and consultant to the Rockefeller Foundation's ProVenEx Fund, an investment vehicle seeking "double bottom line returns" in for-profit businesses.