Glycerine in Wine.

The usual method of determining glycerine in wine is that officially recognized by the Berlin committee of 1884, although it is far from ideal. The residue which is obtained by evaporating the wine together with quartz sand and milk of lime nearly to dryness is difficult to remove from the dish in which the evaporation has been performed, and a certain quantity of glycerine is apt to be left in the residue after extraction. The following are the modifications proposed by the author: 10 c. c. of the wine are well mixed with 0·1 of a gramme of powdered calcium hydrate, 10 grammes of quartz sand added, and the whole evaporated almost to dryness on the water bath. The residue is extracted four or five times with hot absolute alcohol, and the extract, amounting to 40-50 c. c., is filtered into a flask holding about 100 c. c., then evaporated on the water bath, sirupy residue dissolved in 5 c. c. of alcohol, 7·5 c. c. of ether added, the flask well corked, allowed to stand some hours, and the clear solution poured into a weighed flask (previously filtering if necessary), the alcoholic liquid evaporated off, and the residue dried for one hour in the water oven and weighed. This method, when tried on seven samples of Servian wine, containing from 0·7 to 1·0 per cent of glycerine, gave results ranging from 0·1 to 0·36 per cent higher than the old method; while, at the same time, closely concordant results were obtained by repetitions of the new method, and also when it was carried out on a scale ten times as great as that prescribed above. In order to ascertain whether the compound formed of lime and glycerine by evaporation to complete dryness resisted the solvent action of the alcohol, further experiments were made in which this condition obtained, with the result that the percentage of glycerine found was not diminished, but slightly increased. Should this observation be confirmed, the need for special precaution in the evaporation will be obviated. The author also states that he has obtained good results by evaporating an aliquot portion of the alcoholic extract, by which means previous filtration and washing necessary to the original process are avoided. He has yet to prove the purity of the glycerine thus isolated.—*M. T. Lecco, in Chem. Zeit.*

REYNAUD'S OPTICAL THEATER.

We have several times spoken of the apparatus constructed by Mr. Reynaud with the object of improving the methods of projections and that permit of obtaining the illusion of movement and life through optical processes.

The apparatus that produce the synthesis of the successive phases of an action have, up to the present, all (from Plateau's phenakistiscope to Reynaud's praxinoscope) been limited by their very nature to the reproduction of a motion or, at the most, of a very simple action, every rotation of the apparatus evidently being capable only of repeating the effect produced by the preceding rotation.

The object of the optical theater is to extend the illusion to the reproduction of a large series of actions, and of thus realizing the reconstruction of an entire scene through optical synthesis.

To this effect a band of great length carrying a large number of poses replaces the crown of the old apparatus. In order to present the animated scenic illusion to a great number of spectators, it was necessary to give it large dimensions, which is something that can be done only by projection upon a screen.

But, in order to obtain such illusion under good conditions for the operators, it is necessary that the postures shall succeed each other on the screen without a break; in other words, that there shall be no extinction or eclipse between two successive postures.

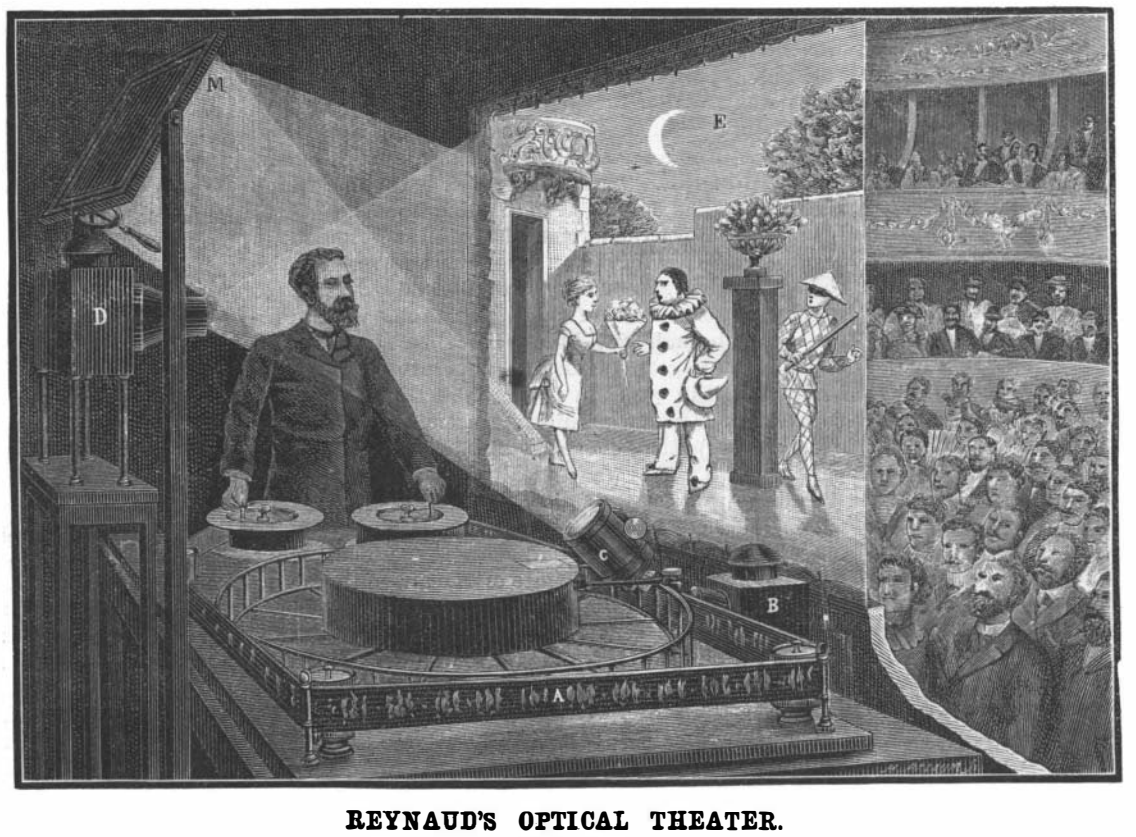
This continuity of the image, obtained already by the praxinoscope, invented in 1877 by Mr. Reynaud, has not, up to the present, been realized by any projecting apparatus.

