Peacock Corrugators[1]

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Peacock Corrugators

Rob Green gazed outside his office window on the second floor of Peacock Corrugators, a Smithtown, New York corrugated packaging plant, on a sunny June afternoon in June 2019. "We're facing a tough decision," he said. "I'm not sure how much we should invest, and which investments we should make."

Rob's brother, Leo, had just arrived in time for lunch from his home in New Jersey for the two to meet on the company's strategy. The two men were the principal owners of Peacock Corrugators. Leo, who was 55 and aside from being taller looked just like Rob, settled into his chair at the conference table. Like Rob, he was well aware of the challenges associated with managing a growing business in a mature manufacturing industry.

"How much is enough, Rob? We've been in this business for a long time and maybe we can slow down a little. Maybe more time with our families instead of driving back and forth between here and New Jersey all the time. I know that we're both very driven, but how much risk do we want to take on for more rewards?"

Rob, who was 52, looked directly into Leo's eyes. "You know we like risk. I need you to stick with me on this. All our investments for the business have always worked out."

"Ha," Leo grunted, showing some sarcasm. "We almost got burned with the Super Plant investment. You remember Dad had warned us about it. I'm with you, but I don't want us to overextend ourselves."

Rob took a huge bite out of his chicken parmigiana sub. "Well, we've got some interesting choices," he said. "Some of these investments are time sensitive. Let's go over them one by one."

The Growth of a Family Business

Gabriel and Max Green founded Peacock Corrugators in Queens, New York in 1947. Gabriel, who was in his mid-twenties, and Max, who was still a teenager, came from humble beginnings. With the help of their mother, Rita, the brothers started as "jobbers," or small-scale wholesalers of corrugated boxes and supplies. The corrugated packaging industry had become an important industry by the middle of the twentieth century, as the process of manufacturing corrugated boxes provided for crush resistance to ensure product protection, as well as adequate strength for stacking in warehouses. Shortly thereafter, Max and Gabriel opened a plant and they bought their first corrugator – a large, high-precision machine that combined a fluted sheet of paper (i.e., the corrugated medium) with flat linerboards of thick, rigid paper to form cardboard and then cut it into large sheets to be made into boxes.[2]

[2] Corrugated boxes were patented in 1871 and the first machine for producing large quantities of corrugated board was built in 1874. By 1890, manufacturers could create pre-fabricated paperboard boxes, comprising flat pieces

The business grew, and in 1964 Max and Gabriel moved Peacock Corrugators from Queens to a building in Paterson, New Jersey. With continued growth, the company soon would be housed in five separate buildings in Paterson. The company also diversified. In addition to the core manufacturing business that produced corrugated packaging in lots ranging from 200 to 200,000, Max and Gabriel created three new ancillary companies under the umbrella organization of the Peacock Corrugators Group:

- Avalon Displays - an independent manufacturer of temporary point of purchase displays;
- Total Pak - a full service 60,000 square foot pack-out facility that performs the final steps (including product assembly and fulfillment) before shipment to customers that do not have the space or manpower to assemble, pack out, and fill their containers and displays; and
- Peacock Industrial Products - a provider of thousands of packaging, shipping, moving, and janitorial supplies.

Together with Peacock Corrugators, the organization was developed to be a comprehensive central resource for manufacturing, design, logistics, finishing services, and industrial supplies.

In the 1980s, two of Max's sons, Leo and Rob, joined the business on a full-time basis. Having worked in the plant first as high school students at Fair Lawn High School and then as college students at Boston University and New York University, respectively, they became the second generation of ownership in the family business when they bought out their Uncle Gabriel's share in 1997. Max remained at Peacock and his two sons were each named Vice President.

Max's oldest son, Harold, who became a physician in Germany, and his two daughters, Amy and Nadia, were not involved in the family business and therefore did not have an ownership stake. By 2010, Max had slowed down, and Leo and Rob bought out his share of the business. Gabriel had two children, Donna and Joni, but neither was involved in the business.

As the company grew, ownership shares were awarded to private investors in the company. Max would declare, "I believe that it's important to limit the number of partners in the business." Consequently, non-participating partners' shares were bought out.

