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9B19A024

AEROLITE METEORITES: MARKETING AN UNCONVENTIONAL PRODUCT

R. Chandrasekhar wrote this case under the supervision of Professor Colin McDougall solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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The situation of a private company wanting to extract resources from a sovereign-free celestial body is similar to [that of] a commercial fishing vessel in international waters. They argue that the boat flies the flag of a country under whose laws it is bound; it is there for peaceful purposes and has a right of noninterference; and while it doesn’t own the water (land) or the fish (resources) in the water, it has a right to the ownership of the fish once extracted.

Tanja Masson-Zwaan and Bob Richards[[1]](#footnote-1)

In December 2016, Geoffrey Notkin, founder and chief executive officer of Aerolite Meteorites Inc. (Aerolite), a meteorite trading company based in Tucson, Arizona, was weighing his options in resolving the managerial dilemmas before him. The dilemmas were four-fold.

First, Aerolite did not have physical stores. Customers could make selections from the products displayed on the company’s website and submit their orders to be executed and delivered by post to their mailing addresses. Although Aerolite had developed customer service as a competitive advantage over time, the channel was proving to be a limitation in reaching a wider audience. Aerolite was also looking beyond servicing one-off purchases toward building customer loyalty. The online sales channel was not an effective medium for customer retention. Therefore, to both enlarge the customer pool and enhance customers’ lifetime value, Aerolite needed to identify new sales and distribution channels. But what new channels should Aerolite pursue?

Second, the number of meteorite falls seemed to be dwindling, leading to a drying up of the sources of meteorites. The demand–supply mismatch was becoming an enduring feature of the meteorites industry. Notkin was himself a well-known meteorite hunter and had personally led expeditions to replenish the company’s stock. Aerolite needed new ways of shoring up the company’s raw material inventory. But how could the company add to its stock?

Third, Aerolite was catering to customers who were looking for meteorites at different price points, although it was leaning toward high-end customers. The company had just received an invitation to host a booth at a new gem show displaying premium products for exhibition and sale. Notkin was impressed at the scale and splendour of the proposed show. But he wondered whether Aerolite’s participation would alienate the company’s long-standing customers at the lower end of the pricing spectrum. Should Aerolite accept the promoters’ invitation, or should it pass on the opportunity?

Fourth, the demand–supply mismatch of meteorites was leading to a situation whereby, to sustain its revenue, Aerolite was compelled to seek products and services other than meteorites. Any new products and services needed to be an extension of the core product since the company was rooted strongly to the world of meteorites. But what new products and services should Aerolite consider?

METEORITES

Meteorites were rocks from outer space that landed on Earth’s surface. They originated from the solar system’s belt of asteroids, which had prevailed for 4.5 billion years, in the space between Mars and Jupiter. Frequent collisions in space flung out bits of asteroids, known as meteors, which would find their way into Earth’s gravitational field. Once they touched Earth’s surface, they were known as meteorites. Meteorites differed from Earth rocks both in their surface features and internal structures.

Differentiating a meteorite from an Earth rock required knowledge of the rock’s age and composition. However, three attributes of a meteorite were helpful for making this distinction by sight. A meteorite attracted a magnet because of the presence of nickel-iron. It was dense and more compact than an Earth rock. It also displayed a thin, jet black coating known as a fusion crust, which was formed while it burned through the atmosphere on its way to Earth at a speed of 20 kilometres per second.

Meteorites were coveted by scientists for their research value, by museums for their historical value, and by private collectors for their financial value. Their extraterrestrial origin, rarity, and novelty provided them a premium. They landed everywhere on Earth but were commonly found in desert surfaces, both icy (e.g., Antarctica) and hot (e.g., Morocco). Antarctica had yielded more than half of all meteorite discoveries so far.

The science dealing with meteorites came to be called meteoritics. It focused on extraterrestrial materials in a bid to understand the origin and history of the solar system. It was closely connected to the disciplines of cosmochemistry, mineralogy, and geochemistry. A specialist studying meteoritics was known as a meteoriticist.

