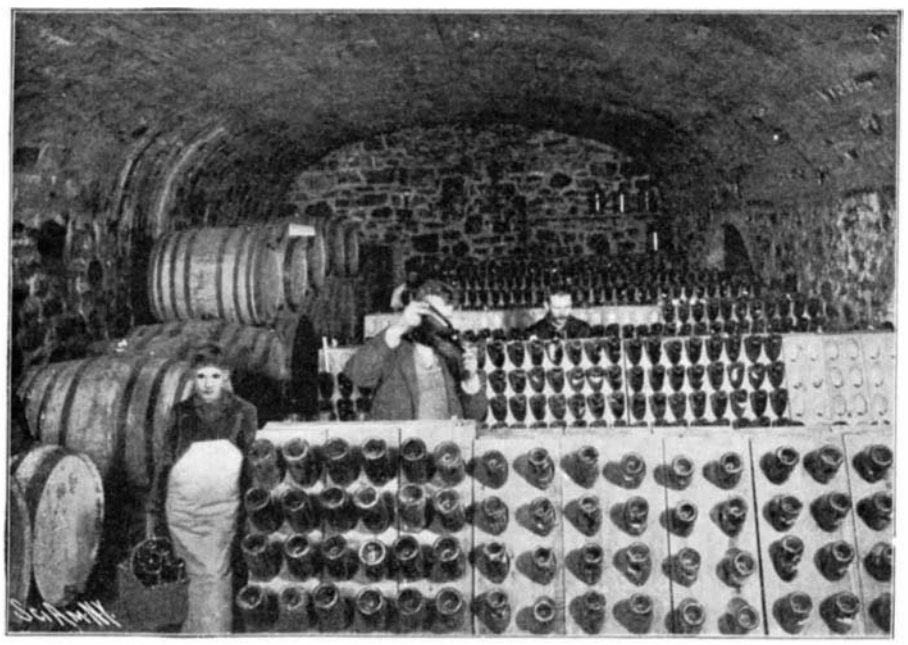
THE WINE-MAKING INDUSTRY OF NEW YORK STATE.

BY JOHN S. STEELE.

The wine-making industry in New York State is now in full swing. It began during the first week in September and will continue till late in the fall, or rather the preliminary process of pressing the grapes will continue until then. The other processes of wine-making continue over the entire year, and in the case of champagne, at least, which is the most important part of the New York State industry, the process of manufacture is not complete for three years. The making of still wines is completed as far as the active work of the wine maker is concerned when the fermentation is finished in the fall, but of course Nature's part, that of maturing the wine by age, may be extended indefinitely.

It is a fact not generally known that in some respects the wine industry of New York is the most important in the United States. The output of California is greater in quantity, and in value it exceeds that of New York. It is estimated that the average annual production of wine in California is between twenty and thirty millions of gallons, while that of New York is only from five to seven millions of gallons. In value, however, that of California is only about $5,000,000, while the wine output of New York is valued at about $3,000,000. This is explained by the fact that the California product is made up largely of clarets and Sauternes, whereas New York is the greatest producer of champagne in America, and champagne runs into value quicker than other wines. Absolutely, however, New York is second both in quantity and value in the United States, with Ohio third.

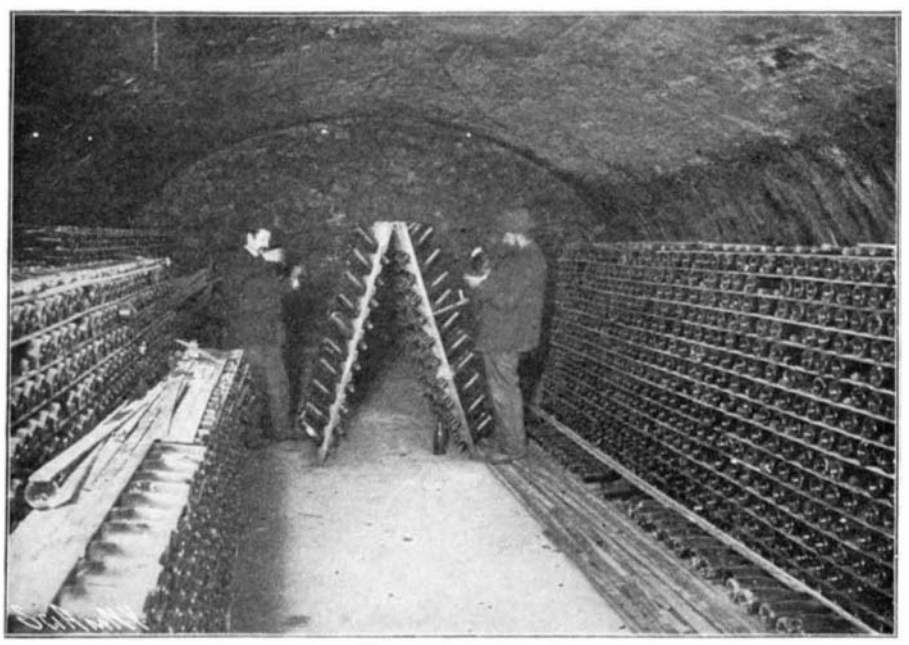
New York possesses the largest champagne plant in the country, and one that compares favorably with some of the famous European plants. There are regularly carried in storage there and in the process of maturing 1,500,000 bottles of champagne, and the regular annual output is about 250,000 bottles. All this