The third generation of the family business arrived in 2017 when Leo's son, Michael, joined the operation as the Continuous Improvement Manager. Leo's daughter, Amy, worked as an Associate in Mergers & Acquisitions at Ernst & Young. One of Rob's stepsons, James, joined the family business in 2019 as a Management Trainee after graduating from Marquette University; his other stepson, John, and his stepdaughter, Makenzie, were not involved in the

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made in bulk that folded into boxes by cutting and creasing the material in one operation. The corrugated boxes were first used for packaging glass and pottery containers. In the 1900s, corrugated packaging enabled fruit and produce to be shipped from farm to retailer without bruising, which improved the return to producers and served to open export markets. Over time, corrugators also had become more complex, running at a speed of 500 feet per minute, and eliminating production problems that had existed earlier, such as wash boarding (i.e., waves in the corrugated board caused by the shrinkage of the glue in between fluting and the liner during drying) and warping.

business. His daughter, Nora, who was a senior in high school, was still unsure of her future direction.

A "Super Plant"

As a result of the growth in the business, the Green family realized in the early 2000s that they were running out of capacity at the Paterson plant. No machinery could be added to handle the growth. The family had to decide whether to stay in Paterson or to move to larger facilities. Although revenues were increasing, they were aware of the fact that a move would involve additional costs as well as additional uncertainty. "Because I came from frugal means," Max reminded his sons, "It's important to watch every penny."

In 2005, after Rob had seen an article about a Super Plant in a trade magazine, he and Leo decided to build one for the business. Operating under a single roof, a Super Plant could provide the capability, flexibility, and scale to meet the demands of their packaging and display customers. The plant could house a greater variety of machines in order to provide the production capability to produce any type of corrugated product. The plant could integrate the latest advancements in data technology into every machine and every step of every process from initial order to final delivery. This would ensure the highest quality possible in Peacock's products and services and enhance its cost competitiveness in the industry. Because of its larger scale, the plant could allow for an inventory of multiple stock box sizes and just-in-time stocking, and it could have a greater number of loading bays and trailers to handle any and all deliveries. "It's a tall order," Leo admitted. "But the simple fact is that we've outgrown our space and despite whatever risk it might imply, we want to triple in size." Due to their father's philosophy of frugal management of the family business, Leo and Rob were aware of the fact that the company historically had very little debt. "This is going to be a game changer," Leo said. "And it was going to deviate from our strategy for running the business."

Leo and Rob conducted a three-year search throughout New Jersey, New York, and Pennsylvania for a site that could accommodate their Super Plant. They came close to agreeing to build a new plant in Kearney, New Jersey, but the financial incentives that they had hoped for from Governor John Corzine did not come through. "Corzine didn't think we had the guts to move out of New Jersey," Rob said. New York, on the other hand, offered a large package of incentives. By relocating to New York, Peacock Corrugators would benefit from the Empire Zone Program, which had been established by Governor George Pataki to bring new businesses and jobs to the state. An Empire Zone was an area no more than two miles in which qualifying businesses within the zone could apply for a wage tax credit, a zone capital credit, a New York State Sales Tax Refund, a Real Property Tax Credit, and a Tax Reduction Credit.[3]

The brothers found space sixty miles northeast of Paterson in Suffolk County, New York, in the city of Smithtown, at a former Shop-Rite supermarket distribution center, and county officials offered significant tax breaks. The fact that taxes were considerably higher in New Jersey anyway helped to make the offer too good to pass up in order for them to build their new state of the art facility. They put a plan in motion to buy the building.

[3] In 2019, there were 82 Empire Zones in New York, and 9,800 certified businesses operating within them.

Peacock Corrugators borrowed $40 million from Wachovia Bank to create the facility. Leo and Rob hired industry veteran Rocky Garabedian to help build the plant, which involved retrofitting the building's 522,000 square feet of space – all the walls would be removed to create the open environment needed for a fully automated conveyor system. While the corporate headquarters would remain in Paterson, the entire corrugator operation would be moved to the Super Plant. The scheduled start date was set for October 1, 2010.

