DIAMOND CRYSTAL SALT
100 YEARS OF EXCELLENCE
1886-1986

Diamond Crystal Salt Company

The Diamond Crystal Salt Company, circa 1890. Charles F. Moore, company founder, is standing on the left in the top row.

INTRODUCTION

In 1886, Diamond Crystal's first year of operation, the company had $18,000 in sales and didn't come close to making a profit. It was producing salt at the rate of seventy-five barrels a day.

A century later, Diamond Crystal (including recently acquired Hardy Salt) can boast sales of approximately $125 million, production at a rate of some 1,000,000 tons a year, and robust fiscal health.

The hundred-year road has not always been an easy one. The company has survived changes and setbacks that could have destroyed an enterprise led and supported by less determined people. Not only has Diamond Crystal survived, but it has also grown and prospered in a difficult business and through difficult times.

The story of the Diamond Crystal Salt Company is the combined story of the Moore family, other company leaders, thousands of dedicated employees, thousands of loyal customers, and the American salt industry. It is also an account of a century of commitment to excellence.

This history is dedicated to those thousands of men and women, past and present, without whom there would not have been a 100-year anniversary for Diamond Crystal.

Diamond Crystal products at a trade show, 1909.

PART I

THE EARLY YEARS

The history of the Diamond Crystal Salt Company begins several years before its official founding in 1886. Its roots lie firmly in the city of St. Clair, Michigan, which was already over 100 years old by the time Diamond Crystal was founded. St. Clair had started out as the site of a British fort during the French and Indian Wars. Located fifty miles from Detroit, on the St. Clair River, the town was officially laid out in 1818; by 1826 it was the location of the first post office in St. Clair County.

In 1863, at the height of the Civil War, a group of men met in the small town to discuss drilling for salt. Brine strikes had been made in other nearby areas, and this encouraged the residents of St. Clair. The St. Clair group hired F. Spangler to drill for the brine deposits thought to lie between 800 and 1,200 feet underground. By June of 1864, Spangler, who was being paid $2 a foot, had struck brine, and less than a year later the well was producing at one barrel every five minutes. However, the venture never became profitable and was eventually abandoned.

The early growth of the salt industry in Michigan was centered in the Saginaw Valley, where brine was being tapped as early as 1860. The industry first grew up as an offshoot of the lumbering industry: scrap wood and other by-products were used to produce heat to evaporate a crude salt from brine. The end product was of low quality, sometimes with so many impurities that the salt was gray, but that did not prevent a rush of growth that produced a glut of salt operations in the Saginaw Valley area by 1872.

The enthusiasm of these prospective salt makers was understandable, although their products were not consistently good and their businesses usually unprofitable. Until the late 1800s, most good quality table and dairy salt used in America was imported from Europe. Ashton salt and Higgins' Eureka salt, both imported from England, were widely used in butter and cheese making, where a pure salt was needed. It was not until 1886, when a determined St. Clair businessman and a New York inventor got together, that high-quality table and dairy salt were domestically produced.

That businessman was Charles F. Moore, son of Reuben Moore, who had settled in St. Clair in 1836 and established a lumber business, a leather tannery, and a saw mill. Charles Moore was born in 1845, educated in local schools, and attended the Michigan State College of Agriculture.

When Charles was seventeen, his father died, and he had to take over the family businesses. He continued in the lumber business until timber resources became scarce; at the same time he worked in farming. Moore became a prominent member of the St. Clair community, and his efforts soon put it on the map as the home of the Diamond Crystal Salt Company.

Charles Moore continued the tradition of involvement with and service to the city of St. Clair begun by his pioneer father, a tradition which is still in evidence today. He served as city alderman, state legislator, and as mayor in 1880 and 1881. He had not been involved

in the original salt-drilling venture in 1863, but while serving as mayor in 1880, he headed a group of citizens who raised $1,200 to clean out and reopen the old well.

Moore selected St. Clair resident Crockett McElroy to head the project. McElroy in turn hired Matthew Porter, a Canadian, to do the work. The well was cleaned out and refurbished, but despite the fact that it produced saturated brine—that is, two and one-half pounds of salt per gallon—the venture, once again, never really got off the ground.

However, Porter convinced McElroy that the Canadian salt formations which underlay the Ontario Province also extended under St. Clair and surrounding areas. These formations were much deeper than the brine deposits, but by that time drilling technology had been developed to reach the rock salt and to pump water into the formation to dissolve the salt and force it to the surface in solution.

In 1882, McElroy began drilling in nearby Marine City, where he was president of the Marine City Stave Company. After drilling through hard rock at 1,300 feet, McElroy hit salt at 1,633 feet. As a 1912 history of St. Clair salt development noted, "Many people thought Mr. McElroy was crazy, but he continued steadfastly in his purpose, telling them that he was spending his own money and could afford to make the experiment."

