

**NEW APPARATUS FOR CHAMPAGNIZING WINE.**

M. René le Grand, of Marcey, has recently invented a very interesting apparatus by which wines are rapidly "champagnized" without resorting to the complicated processes that have hitherto been employed. The apparatus is christened the "Moussogène" ("froth-generator"), and is used by the inventor for champagnizing his wines in order to render them salable at more remunerative prices. It consists of a steel tube, which revolves upon a pivot, and to which are adjusted glass globes connected at each end by distributing valves of silver-plated bronze. Under these latter, through levers placed at the top and bottom of the apparatus, the bottles to be filled are compressed. These globes, which serve as carbonic acid collectors, are constantly supplied by a cylinder filled with the gas.

The wine, prepared in advance, is contained in a cask that communicates with the apparatus through a special tube. Upon this cask is exerted a slight pressure of carbonic acid flowing through the tube. This pressure prevents access of air to the liquid and causes the latter to ascend to the bottle without any shock. Upon slightly opening the cock whereby the globes and bottles are placed in communication, and pressing the lever already mentioned, the carbonic acid immediately expels the air from the bottles and sterilizes them. The bottles are then filled by manipulating the cocks that break or establish communication with the tube through which the wine from the cask flows. The apparatus is then turned over so as to cause the bottle occupying the upper position to take the place of the one occupying the lower. The wine, descending by its own gravity in a thin stratum of a wide surface, successively traverses the collectors charged with carbonic acid and flows frothing into the lower bottle. The operation is continued in the same way with the following bottles and consumes but 45 seconds. The saturation is so perfect, it seems, that the corking can be effected without any haste. This apparatus permits of converting still wines of all kinds into sparkling ones, and, at the same time, of preserving their particular qualities. It is applicable to other beverages, such as beer, cider, milk, etc. It has the advantage of being simple and practical for each.

The claim made for it that it first sterilizes the bottles needs verification, since the carbonic acid, under the conditions in which it is applied, can, it would seem, exert but a very slight antiseptic effect.

**A NEW FORM OF APPARATUS FOR THE ELECTROLYSIS OF WATER.**

BY DR. ALFRED GRADENWITZ.

The electrolysis of water by the electric current has been known for more than one hundred years, but not until the electric current could be generated on a more extensive scale and supplied cheaply was it possible to prepare oxygen and hydrogen on a commercial basis.

At present water is decomposed in iron vessels having iron electrodes, alkali electrolytes being employed. Most of these apparatus, however, require considerable space and are very inconvenient on account of insulation, elaborate connections, and gas pipes they require when a certain number of cells are connected in series.

These drawbacks are avoided by an apparatus for the electrolysis of water designed by the Maschinenfabrik Oerlikon

near Zürich, an apparatus which is simple in design and which requires little supervision.

The apparatus is made in sizes up to 30 horse-power for connection with a direct current circuit up to 250 volts. A number of cells are connected in series,

openings in the plates into two separate pipes, by which they are conveyed into the separators together with the liquid. Here the gases are separated from the liquid, the latter being carried back by a common pipe into the chambers of the apparatus. Thus by means of the gas generated in the chamber an automatic circulation of liquid is effected as the circuit is closed. The electrolyte of the apparatus is a 10 per cent solution of potash, in distilled water, which is not altered in course of operation; the decomposed water, however, must be replaced by distilled water. As regards gas pressure, the normal construction renders it possible to supply gases under pressures up to 2½ meters of water.

When operated for a period of twenty-four hours, the apparatus must be cleaned about every eight weeks. No supervision is necessary during operation apart from the renewal of water.