Recession

Shortly after Leo and Rob put their plans in motion for their Super Plant, the 2008 financial crisis rocked the global economy. The worst economic downturn since the 1930s Depression, the Great Recession was triggered by the bursting of the U.S. housing bubble and rising default rates on subprime and adjustable-rate mortgages. Mortgage, credit card, and business loans had been easy to obtain during the bubble and the resulting debt loads were unprecedented. As housing prices declined, major global financial institutions that had borrowed and invested heavily in subprime and mortgaged backed securities suffered tremendous losses. Defaults and losses on other types of loans increased significantly as the crisis expanded from the housing market to other parts of the economy. The financial crisis was largely the consequence of dramatic failures in corporate governance and risk management within the financial system. In the crisis' aftermath, stock markets plummeted worldwide, and national governments were forced to provide economic stimulus, monetary policy, and institutional bailouts. Nonetheless, the Federal Deposit Insurance Corporation (FDIC) closed 465 failed U.S. banks between 2008 and 2012, the largest being Washington Mutual, which filed for bankruptcy in September 2008.

Wachovia Bank was also hit hard by the financial crisis. The fourth largest bank in the United States, Wachovia began to experience heavy losses in its loan portfolio in the second quarter of 2008. Wachovia's board forced CEO Ken Thompson into retirement in June. On September 26, the bank's stock plunged 27 percent as a result of the Washington Mutual bankruptcy. That same day, there was a huge bank run on Wachovia, when several businesses and institutional depositors withdrew a total of $5 billion from the bank for fear that it would cease to function in the near future. Tim Geithner, the President of the New York Federal Reserve Bank, felt that Wachovia was systemically important to the health of the economy and that it was politically unjustifiable to allow the bank to fail so soon after Washington Mutual's collapse. For this reason, the FDIC agreed to have Wachovia put itself up for sale, and the bank was acquired by Wells Fargo before the end of the year.

Progress on Peacock Corrugator's $40 million investment was immediately put at risk.

Rob recalled the situation:

Wachovia was history and we had to scramble. We brought in Bank of America, we brought in Citibank, we brought in all the banks. None of them wanted to take us on. We were in trouble. Obviously, it turned out that our timing was bad, but we had already started to build and we really wondered whether we could get funding to finish the project.

The uncertainty surrounding where they would get the required loans continued for several months, until TD Bank, the U.S. subsidiary of the Canadian multinational Toronto Dominion Bank, came forward and agreed to finance the project. The Smithtown facility opened on its scheduled 2010 start date. “Maybe we’ll play it safe if we ever have to think about an investment of this size again,” Leo said.

Smithtown

Leo and Rob were involved with every step of the planning for the layout of the Super Plant, which was designed to follow the workflow. (See Exhibit 1 for a view of the layout of the plant.) The corrugator was stationed on one side of the plant, while the other side of the plant accommodated various machines for paper coming off the corrugator.

The plant contained twenty-five machines, including:

- A new corrugator was purchased for the Super Plant from the Italian company, Fosber. (See Exhibit 2 for a photo of the corrugator.) The corrugator, which was as long as a football field, took four months to install at the Smithtown facility. This machine was guaranteed to produce two billion square feet of board per year. It was able to operate with twenty rolls of paper loaded simultaneously. Rob explained, “We like to buy from international companies. Some of the equipment they build is just better.” Three Fosber employees were on site at the plant, working alongside Peacock’s employees to ensure that all preventive maintenance was done. The command center for the plant’s sophisticated data tracking system was positioned directly next to the corrugator. (See Exhibit 3 for a photo of the data tracking system command center.)

- Six flexo machines – which printed, folded, and glued the boxes after they came off the corrugator – had been moved from the Paterson plant and then rebuilt to the specifications of the original equipment manufacturer (OEM) at a cost in excess of $1 million. The Rockford, Illinois company, Martin Automatic, manufactured the flexo machines.

- A new rotary die cutter, which was a press that precisely cut and shaped the cardboard for the boxes, was purchased from Martin Automatic. The Super Plant produced a half million pizza cartons each week on the die cutter. Similar to Fosber, Martin kept a fulltime maintenance person at the plant to take care of all preventive maintenance on the flexos and the die cutter.[4]

- A new 41-inch by 62-inch flatbed die cutter was purchased from the Swiss company, Bobst. Like the rotary die cutter, the flatbed die cutter could create print patterns on both sides of a sheet of cardboard at the same time. This was an important feature for

[4] Peacock Corrugators employed thirty people who were dedicated exclusively to the maintenance of equipment. Planned downtime was scheduled for each machine every day for preventive maintenance.

branding, since customers would be able to see the name of the product on the inside of a carton.[5]

- A new EVOL box making machine, a high-end Flexo Folder Gluer was purchased from Mitsubishi Heavy Industries America. This piece of equipment featured an all-in-one operation designed for speed and better quality. (See Exhibit 4 for a photo of the Mitsubishi EVOL.)

