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FIVE RULES OF MARKETING INSIGHTS FROM THE SUPERIOR ENGINE STORY

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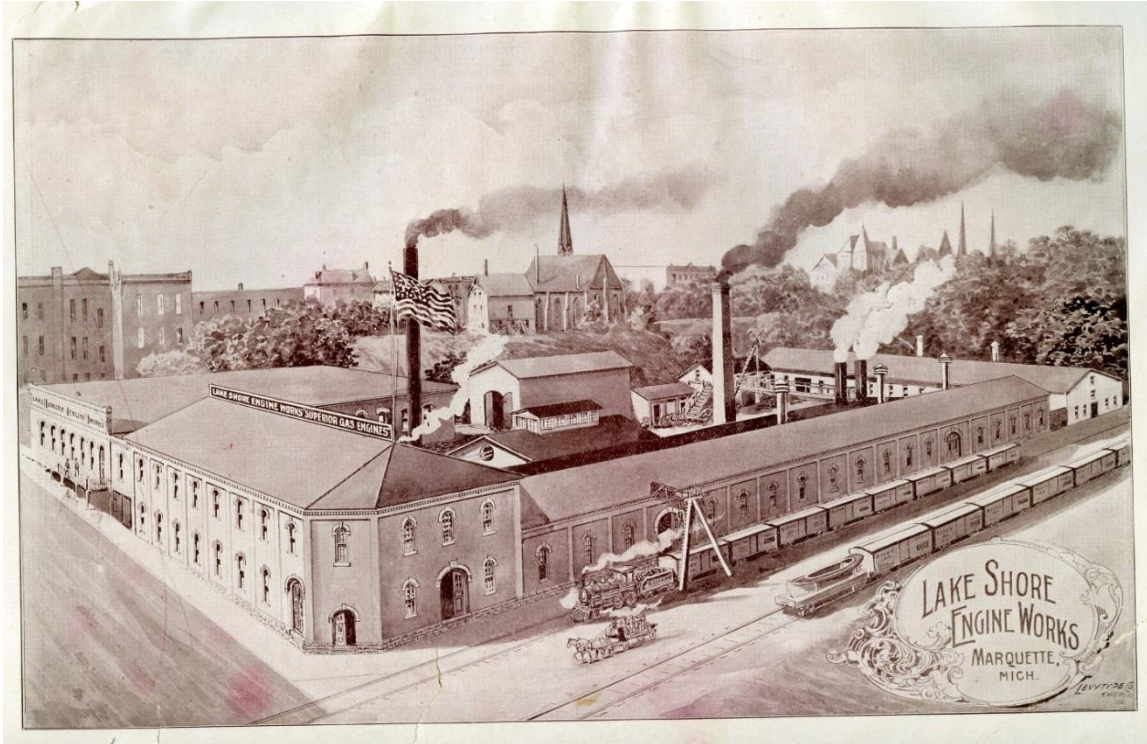
ABSTRACT

In the late 1890s, an exceptional product line of marine engines was developed in Marquette, Michigan. The authors trace the roots of these innovations and posit abstract marketing lessons from their insights. Five rules about marketing insights are suggested to play an important role in new product development. It is suggested that marketing people who practice these rules could improve their product and service innovativeness.

INTRODUCTION

On July 14, 1858, Lake Superior Foundry was organized in Marquette, Michigan to supply mines and mills of the area with foundry products. In 1869, the manufacture of mining and blast furnace equipment was produced (Cummins, 1962).

**EXHIBIT I
LAKESHORE ENGINE PLANT**



THE SUPERIOR ENGINE

In 1886, the Iron Bay Manufacturing Company reorganized as the Lake Shore Iron Works. Its directors were J.M. Longyear, Charles Osburn, C.P. Sheldon, Alfred Kidder, Peter White, Nathan Kaufman, S.R. Holly and William G. Mather. Up to this time, it produced heavy castings for mining machinery (Rydholm, 1989). In 1890, it became the Lake Shore Engine Works (Exhibit I, Superior View, 1890).

Charles H. Bloomstrom moved to Marquette in 1897 to work at Lake Shore. Bloomstrom was a designer and an engineer. He was interested in gasoline powered marine and automobile engines. He developed several patents for engines, especially for carburetors. Bloomstrom developed a Superior Marine Engine and tested it in the lower harbor at Marquette. It became the first engine to be installed in a sailboat, which belonged to the Peter Anderson Fish Company in Marquette. Bloomstrom then installed his Superior Marine Engine to power a U.S. life boat at the Marquette U.S. Lifesaving Station. Bloomstrom's patents for the Superior Marine Engine came on August 28, 1900. (Rydholm, 1989). Exhibit II

presents a photo of the Lakeshore Superior Engine. It can be seen in an exhibit at the Marquette Maritime Museum, Marquette, Michigan.

