Mass salmonella poisoning by the Peanut Corporation of America

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In November of 2008, the Centers for Disease Control and Prevention (CDC) first noted a multistate outbreak of salmonella that eventually led to nine deaths and 714 confirmed cases of illness (CDC 2009a). At least 166 people were hospitalized, with an estimated 11,000 (Cavallaro, et al. 2011, 601 and 607) to 20,700 total cases (Sheth et al. 2011) of salmonellosis.[i] Salmonella infections in people last four to seven days, causing diarrhea, fever, abdominal cramps, and vomiting (Marler 2011). While most people recover from this bacterial assault without treatment, it can lead to hospitalization, permanent health impairment or death in the elderly, infants and those with weakened immune systems. CDC and public health officials ultimately traced this outbreak to the Peanut Corporation of America (PCA) and their facility in Blakely, Georgia.

PCA quickly claimed the problem was isolated, but a former employee, Kenneth Kendrick, went on *Good Morning America* to say it was not isolated and drew attention to a PCA facility in Plainview, Texas. Operating out of a former sausage factory that had sat empty for several decades, the plant had a flooded basement, rats, and a hole in the roof that dripped rain contaminated with bird poop into the production area; it was unlicensed for food production and had not undergone a sanitation inspection. The Texas Department of State Health Services (2009), which does inspections under an arrangement with the Food and Drug Administration (FDA), finally shut down the plant and ordered the recall of everything the plant had ever produced. The recalls from all PCA facilities ultimately included about 4,000 products, which the FDA said was "one of the largest food recalls ever in the United States" (2009).

On February 11, 2009, PCA's CEO Stuart Parnell appeared in front of a House Subcommittee on Oversight and Investigations, which released information that PCA had on multiple occasions

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* This piece is part of a larger journal article I am writing on the Peanut Corporation of America as a state-facilitated corporate crime, in which deregulation weakens the policing of business to the point where mass victimization happens. The part of the article reproduced here focuses on the actions and responsibility of PCA executives. This excerpt has a complete set of references for the full article, adding greatly to its length, but providing some sources for those interested in the larger concept.

knowing shipped peanut products that tested positive for salmonella. In a memorable bit of political theater, Rep. Greg Walden put various recalled peanut products in a big glass jar wrapped with yellow CAUTION tape and asked Parnell if he would eat any. Parnell plead his Fifth Amendment right not to incriminate himself. Two days later, PCA declared Chapter 7 bankruptcy and was liquidated to pay off those who had a claim against them. The many victims split $12 million in insurance (Bottemiller 2010) and top PCA employees split an $875,000 insurance policy for their legal bills (Flynn 2009). The peanut recall was one of several widespread food safety issues that led to the Food Safety Modernization Act of 2010, a significant overhaul of food safety regulation that nevertheless did not toughen criminal laws or penalties.

Finally, more than four years after the House Subcommittee laid out a number of embarrassing and incriminating emails and documents, the Department of Justice returned a 76 count criminal indictment against Parnell and other PCA executives: violations of the Food, Drug and Cosmetic Act for placing adulterated and misbranded food into interstate commerce; mail and wire fraud for false statements made to corporate customers and the government about the quality of peanuts PCA supplied; obstruction of justice; and conspiracy. (Among other products, PCA sold five to 1,700 pounds containers of peanut butter to snack food makers, schools, the military, nursing homes and meals used for disaster relief.)

Although the outcome of the criminal proceeding has not been resolved at the time of publication, many aspects of this case still can be meaningfully examined. Indeed, there is no long form account of this incident either for criminology or other audiences to systematically examine what caused the mass poisoning. Yet PCA is an important case study for white collar crime, which involves crimes and/or abuses of power by respectable members of society (Sutherland 1940). Parnell, for example, had a salary of $2.6 million a year from the $30 million a year business (Peanut Corporation of America 2007, 131). In 2005, he was appointed to the Department of Agriculture's Peanut Standards Board, which sets standards for moisture content and peanut size for grading purposes (but pathogens are not included in their interpretation of "quality and handling standards" in the authorizing legislation). Parnell was reappointed to a second term that would have ended in 2011 had he not been removed in 2009 after the PCA scandal (Keefe 2009).

This analysis of the PCA caused salmonella outbreak starts by providing a brief overview of salmonella as it relates to peanut processing. The food safety lesson provides a basis for understanding PCA's history and their wrong doing, which is also discussed.