When McElroy finally succeeded in reaching salt and bringing saturated brine to the surface from more than 1,600 feet, people stopped calling him crazy. A factory was quickly constructed to evaporate the brine. The operation was the first American salt block, as they were called, to use coal instead of wood for fuel.

Up the road from Marine City in St. Clair, people were encouraged by the success of their townsman and by the success, in 1884, of John and Thomas Thomson at another nearby site. The stage was set for St. Clair's third try at establishing a local salt operation. The arrival of inventor J.L. Alberger and the demonstration of his new method of salt-making gave the venture its final push.

John L. Alberger, Louis R. Alberger, and Horace Williams had been granted U.S. Patent 400,983 for their new salt process. "This invention relates to the manufacture of salt," read their 1886 application. "The result being the production of a practically pure salt, all of which is done in a new and useful manner at a reduced cost . . ." However, an invention brings no financial benefit to the inventor unless someone can be persuaded to pay to use it.

In search of financial backing for the new process, J.L. Alberger set out for the Michigan salt fields. He set up a demonstration on the Thomson brothers' block and produced some salt. Among those who went to observe the operation and its results were Charles F. Moore and Mark Hopkins, namesake and nephew of the St. Clair native who amassed a fortune in the railroad business in California.

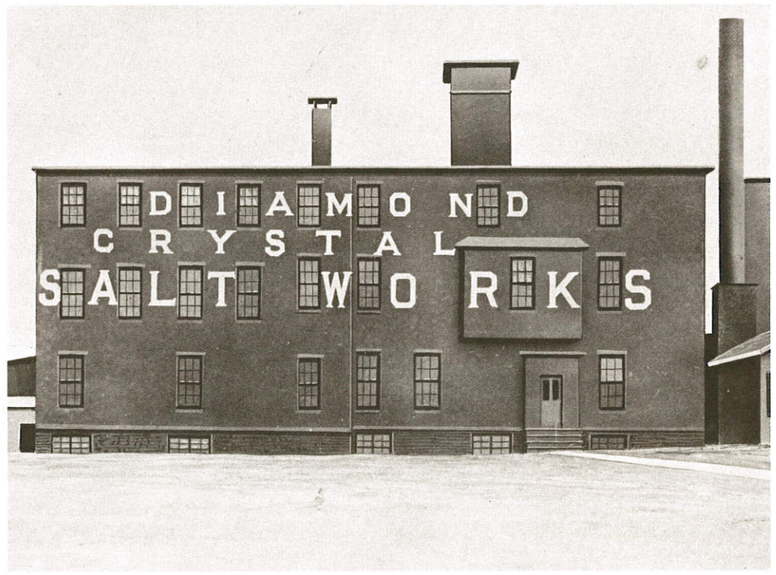
The Alberger process was indeed something new. Until 1865, all evaporated salt was made either in open pans

or by the solar process. During that year the first commercial vacuum pan was constructed in New York. This method produced cubical grains of salt from brine heated at less than atmospheric pressure in a closed container. The vacuum pan method was an improvement over the old open pans or solar works, but Alberger thought he could do even better. His method involved heating brine under pressure instead of in a vacuum. When the pressure was released, tiny cubes were formed which grew into delicate, flake-like salt crystals on the surface of the brine in the open pans. The Alberger process not only produced a salt of much greater purity, but also a salt more readily soluble owing to its unique flake structure.

Hopkins and Moore were sufficiently impressed by what they saw and heard to form a group of investors to acquire the rights to the Alberger process. On April 10, 1886, the St. Clair Rock Salt Company was organized with Hopkins as president, Justin R. Whiting as vice president, and Franklin Moore, brother of Charles, as secretary-treasurer. The board of directors consisted of those three, plus Charles Moore and James M. Sanborn.

The Alberger process turned out to be only half of what its inventor had envisioned. It did produce an uncommonly pure salt with a delicate flake structure that at the time was the most pure salt being made anywhere. However, the process was not as economical as the organizers of the new company had hoped. Faced with the fact that they had a better product for which they would have to charge a premium, the founders decided to change the company's name to emphasize the purity of the product. Therefore, less than a month after its founding, the St. Clair Rock Salt Company became the Diamond Crystal Salt Company on May 1, 1886.

During the first few months of operation, the company was not a blazing success. In all of 1886, it produced salt at a daily rate of 75 barrels, each containing 280 pounds, and billed only $18,000 in total sales. With the business off to a shaky start, it became obvious to Moore and Hopkins that the new company was not big enough



(Left) Charles F. Moore, 1845-1912, founder of Diamond Crystal Salt Company.

(Right) After a disastrous fire in 1892, Charles Moore borrowed $15,000 to rebuild the Diamond Crystal Salt Works.

SALT MINING AND PRODUCTION

The three methods used for obtaining salt are mining, solar evaporation, and brining. Mining and solar evaporation have been used for centuries, but brining is a more recent development—at least in the West. The ancient Chinese were drilling brine wells to a depth of more than 1,000 feet with bamboo pipes well before the birth of Christ.