**EXHIBIT II
THE LAKESHORE SUPERIOR ENGINE**



During the late 1890's in the pattern room of Lake Shore Engine works, additional engine ideas were being designed for marine use. These engines were mounted on the boat interior and began to be called "inboard engines." Bloomstrom, Flodin, Holley and other creative thinkers also worked out the designs for a whole product line of inboard engines for multiple uses. The following inboard engines were produced in the plant and sold at the listed prices (Lakeshore Engine Works, Inc., circa 1900):

- The Superior ½ horse power, 500 rpm, 5-6 mph, 70 lb Marine Engine for 12 – 14 Foot Launches, \$150
- The Superior 1 Horse Power, 500 rpm, 7-8 mph, 120 lb Marine Engine for 14- 16 Foot Launches, \$215

Foot The Superior 2 hp, 500 rpm, 7-8 mph, 230 lb Marine Engine for 16 – 20
 Launches, \$290

 The Superior 4 hp, 500 rpm, 8 mph, 375 lb Marine Engine for 18-25 Foot
 Launches, \$500

 The Superior 6 hp, 500 rpm, 600 lbs, 7 ½-8 mph, for 22-30 ft
 Launches, \$660

 The Superior 12 hp, 300 rpm, 9-10 mph, 1,500 lb Marine Engine
 for 35-50ft Launches, \$930

BOAT BUILDING IN MARQUETTE

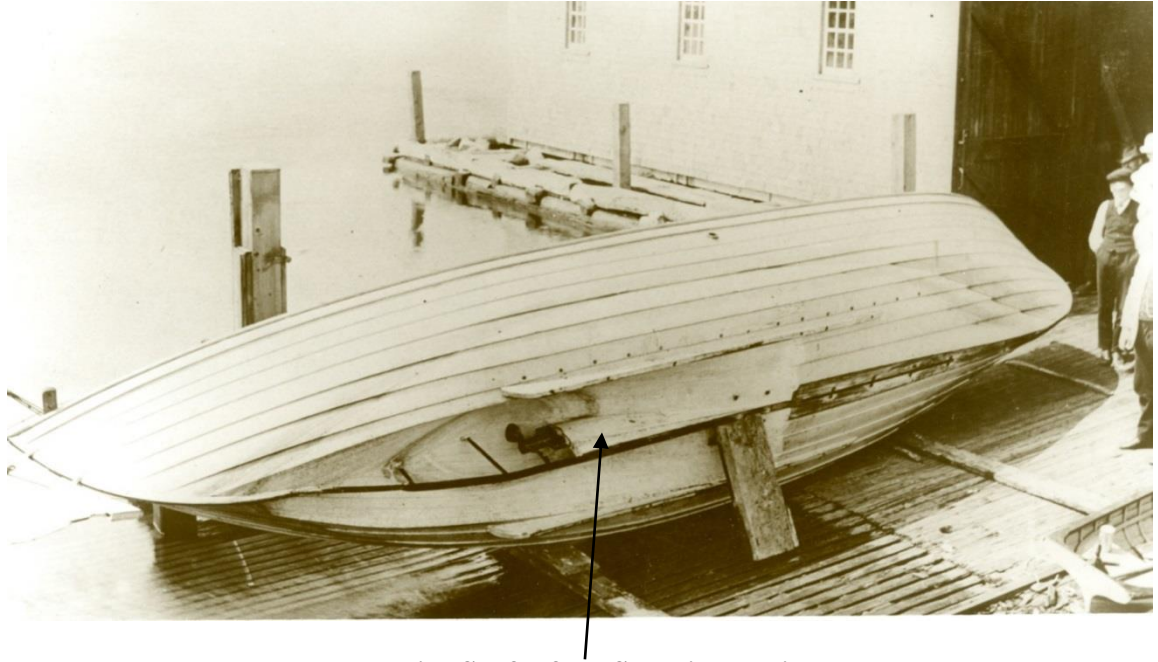
In 1890, John Anderson and his brothers arrived at Marquette, Michigan. They were from Norway and settled with friends in Marquette to seek employment. In the spring of 1891, they joined the first crew of the U.S. Rescue and Life Saving Service under the charge of Captain Henry Cleary. During the off-season, John and his brothers built boats in a local shop. Several competent boat builders were already located in Marquette. Boats were built for inland lakes, the growing towns on the shore of Lake Superior, and for the Huron Mountain Club. The Andersons also started the Anderson Fish Company and installed a Superior Gasoline Engine to increase their productive performance. Exhibit III displays the Anderson Fish Company and the type of fishing boat that later had a Superior Engine installed in it (Superior View, circa 1910).