Classifying Champagne.

Wiring and Labeling Champagne Bottles.

Corking and Finishing.



Examining Champagne.

Shaking Champagne Bottles.

Disgorging Champagne.

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wine is made from grapes grown in the neighborhood of Washingtonville and at Hammondsport, N. Y. About 400 tons of grapes are annually crushed to make champagne at this plant and an equal quantity for the manufacture of still wines. In the Hudson Valley alone there are 10,000 acres devoted to the growing of grapes for wine-making, and in the Lake Keuka district about 15,000 acres. In the whole of New York State there are about 50,000 acres under wine grapes. New York ports and sherries have taken their place in the market with the European wines. New York claret and Sauterne types are rapidly taking the place of the higher grade imported wines, and her champagnes, while handicapped by the popular prejudice against a native wine, are rapidly forging to the front.

The process of making champagne is an exceedingly intricate one, and one requiring a long training. A successful champagne maker must not only be an expert viticulturist, but he must also be a competent chemist. Champagne is not the product of any one grape. It is a blend of the juice of several varieties, and as the constituents of these grapes vary in different years, they must be combined each year in varying quantities to produce a uniform and perfect wine. The grapes used for champagne making in this State are the Elvira and White Diamond, which are white grapes, the Dutchess, a black grape, the familiar red Delaware, and the Eumelon, which is a dark grape. The juice of these is expressed separately in the fall, allowed to undergo the first fermentation naturally, and then allowed to rest in immense casks until spring. Then the juice of each is analyzed, in order to determine the proportions of each needed to produce the perfect blend. In their separate state they are known to the wine makers as champagne wines. A perfect champagne should contain about ten per cent of alcohol, seven-tenths of one per cent of tartaric acid, two to three per cent of sugar, and the rest the water derived from the natural juice of the grape. In seasons like the present when, owing to a cool and wet summer, the grapes are watery and deficient in natural sugar, it is sometimes necessary to add a little pure cane syrup to the wine to bring up the percentage of sugar. In all cases the sweet wines are produced by the addition of sugar. The dry wine is a natural champagne. When the right proportions have been determined by a chemical analysis of the champagne wines in the spring, the blend is made and the wine bottled. It then enters upon the process of fermentation in the bottle, which is the distinguishing characteristic of true champagne. Many cheap sparkling wines are made sparkling by charging them with gas. The gas in champagne is developed by the fermentation in the bottle. This process takes about three years. The bottles, tightly corked and secured with thick wires, are piled one on top of the other in stacks containing thousands of bottles, in a moderately warm cellar. There they remain undisturbed until the fermentation is complete. The only means that the maker has to know when this is so is by the breaking of the bottles on account of the enormous pressure of the gas developed in the fermentation. About five per cent of all champagne made is lost by this breakage, and often whole stacks of bottles are shivered before the process can be checked. When the breakage becomes so great that it is evident that the fermentation is complete, the bottles are removed to a cooler cellar and there set out neck down in slotted tables for the final process of clearing. The object of this is to allow the sediment in the bottles to settle on the corks, and to facilitate this settling each bottle must be shaken twice a day for a period ranging from fourteen days to a month. A force of forty men is employed at shaking bottles during the season at Washingtonville.

