

A FLOATING THEATER.

BY W. FRANK M'CLURE.

Perhaps the most interesting of new vessels plying the Ohio, Illinois, and Mississippi rivers is one built upon an extensive scale for use as a floating theater. The seating capacity is for 1,000 people, and there are boxes for the *élite* and a pit for the orchestra. In addition, the vessel is sufficiently large to admit of numerous sleeping rooms for the actors, the deckhands, and all those connected with either the show or the boat. The entire force numbers forty. On the steamer which tows the floating theater, besides the boilers and engines, there is a complete electric light plant, besides a kitchen and dining room.

In view of the fact that the long water route of the floating theater carries it into the warmer portions of the South, the season for the show does not close until late in the southern winter. The entire route comprises 2,500 miles. The boat starts at Pittsburg and visits the towns of the coal miners and steel workers along the Monongahela River. Next it returns and goes down the Ohio to the Kanawha, thence to Cairo, and later up the Illinois River to La Salle. Then after going back to the Mississippi, the boat slowly makes its way in the direction of New Orleans. The idea of a floating theater is not exactly new, but the extensive scale upon which it is being carried on and the fact that it is the drama instead of the vaudeville programme that is being presented, attract unusual attention to the boat herewith pictured. "Faust" is the production which has been presented this season.

Along the route of the floating theater the towns are often but ten or fifteen miles apart. Therefore the jumps of the boat and its company are not long ones. On the upper deck of the steamer is a calliope. Long before the theater reaches the town in which it is to show, the sounds of this instrument may be heard. The idle population of the river towns at once begins to assemble on the wharf. As the steamer comes within a few hundred feet of the dock, the calliope is silenced and a brass band strikes up a familiar air. The crowd on the wharf then grows larger. Many are there awaiting the first opportunity to secure reserved seats. When the boat touches the wharf the sailors, some of whom later are transformed into actors, make the vessel fast and put the gangplank in place. The scenery is arranged and the orchestra rehearses while the cook is preparing the next meal in the kitchen. The people come aboard and select their seats instead of doing so from a diagram on shore. At night the theater is brilliantly lighted by electricity and a searchlight flashes over the surrounding territory. The entertainment lasts about three hours.

A NEW CHLOROFORMING APPARATUS.

BY EMILE GUARINI.

We illustrate herewith a very interesting apparatus for the administration of chloroform which was invented some time ago, and experimented with upon an extensive scale, by Dr. Roth-Draeger in collaboration with M. Guilleminetti. Chloroform, as is well known, is the best of anæsthetics, but the administration of it is a dangerous and delicate operation. So, as long as death or danger lurks in chloroformization, it is the duty of scientists to seek a means of obviating all mischances. For this purpose, inhalations of oxygen have been employed, and this method was proposed by Ducray so long ago as 1850, in a note to the Académie des Sciences. The good effects of anæsthesia obtained with chloroform mixed with oxygen have been noted by Krantzmann, of San Francisco, North-

rop, Schall, Hart, Prochoconik, Championnière, and Neudorffer, who pumped this gas through a Junker apparatus. But the difficulty experienced, up to but a few years ago, in procuring chemically pure oxygen, necessarily contributed toward discouraging innovators. Even granting that oxygen were of no importance to anæsthetized persons, the value of the apparatus

100 liters of air, it is kept under perfect anæsthesia for 6 or 7 hours. The labors of Paul Bert have demonstrated that the anæsthetic state depends upon a certain tension of the gas in the blood kept up by the tension of such gas in the air respired, and that it is a question not of the quantity, but of the proportion of the gas mixed with the air. The apparatus under consideration permits of administering chloroform always mixed with a certain quantity of oxygen and air, and never in too concentrated a state. In this way it completely abolishes the injurious local action of concentrated chloroform upon the mucous membrane of the respiratory tracts, so that there is no longer any danger of laryngeal spasms, of suffocation, or of glandular hypersecretion. In case of symptoms of asphyxia in the course of a long anæsthetization of a patient exhibiting a weakness of the heart, it is possible to use the current of oxygen alone and cease the administration of chloroform.