- A new McKinley 3C FFG was purchased from the manufacturer EMBA Machinery of Westlake, Ohio. This Flexo Folder Gluer, which was built to handle very large sheets, provided Peacock with a competitive advantage, since not all corrugated manufacturers owned one. (See Exhibit 5 for a photo of the McKinley 3C FFG.)

Peacock Corrugators prided itself on staying current with all its equipment, as well as with technological change in order to remain competitive in the industry. In 2013, production on the flexos was enhanced with the purchase of robots from the Plover, Wisconsin company, Automatan. The use of robotics added considerable efficiency to the functionality of the operations, given the robots' capability to move a greater amount of cardboard than what previously had been done manually. (See Exhibit 6 for a photo showing how the plant made use of robots.) There were 330 employees who worked at the Super Plant, while another 100 employees worked in the four buildings comprising the corporate headquarters in Paterson, mainly in customer service and sales.[6] Beginning in 2015, Peacock Corrugators moved to four shifts (twenty-four hours a day, seven days a week) from three shifts (twenty-four hours a day, five days a week). Leo and Rob were aware that paper mills typically ran four shifts and box companies did not, and they strategically decided to set Peacock apart from their competition with this facet of their operations.[7]

Paper mills provided the primary raw material for the plant. Peacock Corrugators used 10,000 tons of paper per month. The paper was delivered by rail car. (See Exhibit 7 for a photo of a rail car positioned outside the plant.) A clamp truck – which was similar to a fork lift, but instead of forks it utilized a special hydraulic clamp attachment for handling rolls of paper – lifted the rolls of paper to stack them for inventory. (See Exhibit 8 for a photo of a clamp truck.)

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[5] The rotary die cutter and the flatbed die cutter are used for different types of jobs. The rotary die cutter, which cut shapes after the cardboard is fed between two rolling cylinders, is used when the product is thin or if the order is relatively large. The flatbed die cutter, which stamps out each product using a hydraulic press after the cardboard is fed along the base while the press is pushed down vertically to make the cut, is used if the product is thick or if the order is relatively small.

[6] Only twenty-five employees were able to make the move from the plant in Paterson to the Super Plant. As a consequence, Peacock Corrugators had to lay off 234 employees in 2010.

[7] Employee retention at the plant was a challenge. Leo and Rob had thought the labor pool was going to be better when they moved to Smithtown. Peacock Corrugators partnered with nearby Suffolk Community College in a program designed to connect college students with employers. Although some employees came to Peacock through the program, the overall conclusion was that people simply didn't want to work in a factory. Potential workers were attracted more to jobs either in one of Long Island's wineries or in the fishing industry, about fifty miles east of Smithtown. Only a fraction of the workers at the Super Plant were long-term employees. The bulk of the mid-level managers were promoted from within, whereas upper-level managers were recruited from outside the company.

Although it only happened rarely, Rob recalled a time when one of the rolls accidentally fell from the top of its stack. “It was startling, since 7,000 tons were hitting the concrete floor from twenty-five feet up,” he said. “You could feel the whole factory shake.” (See Exhibit 9 for a photo of the rolls of paper held in inventory.)

A large tanker truck delivered another raw material – corn starch, which served as the adhesive to bond the corrugated medium to its linerboards. The starch was produced from renewable corn by Archer Daniels Midland, the Chicago-based food processing and commodities company. The starch was delivered as a dry powder that Peacock stored in huge silos at the plant until it was needed. Drawn from the silo, the dry corn starch was then mixed with water and other chemicals and pumped into the corrugator to be spread as glue onto the medium. (See Exhibit 10 for a photo of a silo outside the plant where the starch was stored.)

All the water used in production was treated. Water treatment was important in water based industrial processes such as heating, cooling, processing, cleaning, and rinsing so that operating costs could be reduced. In addition, poor water treatment could cause defective products.