The meteorite business comprised not more than half a dozen active commercial enterprises worldwide, in addition to a large number of part-time dealers and hobbyists. The International Meteorite Collectors Association (IMCA), whose members comprised both professionals and amateurs, served as the industry watchdog. Its mission was to help collectors in their search for “authentic” meteorites.[[2]](#footnote-2) IMCA was a self-regulatory body.

Some countries lacked clarity in terms of the ownership, acquisition, and tradability of extraterrestrial objects. The general premise was that a meteorite belonged to the person who owned the land on which it fell. If a meteorite fell on public land, the government owned it. Thus, the adage “finders, keepers” did not apply to meteorites. But there were exceptions. Japan, for example, let finders be keepers. In Switzerland, a meteorite belonged to the government, but the finder was compensated with a sum relative to its value. In India, Denmark, and Australia, it was incumbent on the finder to hand over a meteorite to a government-owned museum.

Some governments also considered extraterrestrial objects to be national treasures. For example, Canada, Australia, and Namibia enforced stringent export regulations. But in many countries, it was only when a violation was brought to their attention that government departments were even aware of the prevalence of restrictions. The lack of clarity had led to illegal, cross-border meteorite trafficking.

Meteoritics was one of the few scientific disciplines, according to Notkin, in which academic and commercial interests co-operated closely and maintained friendly relations. Since information about a meteorite’s origin was essential to establishing its market value and could be done only by a professional, the finders (or dealers) would typically send a sample to a designated institution, which would retain a “type specimen,” of either 20 grams or 20 per cent of the total weight, whichever was less, for research.

The hunt for meteorites had an affinity with the hunt for gold, gems, and fossils. People collecting meteorites often also collected gems, fossils, dinosaurs, and minerals. For many years, the traditional marketing channels for meteorites were gem shows in Denver, Colorado, and in Ensisheim, France.

The meteorite industry was unique in many ways, according to Beth Carrillo, Aerolite’s president. For example, the business consisted of waiting for something to fall from the sky, packaging it so that it became presentable, and marketing it to people who not only did not know of its existence but also did not need it. The business owners were, by and large, husband and wife teams. Travelling in caravans, they led gypsy lives. Staying away from civilization for long periods in search of rocks, they would revel in what they considered their heavenly—as opposed to terrestrial (and mundane)—pursuit.

Two simultaneous developments in the mid-1990s—the arrival of the Internet and the entry of auction houses—changed the long-standing situation. The Internet lowered the costs of distribution, and the resulting low prices brought in mass marketing through retail outlets such as eBay and Amazon. The auction houses steered the market toward the high end through the involvement of celebrities as their customers.

Pricing

The basis of determining the retail price of a meteorite was four-fold, involving size, shape, science, and story. It was analogous to the four Cs of the diamond industry (i.e., colour, clarity, cut, and carat). While the shape, size, and science were tangible, the intangible element of the story behind a meteorite often gave the meteorite a superior value. A meteorite, per se, was no more than a stone and, strictly in that sense, had no intrinsic value. It was the mystery and the excitement surrounding it at various levels that added value. For example, a meteorite collected after a witness saw its fall had an enhanced value. Similarly, when a meteorite struck objects, such as cars and rooftops, it enhanced, in turn, the value of those objects.

Historically, meteorites were valued by gram. By and large, the heavier a meteorite, the higher its value. This emphasis on weight was common at the popular end of the market. At the premium end of the market, a meteorite’s aesthetic appearance—rather than its weight—would often add considerably to its value. In an auction, where a meteorite was perceived as a piece of art, the price was determined by what someone was “willing to pay.” The chain of previous ownership often added greatly to the value of a meteorite, as did the provenance supported by documentary evidence. A meteorite at the premium end of the market would sell for $1,000-plus[[3]](#footnote-3) per gram; $25 per gram was common at the popular end.

AEROLITE METEORITES: COMPANY BACKGROUND

Founded by Notkin in 2006, Aerolite (which shared its name with an uncommon English word for meteorite) was based in Tucson, Arizona, which was considered the meteorite capital of the world. It was the only commercial meteorite enterprise with a headquarters building, a showroom, offices in two countries, and a full-time staff of six, including a professional photographer. Its mission was “to make top quality, affordable meteorites available to collectors and institutions.” Aerolite spent the bulk of its income on funding meteorite expeditions around the world, publishing books, and conducting research.