This piece is built from research with additional information from the whistleblower Kenneth Kendrick. Mr. Kendrick worked as an assistant manager for three months in 2006 in the Plainview, Texas PCA plant. He provided helpful background information, details about the plant that are not in print, and clarified questions about previously reported accounts. Quotes attributed to him that lack a citation to a published source are from our email exchanges and telephone discussions during 2012 and 2013, although I have tried where possible to use quotes from published sources to provide additional references for interested readers.

Salmonella and Peanut Processing

Salmonella bacteria occur naturally in animal and human feces, but animal feces contaminating large scale food production is what leads to hundreds of cases that are geographically diverse and have the same genetic fingerprint. While a full background on salmonella transmission is beyond the scope of this paper, this section provides a very brief discussion of salmonella and peanut production. This is important to understand the flaws in procedures and operations at PCA, which are detailed in the subsequent section.

Peanuts growing in the ground can become contaminated with salmonella through irrigation water containing feces or the use of animal feces that have not be fully conditioned into manure for fertilizer (Cavallaro et al. 2011; Sheth et al 2011). Exposure also can occur through contact with contaminated soil on harvesting and transport equipment, as well as rodent droppings during short- or long-term storage.

Ideally, production processes involve a "kill step," usually heating the food for a combination of time and to a temperature that will kill salmonella (and other pathogens) before human consumption. Under ideal conditions, peanut roasting should kill salmonella (Cavallaro, et al 2011; Sheth et al 2011). But wide variations in the type of peanuts, their moisture content (dryer peanuts need less roasting time), and variability in oven temperatures mean that salmonella may survive roasting. Other ways of processing peanuts do not involve a kill step. Blanching peanuts, for example, is an abrasive process that removes the skin from the nut.

Best practices dictate the segregation of raw (potentially contaminated) food with post-production product that has been through a kill step. The mixing of raw and post-production food opens the possibility for cross-contamination, whereby salmonella from raw food contaminates a product that has been through a kill step. Salmonella can also be introduced in other ways after processing, especially during storage prior to leaving a processing plant.

Keeping salmonella to a minimum is important because low acid, fatty foods like peanuts are protective of salmonella, so the bacteria can last up to two years in peanut butter jars (Cavallaro, et al 2011) and "when it gets into the acid of the stomach - which is our first line of defense - it may not get destroyed" (Borrell 2009). Peanut butter has a relatively long shelf life and any salmonella in it is stable, although salmonella will not grow in the absence of water. But, according to Michael Doyle, director of the Center for Food Safety at the University of Georgia in Griffin, "water in a peanut butter processing plant is like putting gasoline on a fire. It will not only spread the salmonella, but the salmonella will grow when water is present" (Borrell 2009).

When patients with salmonellosis appear for treatment, doctors take a stool sample, "fingerprint" the bacteria's DNA and upload it to the CDC's PulseNet (CDC 2013; Cavallaro 2011). In 2008, the CDC saw increasing numbers of cases of bacteria with the same DNA fingerprint, which indicated a single source for the geographically diverse cases. "Team diarrhea" (mostly graduate students) called salmonella victims and took detailed notes about their food consumption to order to find common products they ate that could be traced back to the source. In PCA's case, the DNA fingerprint of the salmonella typhimurium from patients could be matched to the salmonella in food products that left PCA's facilities (CDC 2009b).

As noted in the introduction, salmonella's assault on the body comprises four to seven days of stomach cramps and diarrhea, with death possible for the young, elderly and those with compromised immune systems. Further, the injury includes a financial impact on many victims, especially the "precariat" who have a precarious financial existence because of low job security, poor pay, and a paycheck-to-paycheck existence (Ritholtz 2011). Several days absence from work can lead to unemployment, especially when someone does not have health insurance, and thus is less likely to see a doctor and have official documentation of illness. Those with health insurance may see their premiums increase, and many plans feature co-pays and deductibles that can make a hospital stay can wreak financial havoc.

The Peanut Corporation of America: history and crimes

PCA sold larger quantities of peanut butter to institutions like schools, the military, nursing homes and meals used for disaster relief. These came in containers that ranged in size from five to 1,700 pounds. It also sold a variety of peanut products to about 200 companies (including Kellogg and Sara Lee) that manufactured cereal, crackers, snack bars, candy, donuts, pet food, etc. (Layton and Miroff 2009). Peanut paste was sold in sizes from 35 pound containers to tanker trucks (Sundlof 2009, 5). That is how a relatively small company was able to have such a devastating effect: they had contracts with government and major corporate food producers because they were a "low cost" provider able to exploit the many weaknesses in the regulatory system (Moss 2009; Department of Justice 2013a).