Leo and Rob were big believers in sustaining the environment. Because the Super Plant used a lot of energy, the brothers decided in 2015 to create their own, and 19,020 solar panels were installed on eleven acres of property adjacent to the plant. This became the largest privately owned solar farm in the state of New York, producing 2.2 megawatts of electricity. (See Exhibit 11 for a photo of the construction of the solar panels at the plant.)

All waste generated during production was recycled. The Super Plant was constructed so that waste could be transported underground during the production process. The accumulated waste was then baled and sold back to the paper companies. (See Exhibit 12 for a photo of the baled waste.)

The Super Plant had 120 bays on its loading dock to handle the volume for its shipping needs. (See Exhibit 13 for a photo of the loading dock.) Each day, the shipping department sent out forty trailers with deliveries of corrugated boxes. Some shipments (such as pizza boxes and containers for Chinese food) went to distributors. These distributors bought the corrugated boxes and then sold them to retailers, just as Gabriel and Max Green did when they first got into the corrugated business. Peacock’s larger customer accounts had shipments delivered directly to them. Much of the plant’s success was attributed to the fact that it had the capabilities to produce whatever their customers needed. (See Exhibit 14 for a montage of some of the display items and boxes manufactured at the plant.)

The plant produced for a broad range of industries that were dependent on corrugated packaging for their products, including the food, appliance, automotive, and plastics industries, among others. “By making a vast array of products, it protects against swings in the economy,” Rob said. “If one industry is down, chances are that another one will be up.” Peacock Corrugators sold to a far greater number of clients in the food industry than clients in the appliance industry. This was due to the fact that there was a greater number of American firms in the food industry, while many of the appliance manufacturers were Chinese companies. The plant had a large make-and-hold area, where Peacock Corrugators stored completed work for

customers who desired such a service. This was consistent with the Just-in-Time manufacturing philosophy, where Peacock's customers could benefit from receiving their products exactly when they needed it. (See Exhibit 15 for a photo of the plant's make-and-hold area.)

When the Continuous Improvement department began in 2017, a visual workplace was launched at the Super Plant. Various stations were set up at critical locations throughout the facility where employees could utilize the tools. (See Exhibit 16 for a photo of two of the visual workplace stations.) This was done so that employees would know where everything was that they needed to perform their work function and, as a result, they wouldn't have to waste time looking for a particular tool. Leo and Rob took this seriously: If anything would ever be missing, the employees would get written up. "We're very visual," Rob explained. "After all, it's all about volume, quality, and service." (See Exhibit 17 for a flowchart that summarizes the entire manufacturing process for corrugated boxes.)

Competition

There were a lot fewer competitors in the corrugated packaging industry in 2019 than there had been when Leo and Rob first started at Peacock Corrugators. This was because the industry went through considerable consolidation over the prior two decades, with large paper companies buying out several corrugators, due to the benefits of vertical integration.

The number of independent corrugated companies in Peacock's region had shrunk from roughly thirty to five. The companies that were closest geographically were Bobst Container (Harrison, New Jersey), Alvaro Container (Uniondale, New York), and Achilles Corrugated (Villanova, Pennsylvania). Peacock's competitors had multiple plants; Leo and Rob believed that centralizing all operations in one plant was a distinctive advantage. Some of their accounts did comparison-shop and use multiple corrugators, but Peacock Corrugators prided itself on its loyal customer base. "We've built relationships of twenty-five years and longer," Leo said.

The majority of the product produced at the Super Plant was regional. This was due to the fact that the product was bulky and it didn't hold too much value. The plant served a 200-mile radius, including New England, Long Island, New Jersey, Philadelphia, upstate New York, and the five boroughs of New York City. Peacock did ship specialty products nationally. This included value added shipments such as point-of-purchase displays, where the truckload value might be $45 thousand. More typically, however, they were shipping a commodity, where the truckload value was about $10 thousand. To ship this value to Florida, for example, Peacock would only net a fraction of the cost. There was no focus on international sales, with the exception of some businesses in Canada.

Peacock actually purchased its paper from companies that it now competed against in corrugated packaging. The company spent $80 million on paper annually. It used seven or eight suppliers, with most of the purchases coming from four main suppliers. Being such a high-volume producer, the paper companies wanted to attract Peacock's business. Also because of its size in the market, the company had high bargaining power. Some large public companies, like International Paper, WestRock, and Georgia Pacific, had made inquiries in recent years about the possibility of acquiring Peacock Corrugators, but Leo and Rob had indicated as recently as March 2019 that they were not ready to sell the business.

