in 1874 from the single port of Ciudad Bolivar, in Venezuela, to New York.

The advance in price of vanilla gave a great impetus to the culture, and many small proprietors who embarked in it made large profits, but the extension of culture has not reached the limits which were expected. Owing to the alarm created by the reports of the artificial production of vanilline from the cambium sap of pines a panic arose among the growers, and less attention was given to the culture.

Subjected to the action of a ferment, emulsion for instance, coniferine divides into glucose and a compound crystallized in beautiful prisms which melt at 73°. The latter substance is readily soluble in ether, less soluble in alcohol, almost insoluble in water. Under the influence of oxidizing agents the product of fermentation undergoes a most remarkable metamorphosis. By treating it with a mixture of potassium bichromate and sulphuric acid, ethylic aldehyde is first formed, then an acid substance, soluble in water, which can be removed by agitation with ether. By evaporating the ether starlike groups of crystals are obtained, which melt at 81°. These crystals have the savour and odour of vanilla. On comparative examination it was found that they were identical with the aromatic principle of vinilla, and which is frequently observed on vanilla pods in the form of delicate needle-shaped crystals. According to analysis the body obtained by oxidation contains $C_8H_8O_3$, exactly the composition which the recent researches of M. Carlis attribute to the aromatic principle of vanilla. Artificial vanillin is now prepared on a large scale in Germany from the cambium sap of pines. It is not made pure, but sold in the form of an extract, or rather an alcoholic tincture, which contains 2 per cent.— the average amount found in vanillin is not entirely identical with that of vanilla; but in its diluted state, and paricularly when used as a flavour, its odour is not distinguished from vanilla. The price of the alcoholic solution will be about two-thirds that of vanilla.

At the Philadelphia Exhibition Dr. William Haarmann of Holzminden, on the Weser, showed this new artificial vanillin of his discovery; also a glass of coniferine, the glucoside contained in the cambium of coniferous woods from which vanillin is made. The latter is identical in composition, melting point, flavour, and all other properties with vanilla acid from the vanilla bean. Vanillinic acid (a by-product), vanillinic sugar, vanillinic alcohol, and vanillinic glycerine were also shown. These works were established in 1875, and employ in the summer months about 46 workmen.

More recently Dr. K. Reimer has found not only a new source of it but an equally novel and simple method of preparation. This is the creosote of wood-tar from the beech-tree. The resemblance of creosote and carbolic acid is so close that for a long time there was no certain method of distinguishing them, and one was frequent-