The optical theater, by its very construction, realizes it in such a way that the succession of the postures may be interrupted at every instant without the image ceasing to be illuminated and visible upon the screen. This property permits, in the representation of the animated stage, of reposes and repetitions which, at the same time, increase the truthfulness of the effect and the duration of the scene represented. The optical theater thus allows spectators to witness complete scenes (pantomimes, interludes, etc.), lasting from 15 to 20 minutes, with a number of postures and a length of band that remain within practical limits. It thus produces a spectacle both interesting and amusing.

Moreover, the optical theater seems as if it will hereafter constitute the typical apparatus for the synthesis of the photographic series of successive postures, and it is doubtless in this direction that it will in the future find its principal application, when the improvements in instantaneous apparatus and the reduction in the cost price of photogenic films will have permitted of easily and cheaply obtaining very numerous series of such postures.

Our illustration represents the arrangement of Mr. Reynaud's new optical theater. The crystalloid band upon which the images are painted is represented at A. The operator can revolve it in one direction or the other by means of two handles. The images, reproduced by a special process of reproduction in colors, pass before the lantern, B, and are projected through the intermedium of a lens, C, upon an inclined mirror, M, which projects them upon the transparent screen, E. Another projection lantern, D, causes the appearance upon the stage of the scenery amid which appear the characters changing postures painted upon the band, A.

Mr. Reynaud has got up some very amusing scenes, especially the three-character pantomime entitled "*Pauvre Pierrot.*"—*La Nature.*



REYNAUD'S OPTICAL THEATER.

The New York State Canal Convention.

It is proposed to hold a convention this fall for the purpose of promoting the improvement of the canals of the State of New York. In paralleling the through railroad routes from Lake Erie to tidewater the Erie Canal figures as the connecting link in a complete water service, covering all the great lakes. In this connection its enormous importance as a competitor for freights with the railroads cannot well be overestimated. The other canals perform similar service, and their value in keeping down the freight charges on railroads is of the utmost importance also. This is a service directly affecting the producer. Anything done to promote the efficiency of the canals is a service to the farmer and lumberman, as well as to the consumer of their products. It is even claimed that New York would have never attained her relative importance among the States but for the canals.

From 1871 to 1891 the total tonnage of the New York canals was 106,844,759 tons, whose value is estimated at over three thousand millions of dollars. During the year 1891, one-third of all the grain brought to this port came through the canals.

It should be enough to remember that railroad rates are pool rates; that in 1891, on the opening of the Erie Canal, in May, the railroad rate for grain was 7½ cents per bushel, when the canal at once offered transportation for less than one-half this figure, 2⅝ to 3 cents a bushel. These figures show the value of the Erie Canal.

Again, when the canals are opened, New York receives nearly double the quantity of grain that Philadelphia, Baltimore and Boston combined can show. When the canals close, the New York receipts drop off to about the same as those of the three ports mentioned. Canal navigation is closed for five months. During their seven months of operation their value to the port of New York is immeasurable.

What is needed now is the improvement of the canals. They need to be deepened, the locks should be enlarged, and everything possible done to increase their efficiency. The present tendency seems to be to let them alone. This policy will be a very bad one for the port of New York.

The affairs of the convention are in the hands of the Union for the Improvement of the Canals of the State of New York, 55 Liberty Street, New York, N. Y. It is to be hoped that the ends in view will be speedily attained.

Laxative Lemonade.

The *Pharmaceutical Record* says that a preparation known as laxative lemonade is prepared in Germany by dissolving 30 to 50 grammes tartrate of soda in 500 grammes of hot water, allowing the solution to cool, and adding to it 50 to 100 grammes of flavored simple sirup. This mixture is then transferred to strong glass bottles and charged with the weight of several atmospheres of carbonic acid gas. This is said to furnish a cheap and effective substitute for citrate of magnesia.