**EXHIBIT III
ANDERSON FISH COMPANY AT THE LOWER HARBOR**



In 1899, using Captain Cleary's political connections, and under the guidance of the United States Rescue and Life Saving Service, a spare 34-foot lifeboat was brought from New Jersey to Marquette by rail car. John Anderson, using his boat building skills, along with Cleary, (and possibly Bloomstrom, Flodin and others), modified the hull of the life boat and installed a 2 cylinder, 12 horsepower *Superior* gasoline engine, which had been built by Marquette's Lake Shore Engine Works. Trial runs were successful, and the first Motor Lifeboat for the U.S. Life Saving Service was put into service. Within the next 10 years, many lifeboats had engines with up to 40 horsepower (Nelson, 2000). The first U.S. lifeboat with an engine in it is demonstrated in Exhibit IV below (Superior View, circa 1900).

**EXHIBIT IV
FIRST LIFEBOAT WITH AN INBOARD MOTOR**



Exhaust Port and Drive Shaft of the Superior Engine

In 1901, five Superior Marine Engines won national acclaim after being exhibited at the Sportsman's Exhibition in Chicago. Soon afterward, the engines were being used on the River Thames and in Denmark. They were growing in popularity in Europe and other countries. In 1902, the engine won a "gold medal award" and became the standard engine on U.S. Life Saving Service boats.

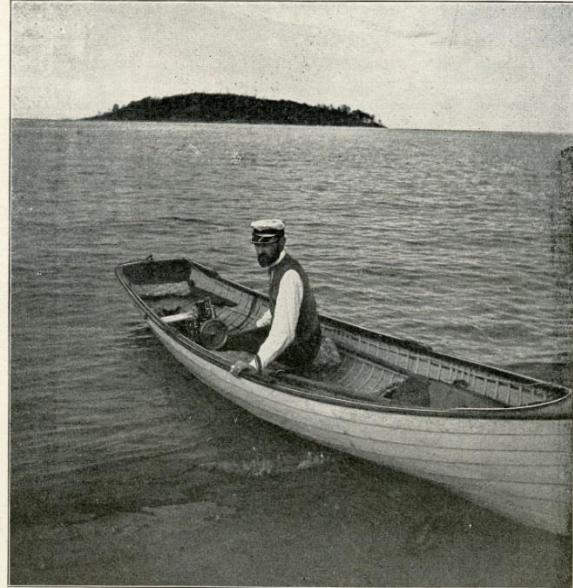
Exhibit V on the following page shows the only known write-up of the Superior Engine in Marquette in 1900. The first photo shows the engine in the stern (back) of a 14 or 16 foot launch and the second photo shows the Superior 12 horse power Gasoline Engine powering the 34 foot lifeboat off of the Coast Guard Station in Marquette (Donnan, 1900).

MARQUETTE IN 1900.

Lake Shore Engine Works.

In this closing year of the twentieth century, a century which stands unique as giving birth to more marvels of invention than any other three centuries in the world's history combined, it is not to be wondered at that the public turns away from the old ways which were good enough for the fathers and sets its face resolutely toward the new and novel. In nothing is this tendency more manifest than in the matter of travel and transportation. How to get over the ground quickly was a question answered in a measure by the several million bicycles which throng the boulevards and highways of city and country. The automobile, scarce out of its swaddling clothes, is contesting lustily for public favor.