When the settling process is complete that of disgorging follows. The wire is removed and the cork with the sediment resting on it is expelled by the pressure of the gas. If the wine is to be dry the bottle is then filled with a little old champagne, and if it is to be sweet a dosage of cane syrup is added. The bottles are then finally corked and labeled and are ready for the market At this stage the wine is in fair condition. It improves for about two years after bottling, when the improvement ceases and it is liable to deterioration.

The other types of wine made in New York State are determined by the kind of grape used, and to some degree by the manipulation in making. Sherry is made from the Folle Blanche grape and is aged in a heated room. Tokay is made from the old raisin grape and is a perfectly natural wine. It improves indefinitely with age and does not acquire its best qualities until it is about twenty years old. Clarets and Sauternes are the simplest types of wine and are made from various types of grapes.

Nearly all the American types of wine grapes have been developed from the American wild grape. It is a fact well known to viticulturists that seedling grapes are seldom true to type. Half a dozen seeds from one berry will, if planted, produce probably as many different types of grape, and the chances are that they will all be worthless. The valuable types are all propagated by cuttings, which always remain true to the parent type. Viticulturists are constantly experimenting with seedlings in search of new varieties, but if they obtain one of value from a thousand seedlings they consider themselves fortunate. Many of the most popular varieties have been discovered by accident.

Automobile Notes.

A curious automobile is said to have been invented by a Russian engineer, Konstantinoff, in the shape of an auto-sleigh combined with a boat. Prince Khilkoff is to use it to cross Lake Baikal, and it can run over the ice or in the water. Its form resembles that of a boat, below which are set two steel bars which serve as runners. The sleigh is propelled by a wheel driven by the gasoline motor, the wheel having points in order to grip on the ice. When the boat is in the water, the motor is connected to a propeller by a clutch.

A mill is being equipped in Lancashire, England, for the manufacture of cotton automobile tires by means of a new American machine. With this apparatus the tires are woven in much the same manner as cotton wick for lamps. The tire is continuous and endless, and of the form and shape of the wheel, thereby enabling fitting to the wheel to be carried out with facility and celerity. The tire has a greater bursting strain than any other material from which tires are at present made, being equivalent to 6,000 pounds per square inch. By means of this machine a tire can be turned out complete in thirty minutes.

An important and extensive development of transport by automobiles has been inaugurated in middle and southern Italy. The present horse diligence service is considered too lumbering, costly, and slow in comparison with motor vehicles. The type of car which is to be introduced upon the new system is the "Pipe," the well-known Belgian car. Contracts have been placed for the supply of 600 Pipe chasses fitted with 20-horse-power motors, together with 300 wagon and 300 omnibus bodies, so that one-half of the consignment will be available for the transit of freight, and the second moiety for passenger traffic. The bodies are, however, to be made interchangeable, so that, if necessary, a car can be converted from one type to the other in about half an hour. The omnibus vehicles will have accommodation for 10 or 12 passengers, and the freight cars for two tons of merchandise. The scheme is being organized by the government and the various municipal corporations that will be concerned and benefited by the service. The roads are to be overhauled, corners eased, bridges of substantial construction erected at necessary crossings over ravines, and other improvements carried out. The system will be operated upon similar lines to a railroad, with stopping places at certain intervals, where the municipal authorities will establish open waiting rooms. The first route is to be opened in January next, and the succeeding services as rapidly as the necessary arrangements can be completed.

The modern motor car has found its way into the White Mountains, and from all parts of New England, from New York, and New Jersey, and even from the Middle West, it is being headed toward that picturesque section of New England. Early in the season the horses were very much afraid of it, as previous to this season it was a comparative stranger. At Bretton Woods stables, where there are more than one hundred horses, the experiment was tried of bringing the horses in contact with cars of various types, until they became thoroughly acquainted with the fact that the machines would not injure them. Mr. J. F. Hathaway, of West Somerville, was the auto-philanthropist who took upon himself the task of bringing horse and motor into harmony. His first move was to drive his car into the stables, causing at first a great deal of commotion, some of the horses being so frightened that they lay down in the stalls; but with daily schooling and coaxing, most of them were soon induced to eat oats and sugar from the machines, and some of the best pupils came to this within one hour's time. It took careful and painstaking work for a few days to get them accustomed to the cars under all circumstances. The results have fully compensated the teachers for their efforts, as there has not been the slightest accident to any person, horse, or vehicle. This is the more remarkable in view of the great amount of driving and riding at Bretton Woods, the record for the eight days, August 21 to August 28 inclusive, showing 496 horses let to guests at Bretton Woods. In this equine school were fifteen spirited saddle horses that were ridden by the hotel guests, many of whom were never in a saddle until they came to Bretton Woods.