Born in New York City (NYC), Notkin grew up in London, England, in the 1960s and 1970s, calling Europe home for more than 20 years. As a band musician, he had been involved in the punk rock movement, which was raging in London at the time. “I learned valuable lessons about innovation from the movement,” said Notkin. “The punk rock bands were putting out their own records, launching their own labels and starting their own fanzines. The indie music scene in London enabled me to cultivate a do-it-yourself attitude. It gave me ideas, for execution in later years, for independent film making and independent publishing.” It also laid the foundations for the contrarian attitude that characterized his business stance.

It was while working in NYC as a young, independent art director that Notkin, who had a lifelong interest in matters of the universe, was drawn professionally to the world of meteorites. At the time, he was producing catalogues for various American museums and building websites for small businesses to showcase their work to potential clients. He was also working with auction houses, and as part of their promotion to potential sponsors, he photographed their classic collections, which included meteorites.

He started building a personal inventory of meteorites as a pastime. On an expedition to the southwest regions of Arizona and New Mexico, he found his first meteorite in the desert. As it turned out, however, this was no more than beginner’s luck. It took him three years to find the next one. He was gradually coming to terms with the grit and the grind of his new hobby. The protracted nature of meteorite tracking was a sharp contrast to the fast-moving world of advertising in which he worked in Manhattan in NYC.

When Notkin realized that, instead of making money for auction houses with his eye-catching displays of meteorites, he could go solo and make money for himself, the hobby became a passion. From a meteorite enthusiast, he became a meteorite hunter and soon was involved full-time in buying and selling meteorites. Presenting meteorites in a compelling way with striking photographs became a standard operating procedure at Aerolite. Notkin was personally involved in portraying meteorites in the best possible light through websites, catalogues, and display signs.

Notkin also started acquiring meteorites in bulk. His collection included finds from the late American meteorite pioneer Harvey Nininger who was known, at one time, to have assembled the largest personal collection of meteorites in the United States. Gem shows became his hunting ground for sourcing new specimens, finding new customers, marketing his products, and seeking new business opportunities.

As he was drawn deeper into a new and fascinating world, Notkin undertook related diversification. He co-hosted a television show called *Meteorite Men* that aired on the Discovery channel network for three seasons. The show spun off a synergistic business division—Meteorite Books. The division published two award-winning books: *Meteorite Hunting: How to Find Treasure from Space* and *Rock Star: Adventures of a Meteorite Man*. Notkin also started Club Space Rock, a forum for meteorite enthusiasts, which published a monthly news journal. In addition, he launched another television show called *STEM Journals*, which ran for two seasons.

Sourcing

Meteorites were a finite resource. According to Carrillo, the supply pool was limited for three reasons. First, there were no more than an average of three to five recorded or witnessed meteorite falls worldwide every year from which the extraterrestrial material could make it to the commercial market. The number of falls could well be more, but the materials could often not be retrieved because they landed in oceans or jungles rather than in deserts. Second, only a limited number of whole meteorites weighing in tons fell to Earth. The quantity of material making it to Earth without being dissipated midway was small compared with the demand. Third, the current stock of meteorites was not being replenished by new stock. As a result, the meteorite supply chain was characterized by the recycling of old material that had fallen decades ago.

With fresh stocks from new falls running dry, traders depended on unconventional sources for their procurement needs. They would buy old collections from their peers who were getting out of the business, or they would buy from the estates of deceased personal collectors. The volume of transactions was nowhere close to what it had been 10–15 years earlier.

Customers

Although the bulk of Aerolite’s customers were in the United States, the company sent meteorite consignments all over the world, including to countries in South America, Europe, Australia, Mexico, and Canada. Of late, China had become a hotbed of meteorite collectors. Wealthy Chinese collectors were becoming a major presence at U.S. gem shows.

The collectors of meteorites were diverse but fell into two broad categories: passionate and casual.