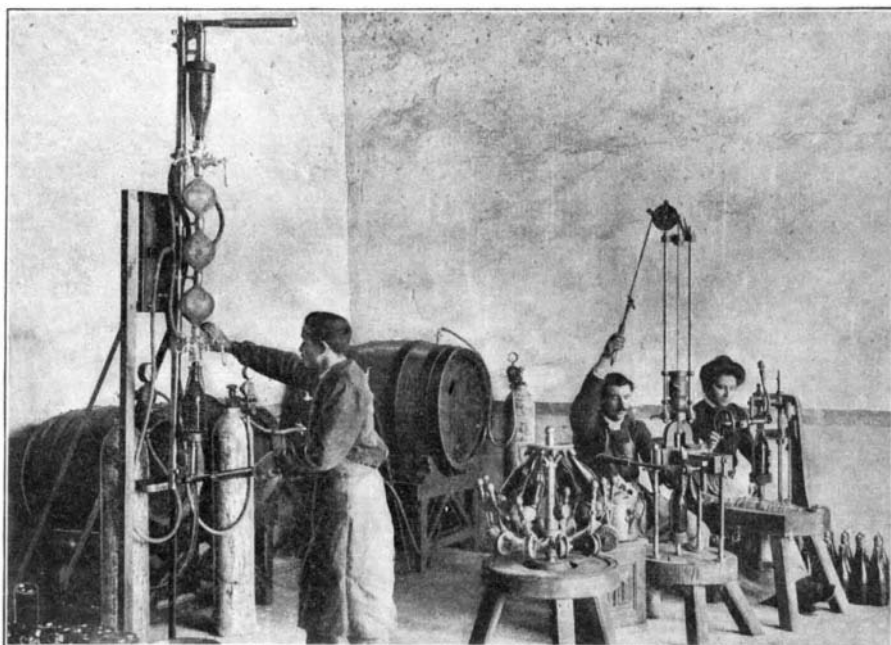
An apparatus yields per kilowatt hour 168 liters of hydrogen, 84 liters of oxygen, decomposing 134 grammes of water. When used warm the output is about 8 per cent higher. Temporary overloads as high as 20 per cent are readily supported.

As regards the purity of the gases, the oxygen is 97 per cent pure and contains a little hydrogen and carbon monoxide. The hydrogen contains 99 per cent of pure hydrogen and about 1 per cent oxygen.

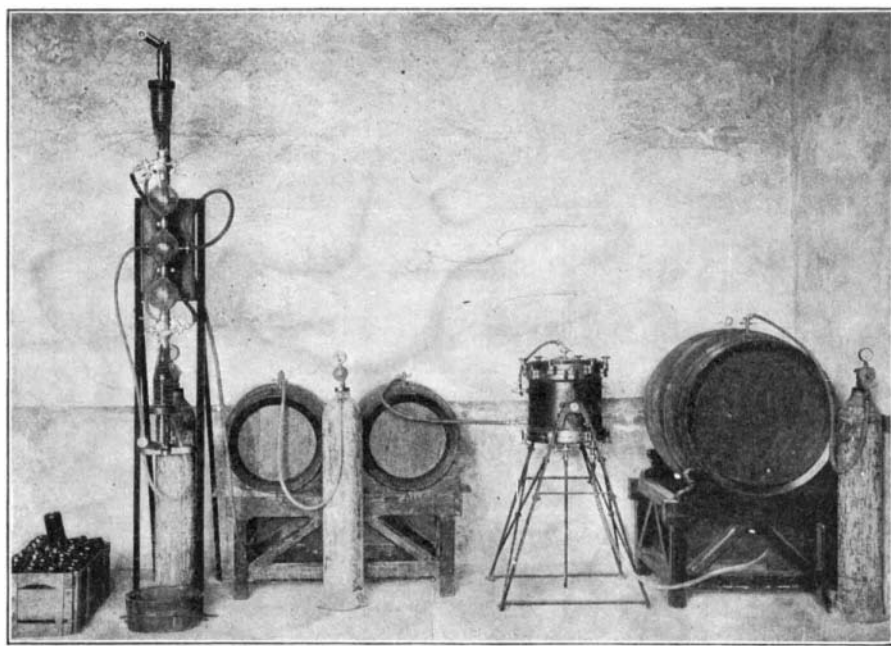
The tension required per chamber of the cold apparatus is about 2.7 volts. After the operation has gone on for about eight hours, the apparatus attains with about 60 deg. C. (140 deg. F.) its maximum temperature, when 2.3 volts only will be required per chamber.

In order to produce 1 cubic meter of oxygen and 2 cubic meters of hydrogen, about 12 kilowatt hours are necessary, the price of the gases being mainly dependent on the price of the power. The price of the power according to conditions prevailing in Germany varies from 0.2 cent per kilowatt hour in the case of economical hydraulic power up to 6 cents and more in the case of a small steam plant. When taking an average rate of 1 cent per kilowatt hour, 1 cubic meter of oxygen (with 2 cubic meters of hydrogen obtained at same time) will cost 12 cents; 1 cubic meter of hydrogen (with ½ cubic meter of oxygen simultaneously obtained), 6 cents; and 1 cubic meter of mixture, 4 cents.