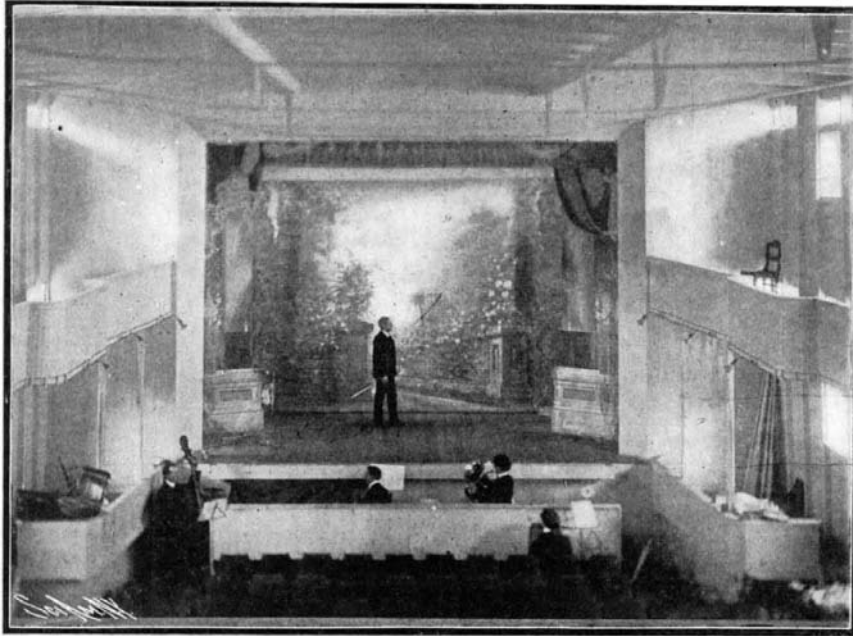
Anæsthesia has already been produced thousands of times with this apparatus in the Hospital of Hamburg-Eppendorf and in that of Lübeck, etc., and all the administrations have proved more effective and easy than with the compress or mask. The interesting point is the small quantity of chloroform employed, from 20 to 40 grammes sufficing for an anæsthetization of from 1¼ to 1½ hours. From an economic standpoint, the expense involved by the use of oxygen is compensated for by a saving in chloroform.

The apparatus comprises: (1) a metal cylinder containing oxygen under a pressure of from 120 to 150 atmospheres; (2) a cock that permits of turning on the current of oxygen, and another that permits of proportioning the quantity of chloroform per minute; (3) a glass flask containing the chloroform; (4) a bag of gold-beater's skin serving as a temporary reservoir for the oxygen; and (5) a metal mask. This latter is provided with a small aperture for the entrance of pure air, so that the patient shall not inhale pure oxygen. The patient inhales about 8 liters of air per minute. If 3 liters of oxygen are given, he will inhale from the exterior through the aperture 5 liters of air. As such air contains 1 liter of oxygen and 4 liters of nitrogen, the patient will inhale a 50 per cent mixture of air and oxygen. The mask is provided likewise with a wide aperture furnished with a valve for expiration.

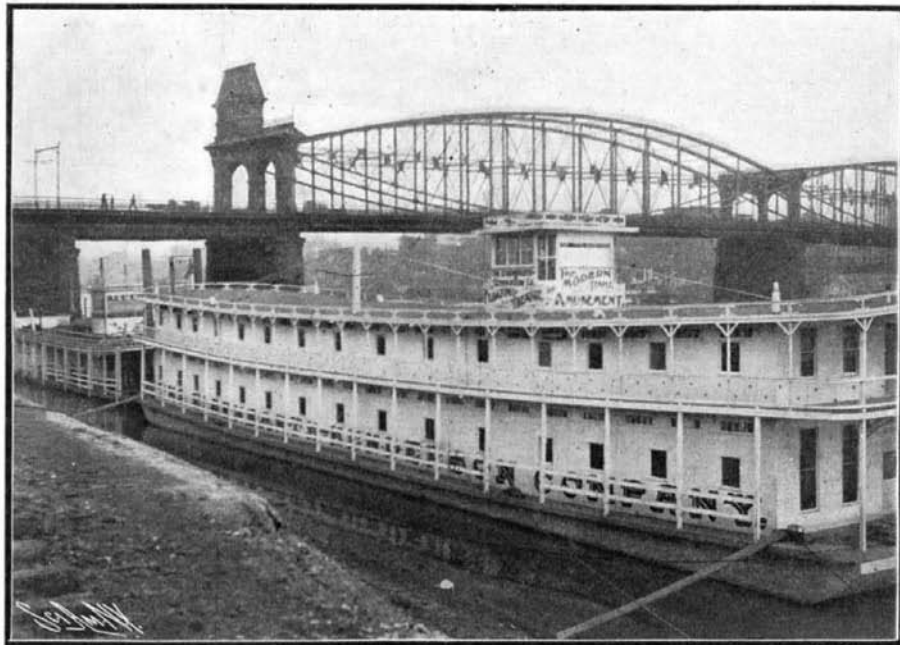
The expander causes a lowering of the pressure of the oxygen, which passes into a tube and, acting after the manner of the Bunsen burner, sucks up the chloroform contained in the flask. A cock permits of regulating the suction and, consequently, of administering the chloroform in varying quantities. After the mixture is formed, it passes into the bag, where it accumulates during the expiration, and whence it escapes during the aspiration.