Stewart Parnell and his father opened the original PCA peanut plant in 1977; the $50,000 a year business had increased to $30 million in sales by 1994 when they sold it (Layton and Miroff 2009). In 2000, Stewart Parnell repurchased the original PCA plant in Gorman, Texas, then became partners in another struggling plant in Blakely, Georgia (Layton and Miroff 2009). Parnell later sold the Gorman plant and in 2004 acquired a facility in Plainview, Texas.

Blakely was the first PCA property to be linked to the emerging salmonella outbreak by public health authorities. It started with the identification of salmonella in an opened container of King Nut peanut butter, which repacked product from PCA. Parnell had an email exchange with King Nut's Vice President for Finance and Administration. The January 7, 2009 exchange started with Parnell's email attached to an MSNBC story "Salmonella outbreak spreads to 42 states." Parnell writes: "I'm sure it is something we did." The King Nut executive replied, "I'm recalling everything." Six minutes later, Parnell writes: "Now my heart is really in my throat. I think I'm going to church tonight" (Parnell 2009; Stupak 2009, 2). Five days later, though, Parnell and "everyone in the Lynchburg Office" of PCA sent an email to select employees that denied responsibility for the salmonella outbreak: "We suspect the salmonella could have been introduced by cross-contamination after the tub was opened. We do not believe the salmonella came from our facility" (Lynchburg Office 2009).

Public health officials soon thereafter found salmonella in unopened containers of peanut products that came from the Blakely plant, and Parnell had good reason to believe it was something they did. The plant, described by insiders as "more circa 1955 than 2009" (Moss 2009), was inspected by

Georgia under contract with the FDA, but the inspections were infrequent and missed many problems. However, after extensive public health detective work traced the salmonella to the Blakely plant, the FDA conducted a thorough inspection and cataloged an extensive list of unsanitary conditions: cockroaches, mold on the ceilings and walls of a cooler that stored finished product, multiple leaks in the roof (from cracks as long as four feet) that dripped water into a production room and a storage room for roasted peanuts, and "deficiencies in the plant's design and construction that invite contamination" (Layton 2009b; see also Hartman and Barrett 2009; Layton and Miroff 2009; Cavallaro 2011, 605). Raw peanuts were stored next to processed product, allowing for cross-contamination, and "the roaster was not calibrated to kill deadly germs" (Moss 2009). Federal testing "showed salmonella living on the plant floors. Plant managers had not decontaminated the peanut butter processing line after detecting salmonella, the federal report shows" (Moss 2009).

Conditions at the Plainview plant were substantially worse. Parnell, an avid pilot, was in Texas talking to a loan officer on several of his air planes who was also a member of the Plainview-Hale County Industrial Board. Parnell ended up purchasing a Jimmy Dean sausage factory built in 1969 that was used for a hog slaughter and a sausage processing operation until it closed in 1974 (Vielmetti 2009; Nestlé 2006, 3); it sat vacant until Parnell purchased it three decades later. When Texas inspectors finally turned their attention to Plainview, they "found holes in the building's roof as well as dead rodent remains, rodent feces and feathers in a crawl space above the production area" (Zacher 2009). A Texas Department of State Health Services news release noted how the plant's ventilation system sucked debris "from the infested crawl space into production areas of the plant resulting in the adulteration of exposed food products" (CNN 2009). In closing the plant, the state health department relied on a law authorizing such action for "a condition that poses an immediate and serious threat to human life or health." The FDA inspection found six leaks in the ceiling (including one over a conveyor belt), numerous dead mice, mouse poop (rodent excreta pellets) on counters and in cabinets, "what appeared to be a bird's nest," and "appreciable buildup" of peanut product throughout the plant (FDA 2009b).

Parnell and PCA officials had been on notice about some of these problems as early as 2006, when inspectors from the multinational food production company Nestlé visited Plainview to tour the facility and decided not to use PCA as a supplier of peanuts for its Drumstick Ball top ice cream cones. They concluded the risk level was "high":

> The key food safety issues noted during this audit are the weakness of the pest control program, the lack of any pathogen environmental monitoring program, and concerns noted in the handling [sic] raw and further processed (roasted, blanched) peanuts in a common processing area. Without physical isolation and proper airflow for the post-roasted peanut operations, there is a potential for microbiological cross contamination (Nestlé 2006, 1 and 2).

The Nestlé inspectors believed that "the gaps identified in the audit should be relatively easy for PCA personnel to resolve and none are beyond their capability to resolve. None of the items identified would require significant capital investment to resolve" (2006, 2). The audit missed some problems because it was announced in advance, so PCA had the opportunity to put its best foot

forward. The inspectors were escorted to selected places and were not shown the most problematic areas.