Mylius Ericksen's expedition, after two years and a half spent in exploring Greenland, has returned with some valuable ethnographical and scientific records, the explorers having lived with the natives and studied their language and customs. The Ericksen expedition was last heard from May 21, at the Danish colony of West Greenland, where it had arrived after much hardship and suffering. Whalers which had arrived at Dundee on November 16, 1903, reported that they had found the expedition on Saunders Island in a pitiable state of destitution. Count Moltke, the artist of the expedition, was very ill at that time. The explorers, in the company of Eskimos, were living in a tattered tent, and their food was almost exhausted, their reliance being upon eggs, which were to be found in good supply on the island. They had only one gun, and had abandoned their boat and one sledge at the northern part of Melville Bay. The whalers left them supplies.

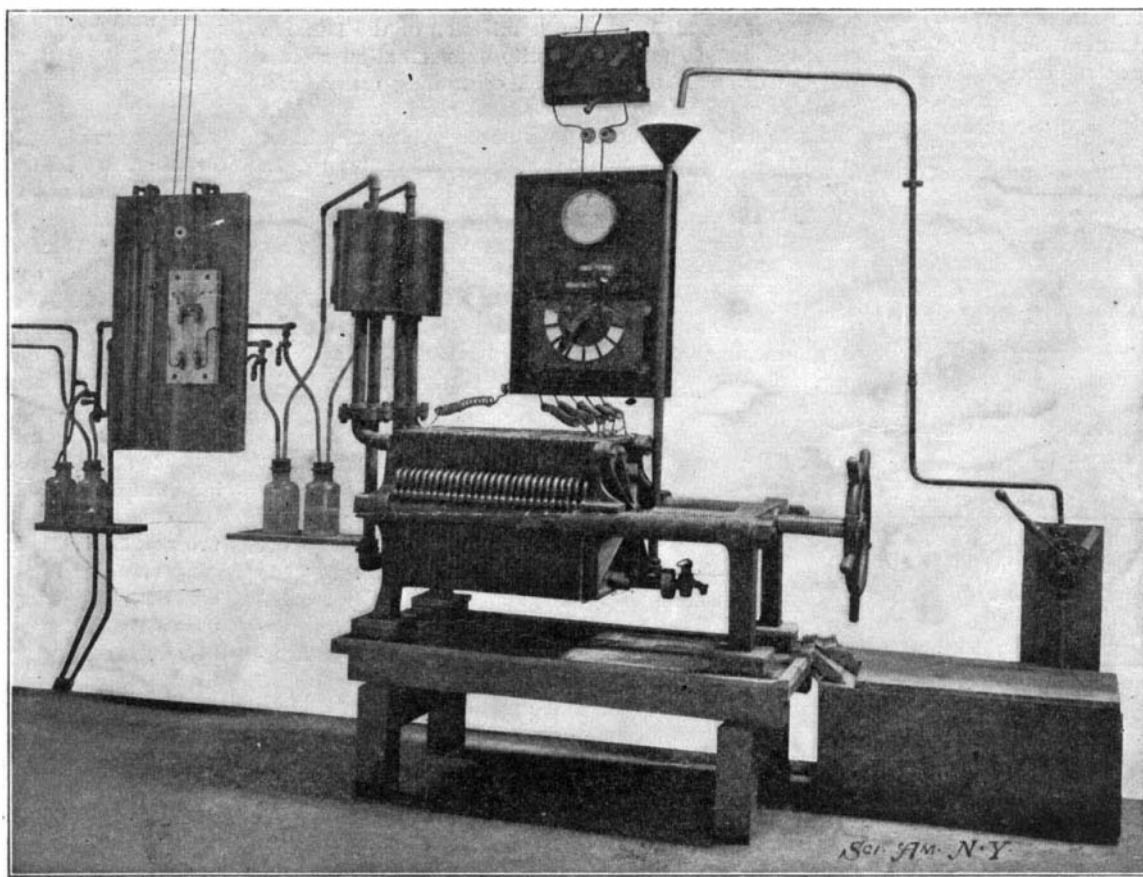


Admitting the Carbonic Acid Gas and Corking and Sealing the Bottles.



APPARATUS FOR CHAMPAGNIZING WINES.

the electrodes of which are cast iron and arranged as are the plates of a filter-press. Between the electrodes are resistant diaphragms, serving at the same time to insulate and to stiffen the plates. The gases produced at the surface of the electrodes pass through



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Voltage, 65; amperage, 30; output per kilowatt-hour: 168 liters of hydrogen, 84 liters of oxygen.