Opportunities

Peacock Corrugators was attractive to potential buyers because its operating performance was strong. In the eight years following the opening of the Super Plant, the company's sales performance more than doubled, as shown in the following table[8]:

Year	Total Sales	Employees
2010	$95,000,000	270
2011	$125,000,000	300
2012	$136,000,000	320
2013	$141,000,000	330
2014	$149,000,000	340
2015	$160,000,000	380
2016	$168,000,000	420
2017	$182,000,000	430
2018	$194,000,000	430

As a result of this performance, Leo and Rob increasingly faced decisions about how to exploit the opportunities that became available in order to continue the company's growth. Whereas Leo concentrated more on operations, Rob concentrated more on sales; essentially, though, they both did a lot of the same things. "We share all major decisions," Rob said. "And it's important to note that we agree on most everything philosophically." Leo added, "We're both very hands on. Each of us makes the drive up to Smithtown from Paterson every week or so to keep our fingers on the pulse of the business."

The brothers were aware of the importance of updating equipment to stay on the cutting edge of the industry. In 2019, they agreed that their next capital investment would be in the $12 million to $14 million range. Rob felt that replacing the large McKinley flexo would bring the greatest utility. Leo preferred to replace a couple of the other machines with a new die cutter. Each investment was roughly $12 million.

The argument in favor of the new flexo machine was that it could open up a new market. "That market share is out there, I think," Rob said. There was less competition in this market. The machine would represent value added over the commodity market. The machine would allow the Super Plant to produce more volume of large sheets and with better quality. The argument against this investment was the uncertainty whether the market share could be found and if there was enough of it to be sustained.

The argument in favor of the new die cutter was that two machines could be replaced with one. With the technology that the die cutter possessed, processing would be more efficient. The argument against this investment is that it would not create a value added for the business since

[8] Data is for Peacock Corrugators Group. Earnings are roughly 20 percent of total sales.

the machine produced a commodity. There was much more competition for this in this in the industry.

A decision needed to be made by the end of the summer on which piece of equipment to purchase. There would be about one year of lead time to get the machine into the plant and to make it fully operational. “In a perfect world we would do both,” Leo said. A major reason why they couldn’t invest in both machines was because doing so would reach the limit of the company’s borrowing power. The brothers had a lot of collateral in the business that they could borrow against and they felt that they could borrow up to $20-$25 million for an investment if it created a highly attractive opportunity. Their experience with the banks when they invested in the Super Plant, however, was a sobering one. “Every time you come out of debt, you go back into it,” Rob noted wryly.

Leo and Rob didn’t want to invest solely in equipment because they were also considering other investments. “The key for us is that if the right opportunity comes around, we’ll consider it,” Leo said.[9] The opportunity to invest as a partner in a paper mill in Canada had recently materialized. The deal was for a ten percent ownership share of a $350 million mill. The investment would be $25 million. This opportunity was intriguing to Leo and Rob because it would enable Peacock Corrugators to become more vertically integrated. The brothers knew that the profit margin for a paper mill was larger than that of a corrugated plant. The mill was also offering a bigger piece of the business – roughly twenty percent – but with a higher price tag. A decision on this offer was due within the next two months.

For approximately $25 million, the brothers had also discussed an expansion of the Super Plant. This investment could be justified given the growth of the business. The expansion would build out the plant by 100 to 150 feet. As part of the expansion, additional equipment would be purchased.

Leo and Rob acknowledged that another investment that they would consider was the acquisition of one of their rivals. Such an acquisition would further strengthen Peacock’s position in the industry. The brothers knew that the company couldn’t exceed its borrowing limit to fund the growth of the business and a number of competing investments were on the table. They also knew that growing the business would likely require both of them to invest additional time and energy into the company.

The Dilemma

“Well,” Leo said, “I think we’ve got a dilemma.”

“How so?” Rob asked.

[9] Leo and Rob bought the Drunken Sailor Restaurant and Marina Bar, a large sports bar with waterfront dining and nightly entertainment, in East Hampton, New York. “The deal fell in our laps,” Rob said. “We wanted the land, and then we found ourselves with a restaurant.”