Kendrick started at the plant several months after this audit. He called the plant "disgusting" in an interview with the *New York Times*, which noted that a second former employee "confirmed Mr. Kendrick's descriptions of the plant and its processes" (Harris 2009). Kendrick said the plant "looked like something out of the 1950s" rather than what one might expect from watching programs on the *Food Channel*. The machinery was constantly breaking. Workers were busy "raiding parts stores" and it was a "constant challenge just to get it running another day." Using this equipment to process generally low-grade peanuts that had been in storage for years made it a challenge to maximize the likelihood of killing salmonella. Further, the cosmetic issue of the peanut color was more important than ensuring there was a kill step: "they wanted it cooked to color, not to kill bacteria," noted Kendrick. At times, employees did not even record the roasting time and temperature of batches of peanuts for months on end.

Further, "the roof leaked so badly that when it rained, workers were instructed to raise tarps to the ceiling to direct the water away from peanuts and plant equipment, the two said. Rain at night went unattended, they said" (Harris 2009). Kendrick says he directly told Parnell about the leaking roof (Harris and Barrett 2009). When others at the plant requested money to do more than a temporary patch, the Lynchburg office unequivocally denied it in multipage emails liberally laced with profanity. In addition, the basement flooded, and Kendrick noted that they kept pumping it out rather than fix the underlying problem – a losing strategy that meant "the plant always had standing water in its basement" (Harris 2009).

At least some products sat in storage in this environment for months until PCA accumulated lots big enough – 1,700 pounds to tanker truckers – to ship to snack makers or transfer between PCA factories for further processing. The government indictment notes several emails in which PCA officials tell employees in Plainview to "air hose off the top" of the tote – the storage container – "because they are covered in dust and rat crap" (Department of Justice 2013, 29).

Neither Blakely nor Plainview conducted regular environmental testing – swabbing work surfaces and machinery to check for pathogens – even though PCA's materials and Parnell's emails to customers claimed to have a robust process and "state-of-the-art Food Safety techniques" (Department of Justice 2013a, 19, 28). Neither plant regularly tested the finished product for pathogens, even though PCA and Parnell gave assurances it did. Assurances included reference to Certificates of Analysis (COA) from a food safety lab that contained the results from the required tests (Hearing on the Salmonella Outbreak 2009, 132-3). If the first test for salmonella is positive, then a second one is done for confirmation. Products requiring a second test should not be shipped – i.e., placed into commerce – even if the second test is negative for salmonella. The concern is that companies can draw repeated samples from a lot and eventually get a negative, so "you cannot retest away a positive result," noted one lab owner at Congressional hearings: "If you tested 50 samples for a given lot and 49 of those were negative and one was positive, that one positive must trump the 49 negatives" (Hearing on the Salmonella Outbreak 2009, 182). After receiving a positive result, experts agreed that a company should destroy the lot that tested positive, shut down the line and disinfect it,

then figure out why the positive result happened and fix the problem (Hearing on the Salmonella Outbreak 2009, 183- 6).

Because conditions in PCA's plants maximized the cultivation of salmonella and tests regularly came back positive, getting around positive COAs was an important aspect of PCA's crimes. From PCA's perspective, COA's were a problem because the analysis cost money and a positive test required extra fees for additional tests. The positive result also meant they would lose money by destroying product and shutting down production to disinfect.

Some customers did not require that PCA transmit a COA, so PCA simply did not test and fraudulently asserted they did. Other customers specifically requested testing and a COA, and based on records of these transactions, an early government investigation found that the company "knowingly shipped out contaminated peanut butter 12 times in the past two years" (Layton 2009). In some cases, PCA shipped products after an initial positive test for salmonella and before the results of the second test (Maugh and Engel 2009). In six other cases, the FDA found that PCA had already shipped the product and conducted no subsequent testing (Hearing on the Salmonella Outbreak 2009, 113). Some of the lots that shipped after a positive test and were not tested again were sent to schools (Maugh and Engel 2009). The record also suggested that PCA would submit samples to multiple labs, then disregard any positive results and use the COA that said negative for salmonella (Hearing on the Salmonella Outbreak 2009, 210).

The criminal indictment reinforces these concerns and expands them. For example, for one customer that requested testing, 63 percent of the lots PCA shipped had not been tested (Department of Justice 2013a, 22). (The indictment lists the company as "Customer #1," a "multinational food products company with its principal place of business in Battle Creek, Michigan" [Dept of Justice 2013a, 5], which is Kellogg.) PCA sometimes tested up to four samples in order to get a negative result that it would use and disregard the initial positive and confirmation (Dept of Justice 2013a, 31). PCA also took multiple samples from a relatively clean batch, submitted them for testing under a variety of batch numbers, then shipped untested batches with negative test results from this earlier testing (Dept of Justice 2013a, 21). Another email suggested that if a company needed a COA, then PCA "would create one… The girl in TX was very good at white-out" (Dept of Justice 2013a, 27). Others besides the "girl in TX" were willing to falsify COAs, according to an email: "Mike, Here is the COA you need to fill out for Thursday's load. I won't get the results in time" (Dept of Justice 2013a, 32, 46).

