

Nearly all of the sperm oil taken is refined here, and in round numbers fifteen thousand barrels of sperm, twelve thousand barrels of whale, and eight thousand barrels of fish oil are refined in New Bedford annually.

The factory of George Delano's Sons, on South street, is the largest grease oil refinery in the world. The buildings cover nearly two acres of land and in the busy season forty-five men are employed. The individual members of the firm are Stephen C. L. and James Delano, who succeeded the firm at the head of which was their father, in 1884. George Delano entered the employ of Charles H. Leonard in 1855, and took the business January 1, 1869. The New York office of the firm is at 140 Front street, in a building which the various firms that have operated the works have occupied since 1850.

The company manufactures sperm, whale, sea elephant, fish, and cotton seed oils, patent and paraffine wax candles, spermaceti, whale and fish oil pressings, and sperm and whale oil soap. All crude oils are worked out to definite results at the factory and the product is shipped to every part of the world.

As this is a representative factory, it will not be out of place to tell briefly of the processes to which the oils are subjected.

The crude oils as they are landed in casks from our whaleships are a thick, dirty brown in color. The quality is determined by the appearance and by tasting, and the buyers become very expert in their judgment.

The products of sperm oil are the winter sperm, which is the first running from the crude oil after it has granulated, the spring sperm, the summer sperm, the taut pressed, which leaves the unrefined sperm, and finally spermaceti, with a melt test of one hundred fifteen degrees Fahrenheit. The sperm oil is not sold in its natural color, however, but is half bleached by a process which leaves sperm oil soap as a product.

The product of the whale and other heavy oils, such as sea elephant, fish, and cotton seed, are the winter, spring, and summer pressings, which leave stearine. This latter product has the consistency of tallow. Soaps are made from all of these oils in the bleaching process.

The sperm oil is largely used for oiling machinery, although it is usually compounded with cheaper oils before it can be used for this

purpose. It was formerly used for burning in lighthouses, and up to 1860 the works held a contract to supply the entire lighthouse system of the United States. The whale oil is used for illuminating purposes. A vast quantity is consumed in engine headlights, being combined with the hydro-carbon oils. Considerable fish oil is used for burning in mines. Large quantities of the soap are shipped to California, Florida, and other fruit growing sections, where it is employed in washing orange and other trees to protect them from the ravages of insects, and acts as a fertilizer.

The stearine is used in large quantities by the mills, where it is used as sizing for yarns, and much of it is exported for smearing sheep before shearing the wool. It is also used in making the better grades of soap, as filling for leather, and in oleomargarine to some extent.

When the sperm oil is brought from the wharves to the works, it is turned into deck tanks, with a capacity of six hundred gallons each, and from here it is pumped into the bleaching tanks. There are three of these, the largest having a capacity of five thousand gallons, and two others with a capacity of thirty-one hundred gallons each. Within these tanks are coils of steam pipes and the oil is boiled with a soda lye. The sediment which precipitates to the bottom is drawn off and manufactured into soap.

The oil is then drawn off and placed in barrels. These barrels of oil are then placed in the pits and are put under ice. The "pits" are, in reality, a huge ice chest, with a capacity for holding one thousand barrels. As much as thirty tons of ice are often used in a single day, and the barrels remain here for about ten days, until the oil freezes. The product, after the pressings, is the virgin winter oil, which runs limpid at a temperature ranging as low as twenty-eight degrees below zero. In the coldest weather the oil is sometimes placed out of doors where the cold atmosphere effects the same results as if the oil were placed in the pits.

After the first pressing, the sperm is again placed in hempen bags and in the spring it is subjected to another pressing. The product is the spring oil. In the summer, when the sperm has become dryer yet, it is again subjected to hydraulic pressure, and the result is a thin oil known as the summer oil.

After the oil has been removed by repeated pressings, the sperm is boiled with an alkaline lye, washed with water and moulded into blocks, which are in appearance as white and lustrous as alabaster.