But there appears to be a wider range for improvement upon water than upon land. The sail and the oar have kept their places these many centuries, and man in his weak clinging to the ancient custom has kept on depending upon the fickle winds of heaven or in the strength of his own right arm. Until very recent years it was only the very wealthy who indulged in the luxury of a steam yacht or a naphtha launch. But all this is changed or changing, for the "Superior" marine motor, manufactured by the Lake Superior Engine Works of Marquette, has made it possible for the person of modest salary or moderate means to purchase a launch equipped with a "Superior" motor for little more than the price of a high-class bicycle and at far less cost than an automobile. When the pleasure to be derived from the ownership and use of either is con-

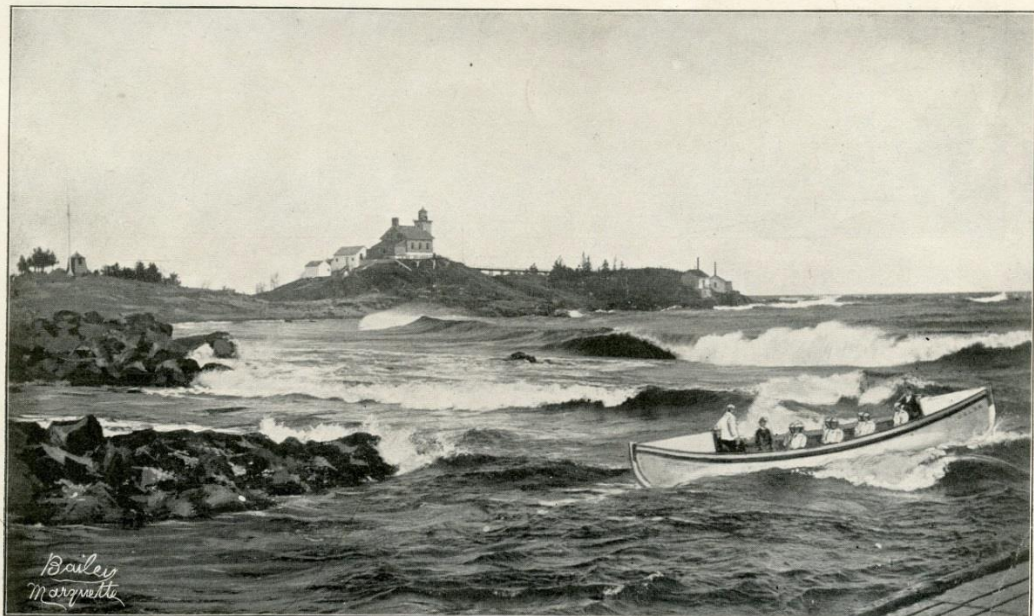


MR. ASIRE'S BOAT ON LAKE SUPERIOR

sidered the weight of evidence lies all on the side of the launch.

Where can a careworn business man of our large cities find a more delightful spot to recuperate his strength, tan his skin and lay in a year's supply of ozone than upon the clear and sparkling water of the great-

est of the world's unsalted seas? And how can he do this any better than by buying a small launch equipped with a "Superior" gas engine and coasting along the shores of the Great Lake with some companionable fellow, enjoying the beauties of the varying scenery?



U. S. STANDARD LIFE BOAT, PROPELLED BY "SUPERIOR" MOTOR.

RESOURCES

The discovery of iron deposits in the Upper Peninsula of Michigan was first recorded in 1830 when a fur trader, Peter Barbeau, gave some samples of iron ore to a mining professor named Charles Jackson. The samples were deemed to be an excellent grade of ore (Rydholm, 1989). Unfortunately, Barbeau had been given the iron ore by some Indians while he was trading with them near the Carp River. Therefore, Barbeau did not know the location other than to say that it must be near the Carp River.

On the 19th of September in 1844, while surveying the Upper Peninsula, William Burt and his party discovered iron ore in the present location of the town of Negaunee, Michigan (Rydholm, 1989). The Carp River, not surprisingly, is located on the edge of Negaunee. The discovery of rich deposits of iron ore, more than any other factor, caused transportation to be developed in the Upper Peninsula.

Iron ore mining was going strong by the mid-1800's. In fact, the iron business was doing so well that the Cleveland Iron Mining Company built a dock for loading iron ore in Marquette's harbor. In the same year, another ore dock was built in the harbor by the Jackson Company (Rydholm, 1989). However, the transporting of ore from the mines to boats in the harbor of Marquette was a slow process.

WATER TRANSPORTATION

The Great Lakes had been a viable form of transportation for centuries. Marquette is located on Lake Superior, which is connected to the other Great Lakes by the St. Mary's River. The St. Mary's River, unfortunately, has a rock filled rapids, which drops 21 feet and makes passage impossible. Not even Native Americans dared shooting the rapids in their canoes. Due to the barrier presented by the rapids, cargo had to be portaged around the rock filled river. The St. Mary's is situated between the present day Sault Saint Marie, Canada and Sault Saint Marie, USA, and flows from Lake Superior into Lake Huron. The river is the only access from Lake Superior to the other Great Lakes.