In spite of this history, during an interview with an FDA inspector in 2009 Parnell was asked about positive tests for salmonella in 2008 other than the single incident recounted by the Blakely Operations Manager. Parnell replied: "This is not something that happens very often and I think I would remember something that came up positive" (Dept of Justice 2013a, 50, 49). The email released by the Congressional Hearing records him as saying, in response to a positive test result for salmonella: "I go thru [sic] this about once a week…I will hold my breath……..again" (Parnell 2008a).

Many years later…

Congressional hearings did much to expose problems, and legislators quickly called for new laws. However, at least one victim commented, "there was some congresswoman saying we need to enact laws now to not let this happen again. And I was like, 'You idiot. What have you all been doing?'" (Moss 2009). In this case, Congress did step up with the Food Safety Modernization Act of 2010, which was a significant overhaul of food safety regulation yet did not alter criminal laws or penalties. The lack of interest in the criminal law is noteworthy because witnesses in the Congressional hearing noted Parnell was a "bad actor" who did not seem to respond in a "normal" way that others in the food industry would, so it would be hard to create regulations to prevent him from slipping through the cracks (Hearing on the Salmonella Outbreak 2009, 207). More regulation is unlikely to alter the behavior of someone who did not take the basic step of registering his plant with Texas authorities and sent peanuts to schools even after they tested positive for salmonella. Deterring that behavior requires greater certainty in being caught.

Unfortunately, Congress is now back in deregulation mode and not sure it wants to fully fund the FDA to allow them to do all the additional inspections and review the food safety plans Congress required under the Food Safety Modernization Act of 2010.

Almost four years after the hearings by the House Subcommittee on Oversight and Investigations, the Department of Justice returned a 76 count indictment against four PCA executives, while inappropriately claiming that "the Department of Justice will not hesitate to pursue any person whose criminal conduct risks the safety of Americans who have done nothing more than eat a peanut butter and jelly sandwich" (Dept of Justice 2013b).[ii] In addition to CEO Stewart Parnell, the indictment also named his brother Michael (Vice President of P.P Sales and a sales agent for PCA); Samuel Lightsey, Blakely's Operations Manager; and Mary Wilkerson, Blakely's Office Manager and Quality Assurance Manager (Department of Justice 2013). Daniel Kilgore, also a Blakely Operations Manager, was indicted separately and appears to be cooperating with the government.

While PCA's many victims cheered when the indictment was announced, a careful reading of it raises questions about how much of the effort is brought on behalf of the people and how much on behalf of the corporations PCA defrauded. For example, count one is a conspiracy to commit wire fraud, counts 36 to 55 are for interstate shipments fraud, counts 56 to 67 are for wire fraud, and counts 68 to 76 are for obstruction of justice. Count two is for conspiracy to introduce adulterated and misbranded food into interstate commerce, and mentions at least six corporate customers. Counts three to 22 are for the introduction of adulterated food into interstate commerce with intent to defraud, and each count is identified with a corporate customer. And, counts 23 to 35, for introduction of misbranded food with intent to defraud, are also identified with a particular corporate customer. In all, "Customer #1" – Kellogg's, ranked 210 in the 2009 Fortune 500 – is identified in 42 of the 67 counts in which the government does not see itself as a victim.

The trial finally started in the summer of 2014 and a verdict is expected in Fall. The only media to regularly cover the trial has been *Food Safety News*.

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[i] Cavallaro, et al. (2011) suggest that the total cases were 16 times higher than the reported cases, producing the low estimate; Sheth et al. (2011), writing on an earlier outbreak of Salmonella from the Con Agra plant, use 29 as a multiplier to get to the total cases. The CDC (2009b) notes that "estimated 3% of *Salmonella* infections are laboratory confirmed and reported to surveillance systems," suggesting that a multiplier of 30 – 33 is appropriate. The top estimate in the range is well within the probability curve rather than being an extreme estimate.

[ii] In contrast to the four years between PCA's bankruptcy and indictment (hailed as "not hesitating"), the Dept of Justice indicted Ken Lay about two and a half years after Enron filed the largest corporate bankruptcy in American history up to that point.