Passionate collectors considered buying meteorites to be their primary hobby. They were largely white males, aged 35–60. On average, they would buy a new piece every month. Their profile was unique. They were typically achievers in their respective fields who did not take their pursuit of meteoritics any less lightly. They were serious buyers, knowledgeable, and at the same time, eager to know more about meteorites. They also tended to be collectors of other exotic materials, including minerals, rare books, antiques, and fossils. They would not bargain if they wanted to own something they valued. They were also shrewd enough to limit how far they would go in acquiring something they coveted. Matters that dealt with “the big picture” fascinated them, which explained their interest in related disciplines such as astronomy and cosmology. They were always looking for ways in which to “connect” with the universe around them. They were outdoors people who were rational and logical and believed in the world of the unknown. They considered themselves to be smart and expected to be treated that way. Talking down to them was a sure fire way of turning them off as customers.

Casual collectors, in contrast, would buy specimens as gifts, usually because they had surplus cash on hand. The gifts were generally for themselves and often for their loved ones, to celebrate festive occasions such as Christmas.

Notkin believed in democratizing his customer base. Although Aerolite leaned toward the high-end customer, it was also making available $5 pieces for kids and elementary-school students in a bid to ignite their interest early on. Also in his target customer base were novices who showed curiosity about meteorites, however fleeting, but could not afford to buy them.

Marissa Fanady, a geology student based in Minneapolis in the U.S. Midwest, was a typical casual customer with a passion of her own. She had been collecting meteorites since 2011, when she was a kid. Starting with a $5 piece, she had been spending an annual average of $50 on her collection. As a member of IMCA, she would buy only from accredited IMCA members such as Aerolite to ensure the authenticity of her purchases. “Holding a meteorite is an experience like no other,” said Fanady. “It is like holding a piece of history. It is like getting in touch with one’s legacy and communicating with the unknown. It is a moment frozen in time.” The connection was, clearly, intense.

Other Income

Aerolite’s primary source of income was the sale of meteorites. The company had also developed secondary revenue sources; it produced educational television programs and films and conducted third-party valuations. Because of Aerolite’s high profile in the industry, it regularly received enquiries from those wanting to sell a meteorite after years of holding on to it. After a preliminary assessment, the company would send the prospective seller a one-page contract stating its fee for evaluation. For a percentage of the sale price, the company would also offer to find a buyer. If the prospective seller agreed to work through Aerolite, the meteorite would be photographed and displayed on Aerolite’s website (see Exhibit 1). In the photographs, it was important to deploy light and shadow effects, according to Christian Meza, the company’s chief technical officer, who also doubled up in outreach roles at Aerolite. The meteorite would also be showcased at gem shows. Sometimes, valuations were undertaken for the purpose of insuring private collections.

Of greater frequency were enquiries from amateurs who had what they were convinced were meteorites. For every 1,000 such enquiries, Aerolite identified only one genuine meteorite. The process was difficult, time-consuming, and frustrating for everyone. Aerolite was trying to turn it into income-generating work.

Aerolite was a retailer with a single product focus. Its singular competence was meteorites. The company used partnerships to build value-added propositions around its core competence. For example, it had established relationships with jewellers for converting meteorite pieces into high-value jewellery. It partnered for specific lines and labels, sharing the sale proceeds 50:50. The partnerships did not always work, but when they did, they worked very well for everyone.

ISSUES facing aerolite

The Channel Conundrum

Although Aerolite’s business was principally transacted through online sales, it also sold through gem shows. Its presence was constant at the annual shows in Tucson, Arizona (for 19 days each January–February), and in Denver, Colorado (for nine days in mid-September). Its participation at these shows helped create awareness of Aerolite as a brand among walk-in visitors, who comprised a large portion of a gem show’s attendance.

The time commitment was considerable, according to Carrillo. Four weeks were needed to prepare the exhibits for display, and two weeks were needed to unpack. Aerolite also had to be physically present for the duration of each show. The company’s investment would be generally diffused, with no guarantee of returns, because the shows would display a multiplicity of offerings in addition to meteorites from hundreds of vendors from all over the world. In contrast, the company’s online channel focused 24/7 on what Aerolite was good at. But Aerolite needed to seek alternative channels for both sales and distribution.