The unloading of cargo from boats, portaging it around the rapids, and then reloading the cargo onto boats on the other end of the rapids, was made unnecessary for a short period of time. In 1797, the Northwest Fur Company built a 38 foot long lock on the Canadian side of the river. Although short, this small lock was adequate for small boats to avoid the rocks and handle the 21 foot difference in elevation. During the War of 1812, the lock was destroyed and cargo had to once again be portaged around the rapids (United States Army Corps of Engineers, 2012).

Realizing the importance of the Lake Superior region to commerce, the United States Congress took action in 1852, which led to the construction of much larger locks. Work on the locks commenced in 1853 and was completed in only two years. There were now two locks, and they were opened on the 31st of May in 1855. The locks were arranged in a manner which allowed one to flow into the other. Each lock was 350 feet long and they came to be known as, "The Soo Locks," a name which has carried over to this day (United States Army Corps of Engineers, 2012). The great lakes cargo included lumber, grain, flour, coal, iron ore and other items. During 1909 alone, 1.5 billion feet of lumber was carried on Great Lakes ships (Curwood, 1909).

Over the years, the Soo Locks underwent numerous upgrades as well as the addition of more locks, but they still faced one obstacle that engineers could not overcome --- the weather. Every winter, the locks are closed because of ice buildup. For this reason, water transportation would have been inadequate during the winter months for shipping Superior boat engines to other locations.

RAIL TRANSPORTATION

There does exist evidence that railroad development was occurring and being used heavily in the logging industry at this time. Consider the following description as an example of the use of rail transportation during the period of the development of the boat motor:

Despite the lack of scholarly attention specific to woods workers, some historians have delineated three main eras of the lumbering industry in the Upper Great Lakes.

The first phase of logging is known as the "white pine era" or the "water-pine era," an

epoch that lasted from the 1830s until around 1900. Two fundamental features

characterized the period: the almost exclusive exploitation of white pine trees, and the use

of waterways as the main source of transportation from forest to mill. America

industrialized during this era of white pine logging, bringing new technology to the north

woods, including railroad development. Railroads were utilized more extensively in the hardwood and pulpwood era, which lasted from approximately 1900 to the 1930s. (Henderson, 2009).

Marquette lagged behind most of the rest of the nation in getting good train service. The introduction of trains was slow and progressed only in stages. Although the first wood burning locomotive arrived in Marquette in 1855, it was

not used commercially until 1857. Until 1857, mules pulled carts of iron ore from the mine in Negaunee to Marquette. The mules first pulled the carts on wooden plank roads. About 1855, “track-like” strips of iron were attached on top of sleepers running the same directions the mules travelled. The sleepers were attached to an old plank road, which served as continuous railroad ties (Longtine & Chappell, 1999).

A faster, more reliable form of transportation was needed. Herman Ely, the man who had brought the first locomotive to Marquette, saw the opportunity and experimented with his version of a railroad track for his locomotive. The track, which looked much like the railroad track of today, had wooden “tracks” with a 3/8 inch thick and two inch wide iron straps attached to the “track” (Longtine & Chappell, 1999). Over a period of some thirty years, numerous short segments of rail were laid throughout the Upper Peninsula, often going to the west of the town of Marquette, Michigan.

The extension of rail service into new markets north of Green Bay, Wisconsin was delayed by the Civil War. Interestingly enough, many small segments of track were built but were not connected to complete the run up to Marquette for several decades. For example, in 1870, the C&NW completed a line of track from Negaunee, Michigan to Ishpeming, Michigan. While these two towns are near Marquette, the condition of roads was abysmal. Thus, it would have been a major undertaking for a horse drawn wagon to make deliveries from Marquette to either city. In addition, these cities still did not connect with the major population areas down in Wisconsin. However, in 1871, the C&NW completed a segment of track from Green Bay up to Menominee River and later in the same year a segment from Escanaba, Michigan to Powers, Michigan was completed.

The first documentation of a train that was capable of shipping boats and motors from Marquette to Chicago was when the C&NW finished its line between Escanaba and Green Bay in 1872 (Barnett, 2011).

HIGHWAY TRANSPORTATION

Highway systems were non-existent in the early 1900’s through-out the Upper Peninsula. The “roads” that were in place were classified as being Public Wagon Roads. When the Michigan State Highway Department was established in 1905, there were 2,958 registered “automobiles” and 67,979 miles of Public Wagon Roads for the automobiles (Rogers, 1933).