Unlike most other mineral and ore mines, salt mines are relatively large and spacious workings. In Poland's Wieliczka mine, which has been in operation for more than ten centuries, a huge underground cathedral has been constructed over the years and filled with sculptures and carvings done in solid salt. In modern underground mines, ceilings can be 100 feet high, and rooms are large enough to accommodate jumbo trucks, electric shovels, and other giant equipment. Salt at a working face is first undercut with huge power saws, then drilled with holes to receive explosives, and finally blasted loose. The salt is then crushed to more easily transportable size and sent to the surface for further dry processing. Underground mines produce what is known as rock salt, or halite.

Although methods of pumping and concentrating the salt in the oceans and other salty bodies of water have been improved over the years, the basic process used in solar evaporation has remained the same for centuries. The actions of the sun and wind evaporate sea water or other salt waters, leaving behind crystals of salt.

The earliest brine well in the United States was drilled in the Kanawha Valley of West Virginia in 1806. Brine springs had been an important salt source for early settlers, and it was only a matter of time before logic and technology combined to allow drilling for the underground brine source. Brine wells were the basis for the early American salt industry.

As brine sources were exhausted and technology improved, methods were developed for pumping water into solid salt deposits to produce a brine solution which was then pumped to the surface. Today Diamond Crystal's Hardy operation runs such wells at a depth of 8,000 feet at its Williston, North Dakota, facility.

It did not take long for man to discover that salt could be produced more quickly from seawater or brine springs by applying heat to the solution. This method could also be used in areas where climatic conditions did not allow for solar evaporation of salt. The early salt industry in Michigan grew up as an adjunct to the lumber industry, as wood wastes were burned to provide heat for the production of evaporated salt.

Diamond Crystal makes essentially all of its salt products by evaporation methods and tailors its more than seventy products according to specifications for use by water conditioning, food processing, industrial, agricultural, consumer, and government customers.

The Alberger process, patented in 1886 and used exclusively by Diamond Crystal, produces salt by heating brine under pressure to 290 degrees F. Impurities, primarily calcium sulphate, are removed in a "graveler"—a tank filled with granite cubes which present a large, stone surface area. When the pressure is later released, delicate, flake-like crystals form on the surface of the purified brine in large evaporating pans. The purity and rapid solubility of Alberger salt have made it a favorite of consumers and of the meat packing, canning, baking, butter, cheese, margarine, and pharmaceutical industries.

Vacuum pan salt is evaporated into cubical grains from brine boiled in large vessels, generally at less than atmospheric pressure. It also is used as table salt and in the baking, canning, dye manufacturing, and textile industries. Vacuum pan salt is also used for water conditioning and animal feeding.

for two ambitious and talented businessmen.

Moore's grandson, Charles F. Moore, recalls: "At that time there was some disagreement about how the company would be operated. The money came very hard and, as I recall hearing my father talk about it, they finally decided that they would split up, and one would take the new Diamond Crystal Salt Company and the other would take the assets of the Nicol Woolen Mills."

It is unclear exactly what relationship the woolen mills mentioned had with Diamond Crystal, but the large book containing the minutes of early Diamond Crystal board meetings begins with seventeen pages of records of Nicol Woolen Mills board minutes. In any case, the Moore family ended up with the salt company. By February of 1887, Charles F. Moore was president, Justin R. Whiting was vice president, Henry Whiting, Jr. was secretary, and Franklin Moore was treasurer. It would be five years before the company would show a profit, though, and, even then, that profit was questionable.

At least the volume of business was increasing. The board minutes of December 27, 1889 show that the company had $53,938.59 in sales and inventory and $52,600.29 in operating expenses. "The $1,338 might be regarded as profit," the report noted. "Taking into consideration, however, the sum of $1,749.52 spent in making the last improvements, viz., putting in a third boiler and putting steam pipes in the pan, the statement showed a deficit of $410.22."

Also during the year 1889, the Diamond Crystal Salt Company was given the news that it was not a corporation. The original papers of incorporation were filed under the wrong act, and the company actually had been operating as a partnership. The correct papers were refiled, new by-laws drawn up, and Diamond Crystal became the corporation it was intended to be from the outset.

The young firm was still struggling to break even, but, by the early 1890s, its highly pure Alberger salt was slowly gaining loyal customers in the food processing areas and gradually expanding its markets. However, in 1892 the company was hit with what some considered a death blow, when a fire destroyed most of the plant. There was serious discussion about whether or not to rebuild. The March 30, 1892 board minutes noted: "Mrs. Whiting read a letter from Justin R. Whiting giving his views on the subject of rebuilding and continuing the

Repairing a salt well, St. Clair, circa 1953. Ed Greig (left) and Ed Kaiser.