In order to make use of the apparatus, the main valve, *M*, of the oxygen cylinder is opened, and then the supply valve, *O*, of the same. The pressure, being too strong, is reduced by actuating the thumb-screw, *Q*. The quantity of oxygen per minute is then regulated according to the indications of the gage, *P*. The proper quantity of chloroform is given by means of the valve, *R*. By shutting off the oxygen at *O*, the inhalation of the chloroform is arrested. If it be desired to administer oxygen only, all that has to be done is to close the chloroform valve, *R*. The gage, *F*, indicates the quantity of oxygen remaining in the cylinder.

In order to begin the anæsthetization, the oxygen alone is allowed to flow into the mask for from one to two minutes, and the patient is requested to take a deep inspiration. Then the indicator of the chloroform valve, *R*, is put upon the figure 10 or

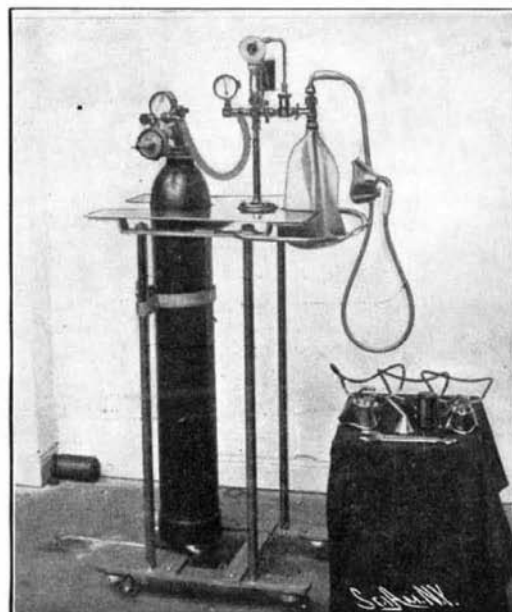
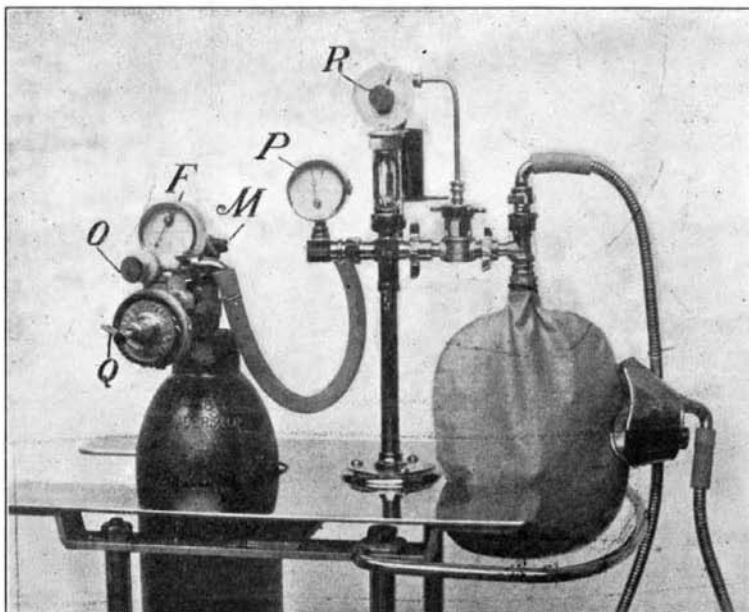


THE INTERIOR OF THE FLOATING THEATER.



THE FLOATING THEATER WHICH TRAVELS A ROUTE OF 2,500 MILES.

is not diminished. It allows a patient to respire a mixture of air, oxygen, and chloroform, the quantity of the latter being exactly proportioned per minute by the current of oxygen, regulated to 3 or 5 liters per minute. The apparatus is provided with an expander of precision, to the construction of which M. Guilleminetti has contributed by his researches upon the efficiency of the inhalations of oxygen in mountain and balloon sickness. The exact quantity of chloroform mixed with the air by the oxygenated current, that is to say, the proportioning of the mixture, is of considerable importance, and herein lies the merit of the new apparatus. With a mixture of 25 grammes of chloroform and 100 liters of air, a dog is killed in 10 minutes, but with 6 grammes of chloroform to



A NEW APPARATUS FOR THE ADMINISTRATION OF CHLOROFORM.