The first road connecting Marquette with major markets to the south (i.e., Marinette, Menominee, Green Bay, Milwaukee, and Chicago) was built in 1918. The road was named M-15 and the name was changed to U.S. Highway-41 when the U.S. Highway system was established in 1926. Apparently, some parts of US-

41 were difficult to traverse, because paving of all sections of the highway was not completed until 1952 (Jolly and Bohnak, 2009).

DISCUSSION

Toward the end of the 19th century, and at the dawn of the 20th century, the Lakeshore Iron Works Company had in its fold a cadre of brilliant innovators. These creative minds included Charles Bloomstrom, an engineer and designer, Nels Flodin, a pattern maker and S. H. Holley, a plant manager. They associated with people in other industries, located in the same community. Carl Anderson and his brothers were local fishermen who started the Anderson Fish Company and began building local fishing boats. Captain Cleary headed up the lifesaving crew that used oar power to row 34 foot lifesaving boats. Working in a plant that built mining equipment near Lake Superior, these innovators' realized that producing propulsion systems for marine transportation would be useful and increase efficiency.

These innovators took the first step in developing a great marketing insight that helped to begin the motorized marine industry. They were entering the startup phase of the marine engine and boating industry, which currently is yielding a yearly economic impact of \$72 billion. (NMMA, 2012).

For reasons unknown to the authors, Lake Shore management failed to comprehend this new industry, and in 1904 decided to totally discontinue the production and sale of marine gasoline engines. The above facts provide evidence however, that there existed adequate skills, resources, transportation and infrastructure to achieve success in the marine industry. Several important marketing lessons are drawn from observing this story of The Superior Engine.

CONCLUSIONS: FIVE RULES OF MARKETING INSIGHTS

Marketing Insight is Builds a Functional Relationship into the Real World

Marketing intelligence is concerned with coincidental events. Single events, often arriving non-systematically, are derived into frequencies which become probabilities. This is the beginning of ideas, beginning their journey from bits and pieces of raw data that are ultimately transformed into goods and services. The regularity in the frequencies becomes the leap of constructive marketing intelligence that transforms into something useful.

Marketing insight collectivizes thoughts into a concrete unity. Thinking about opportunities is not the same thing as knowing them. Knowing marketing success requires experimentation and experiences. Many failure attempts, resulting in an explosion and a fire at the Lakeshore plant, were experienced in the achieving of a new market innovation.

Effort must be exerted to bring knowledge into a coherence. Ultimately, a thing evolves and becomes an idea outside the field of inner observation. Its spatial-temporal relationships must be evolved. It will take on color, size, shape, sound and even taste.

Marketing Insight is a Function of Inner Conditions

Creative insights came from inner conditions. Outer circumstances, such as the need to increase the rate of travel over the great lakes, provided the restricted framework for focusing thinking on things or events that could succeed to achieve new results. Although the external reality of a marine engine line occurred outside of these innovators, the principles and procedures to accomplish this goal was a result of inner thinking.

Marketing Insight Comes for a Release of Tension to Inquiry

The innovators at Lakeshore Engine Works spent years of experience living with problems and being absorbed and saturated with facts and frustrations for improvement. The conceptual drawings of the Superior Engine in the pattern room at the Lakeshore plant was part of the answer to the release of tension to constant inquiry about marine transportation.

Marketing Insight Comes Suddenly and Unexpectedly

Nels Flodin, Charles Bloomstrom, S. H. Holley, John Anderson (and maybe others) communicated their ideas with Captain Cleary of the United States Rescue and Life Saving Service. The theory of building and installing a large Superior Engine and installing it into a 34 foot lifesaving boat ultimately emerged. Since Lakeshore Manufacturing was in the business of making mining equipment, many of the innovators' insights would have come as a surprise or in an unexpected manner.

Marketing Insight Pivots between the Abstract and the Concrete

The innovators of the Superior Engine were inspired by ideas which were ultimately written down and transformed into patterns. Patterns of ideas were developed in the pattern room, located upstairs from the main plant. Marketing insights begin as abstractions and become concrete things in reality. Their discoveries show that great insights broke through their threshold of consciousness as meaningful pieces of information that were transformed from ideas into concepts, from concepts into product sketches, from sketches into patterns, from patterns into prototypes, and from prototypes into working models.

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