A water tube boiler has recently been designed on the counter-current system, in which the gases produced in a refractory lined furnace are caused to travel spirally down the length of the boiler tubes while water ascends the tubes in which spiral retarders are placed.

Engineering Notes.

An extensive subway system for Chicago is under contemplation, and the preliminary plans for lowering the street-car tunnels have been submitted.

A powerful cableway has been built to carry the necessary material across the river at the Victoria Falls for the bridge and permanent way. The bridge is expected to be completed by the end of this year, and the section to Kalomo, 150 miles in length, a few months later.

About 1,010 tons of steel were used in the construction of the coal storage plant for the New York navy yard, which it cost approximately $16 per ton to erect. The driving of the field rivets was the most expensive part of the work, the average cost being about 25 cents per rivet.

For protection of an iron pipe, dipping it in liquid asphaltum, rather than coal tar and pitch, is advocated. The variety of asphaltum obtained as a by-product from the California oil wells is cheap. A pipe thus coated was laid for conveying salt water, and after six years was found to be still bright, not having been attacked either inside or outside.

A new system of laying asphalt roads is being adopted in London. Instead of paving the road with one homogeneous mass of the paving material, which means the closing of the thoroughfare for a prolonged period, the asphalt is laid in slabs, in the same manner as paving stones. The asphalt slabs are previously hardened, so that all it is necessary to do is to lay them down on the prepared foundation, and cement them into position with tar. By this system a road can be reopened for traffic as rapidly as it is paved, while a further distinct advantage is obtained, as owing to the use of the tar at the joints, the surface of the roadway is less slippery than in the case of large unbroken stretches of asphalt paving.

As already notified in these columns, the British Admiralty has decided upon the utilization of liquid fuel for the propulsion of naval vessels, and the application is being adapted to the larger as well as the smaller craft. The after boilers of the battleship "Prince George" have now been fitted with oil-burning apparatus, and the necessary tank accommodation for storing the oil. The reservoirs for the latter are in the double bottoms, provision for 400 tons of oil having been made. The Admiralty, however, does not intend to supersede coal entirely by liquid fuel, but rather to utilize it for auxiliary or emergency purposes, such as when the coal is running short, or it is necessary to raise steam quickly.

A series of trials, which will prove of great value to marine engineers, concerning the weight of steam used in turbine and reciprocating engines respectively, are to be carried out by the British Admiralty. Two torpedo boats, one of which is fitted with Parsons turbines, and the other with ordinary reciprocating engines of the latest type, are to be employed for the purpose. Both these vessels are fitted with Yarrow water-tube boilers, and the boats are practically sister ships. Measuring tanks are fitted to the decks of each vessel. The condensed steam will be pumped into each of these, and carefully measured. By this method an approximate comparison of the relative economy of the two systems of propulsion will be obtained, for it will be possible to ascertain the actual weight of steam passing at any stated periods, such as an hour, through the machinery. Every care will be observed to render the records as accurate as possible, so that a practical estimate may be obtained.

The completion of the recently sanctioned railroad up Mont Blanc will signalize the highest railroad in the world. The franchise for this achievement has been granted by the French government to Messrs. Deraud and Duportal, two well-known engineers. The railroad will have its lower terminus at the town of Fayet, and climb the southern slope of the mountain range to the summit three miles above. In the design of route to be followed by the railroad, special attention has been paid to scenic effect for the edification of tourists, so that magnificent Alpine vistas may be obtained from all of the stations. Owing to innumerable engineering difficulties in the scheme, the railroad will follow a tortuous route. Also owing to the necessity of enabling passengers to become accustomed to the gradually rarefying atmosphere, the speed of ascent will only be equivalent to a horizontal speed of one mile an hour, so that the entire journey will occupy four hours. The railroad will be electrically operated, the necessary motive power being supplied from the mountain torrents and waterfalls abounding in the district. Twelve round trips a day will constitute the service, and in the event of the electric power failing, powerful gasoline cars will be retained, in readiness to resume the service until the electric fault is repaired. The round trip will cost $4. The construction of the railroad is estimated to cost $175,000,000. Each section of the railroad will be opened for traffic as soon as completed.