Emotional connections, which seemed to be an inbuilt feature of a meteorite purchase, comprised a major portion of Aerolite’s involvement in negotiating a sales transaction. Notkin wondered which channel could help reinforce that connection. Aerolite could perhaps learn from the luxury goods sector, where design, display, and ambience were, as in meteorites, crucial elements of both marketing and distribution.

Supply Snags

Aerolite needed to resolve a dilemma in the larger context of a finite supply of authentic meteorites. The fall of a new meteorite was an opportunity to restock the company’s inventory. The upfront investment would be in the many tens of thousands of dollars, and, as fresh stock, the material could be marketed at a premium for a minimum of 10 years. Once the market soaked up the new material, the novelty would wear off, and the meteorite pieces would command less and less of a premium. Supply was thus the single largest snag in the meteorite industry.

Related industries also faced supply constraints. “Meteorite dealers should do the same things as prospectors of commodities like oil and minerals do—move to new sources when you run out of known reserves,” according to Fanady. “They have not fully exploited the world’s desert surfaces, both icy and hot. They should also invest in technology that makes meteorite-prospecting more focused and accurate.”

Notkin wondered whether other industries with limited resources could provide lessons for Aerolite.

High-End or Low-End Customers?

Aerolite catered to customers looking for meteorites at a range of price points. Although it leaned toward high-end customers, the company was keen on targeting young and uninitiated collectors in a bid to build a customer pool that would be enduring in the long run.

Notkin had been sounded out by the promoters of a new show, the Tucson 22nd Street Mineral, Fossil & Gem Show, which was meant to be a high-end show. Notkin was impressed not only at its scale and grandeur but also at the fact the organizers were upstarts trying something different and bucking the system. It appealed instantly to his punk rock lineage. There was an opportunity to team up with a dinosaur company based in Denver, Colorado, and a mineral company from Mexico, with the trio together occupying a giant exhibition space to put up a “showstopper.” But he wondered whether participating would alienate the company’s long-standing customers at the lower end of the pricing spectrum. It was likely a gamble. Would Aerolite lose its smaller but established customers who were buying less than $100 pieces? He was in a quandary.

Related Products and Services

Aerolite needed to move beyond its core product because the supply snags had often led to concerns over how the company should safeguard its future. The move needed to be not only revenue-accretive but also relevant to the world of meteorites. One related diversification would be to host interested people on expeditions to different deserts of the world in search of meteorites, similar to wildlife safaris common in some African countries. A related independent income stream would be to produce new TV shows focused on the world of meteorites for both mainstream and niche audiences. Another option was publishing books on meteorites for specific readership segments, such as children. Notkin wondered what other alternatives were available to generate income for Aerolite beyond the sale of meteorites.

Exhibit 1: SIKHOTE-ALIN METEORITE



Note: The Sikhote-Alin shower, which occurred in 1947 in a remote area of eastern Russia, was the largest single meteoric event documented in modern times. It was an extremely rare, “witnessed” fall, and the resulting meteorites displayed classic characteristics: regmaglypts, orientation, rollover lips, and even impact pits from in-flight collisions with other meteorites. Meteorites from the Sikhote-Alin shower were once readily available in the marketplace; however, intensive hunting at the fall site resulted in the area being completely hunted out, and no new specimens now made it into collectors’ hands.

Source: Christian B. Meza of Aerolite Meteorites Inc. © Copyright 2018. Reprinted with permission.

1. Tanja Masson-Zwaan and Bob Richards, “International Perspectives on Space Resource Rights,” SpaceNews, December 8, 2015, accessed August 10, 2018, https://spacenews.com/op-ed-international-perspectives-on-space-resource-rights/. [↑](#footnote-ref-1)
2. “About IMCA,” International Meteorite Collectors Association, accessed October 10, 2018, www.imca.cc/. [↑](#footnote-ref-2)
3. All currency amounts are shown in US$ unless otherwise indicated. [↑](#footnote-ref-3)