"This is rewarding," he said, "but it beats us up. What on earth are we going to do with all this?"

Rob straightened up in his chair. "I want to do what I can for my family. This is our legacy. I think we both have a lot more to give."

"Maybe we should sell the business. There are paper companies out there that would love to make a deal. Besides, we don't know if the next generation in the family is going to want to continue."

"You're being silly," Rob replied.

Leo thought for a moment while he picked at his salad and then he looked up. "Listen," he said. "Your back is so bad that you need a driver to take you everywhere. You're scheduled to go in for surgery next month and we don't know how you're going to come out of it. It's serious surgery, little brother. I've been concerned about the toll that that all this has been taking on your health and well-being. We don't need the stress of running a business anymore."

"I know," Rob nodded, "but I'll be fine."

Rob had recently seemed to become apprehensive about his impending back surgery, but the brothers' only objective had always been to do whatever they could to grow the business. They had never seriously discussed an exit strategy for themselves, and Rob continued to assure Leo that they ought to move forward with one or more growth opportunities.

He took a bite of his sub. "Maybe we can extend ourselves a little and either buy in to the paper mill or expand the plant and still add one of the new machines. We can really raise the profile of the business."

Leo let out a deep sigh. "The lenders aren't going to go for that." He then hesitated, and said somewhat sarcastically, "Besides, that wouldn't leave anything over for an acquisition." The sarcasm seemed to be lost on Rob.

"That's true," Rob said. "Do you think we should make that our priority?"

Leo laughed heartily and, getting up from his chair, he walked over to Rob and patted him affectionately on the right shoulder. "You know," he said, "the more growth we have, the more pressure we have. Let's take some time to think about what our best option is for the company. Then let's talk about this again when we're together two weeks from today. I need to pause on it for now. I'm sure when we talk next time we can make some decisions that are best for us."

Exhibit 1. A View Inside the Super Plant

Source: Company photo

Exhibit 2. The Super Plant's Corrugator

Source: Photo taken by author

Exhibit 3. Data System Command Center

Source: Photo taken by author

Exhibit 4. The Mitsubishi EVOL Flexo Folder Gluer

Source: Photo taken by author

Exhibit 5. The McKinley 3C FFG

Source: Photo taken by author

Exhibit 6. The Use of Robots to Handle Stacks of Cardboard

Source: Company photo

Exhibit 7. The Railcar that Delivered Paper at the Plant

Source: Photo taken by author

Exhibit 8. The Clamp Truck used for Stacking Paper Rolls

Source: Company photo

Exhibit 9. Rolls of Paper used to Manufacture Corrugated Boxes

Source: Photo taken by author

Exhibit 10. A Silo that Stored the Corn Starch

Source: Photo taken by author

Exhibit 11. The Solar Panels that Provided Energy for the Super Plant

Source: Company photo

Exhibit 12. Bales of Waste Sold Back to Paper Companies

Source: Photo taken by author

Exhibit 13. Loading Dock outside the Super Plant

Source: Company photo

Exhibit 14. Display Items and Various Boxes Manufactured by Peacock Corrugators

Source: Photo taken by author[10]

Source: Company photo

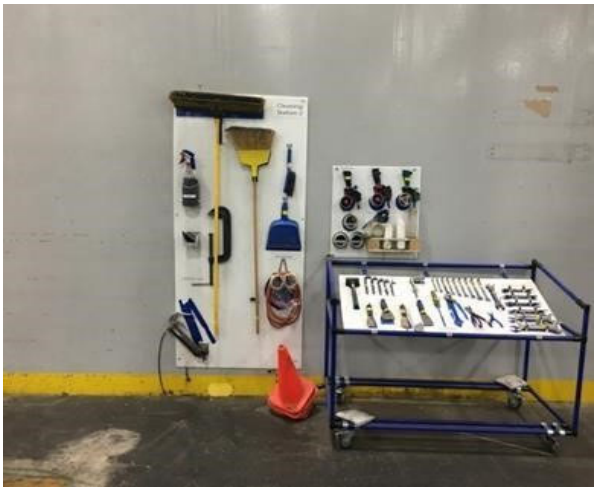
[10] David "Big Papi" Ortiz, the legendary star of the Boston Red Sox, was shot in a night club in the Dominican Republic on June 9, 2019, a few days before the author's tour of Peacock Corrugator's Super Plant. Ortiz was not the intended victim, which was carried out on orders of an associate of a Mexican drug cartel, and he survived the shooting.

Exhibit 15. The Make-and-Hold Area

Source: Company photo

Exhibit 16. Visual Work Stations

Source: Photo taken by author



Source: Photo taken by author

Exhibit 17. The Manufacturing Process for Corrugated Boxes

Krafting Paper at the Mill

Fast-growing pine trees provide the raw material used to make corrugated cardboard. After the trees are harvested, they are stripped of their limbs and the trunks are shipped to a paper mill. At the mill, the trunks are subjected to the kraft process, where chemicals are used to break down wood chips into fibrous pulp. After pulping and other processing, the fibers are sent to a paper machine where they are formed, pressed, dried, and rolled into wide rolls of paper to be sent to corrugating plants to be made into cardboard.

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Shipping the Paper to the Corrugating Plant

Rolls of paper for corrugating are available in many sizes. The most common sizes are 67 inches wide and 87 inches wide. An 87-inch roll of heavier paper can weigh up to 6,000 pounds. As many as 22 rolls of 87-inch paper can be loaded into one railroad boxcar for shipment.

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Determining the Grade of the Cardboard

At the plant, the paper is separated into different grades, which will be used for the corrugated medium and the liner. When the plant receives a customer order for containers, a product engineer specifies the combination of medium and liner to produce corrugated cardboard to meet the strength required for the order.

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Loading the Paper onto the Corrugator

Using powerful forklifts, equipment operators select and load rolls of paper at one end of the corrugator. One roll of the corrugated medium is loaded to run through the corrugating rolls, and one roll of the linerboard is fed into the corrugator to be joined with the medium. Liner from another roll travels up over the corrugating rolls along a flat structure called the bridge. For larger production runs, sensors on the corrugator check the rolls of paper that are being fed. When a roll is nearly empty, the corrugator control system starts a splicer, and paper from the new roll is joined to the end of the paper going through the machine. Thus, production of corrugated cardboard is continuous, and no production time is lost.

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Forming the Corrugated Medium

The medium to be corrugated is fed into the giant, electrically driven rollers of the corrugator, first through preheating rollers and then into the corrugating rolls. Steam at 175 to 180 pounds of pressure per square inch is forced through both sets of rollers, and as the paper passes through them temperatures reach 350 to 365 degrees Fahrenheit. The corrugating rolls are covered with flutes that are designed with horizontal, parallel ridges. When the hot paper passes between the corrugating rolls, the flutes trap and bend it, forming the middle part of a sheet of corrugated cardboard. Each corrugating machine has interchangeable corrugating rolls featuring different flute sizes. Installing a different flute size in the corrugator changes the width of the corrugated medium.

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Exhibit 17 (cont'd). The Manufacturing Process for Corrugated Boxes

Gluing the Medium to the Liner

The medium travels next to a set of rollers called the single-facer glue station. Here, one layer of liner is glued to the medium. Corn starch glue is carefully applied to the corrugated edges of the medium, and the first layer of liner is added. From the single-facer, the medium and liner go to the double-backer glue station where the other layer of liner from the bridge is added and glued. Continuing through the corrugator, the cardboard passes over steam-heated plates that cure the glue.

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Cutting and Stacking Box Blanks

At the end of the corrugator, a slitter-scorer trims the cardboard and cuts it into large sheets called box blanks. The box blanks pop out of the slitter-scorer like wide slices of toast and slide into an automatic stacker that loads them onto a large, rolling platform. From here, each stack of box blanks will be bar coded for operators to transport them to the appropriate fabricating machines that will process the box blanks and convert them into finished containers.

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Finishing the Boxes

The manufacturing and printing patterns, called dies, are used to cut and print specific box designs. The dies and patterns are loaded onto the large rollers of the flexographic (or flexo) machine, and the box blanks are automatically fed through it. As each blank passes through the rollers of the flexo, it is trimmed, printed, cut, scored, and, in a printer-folder-gluer, folded and glued to form a box. From the flexo, the finished boxes are automatically stacked and sent to a banding machine to be wrapped for shipping to thousands of businesses that depend on corrugated cardboard packaging.