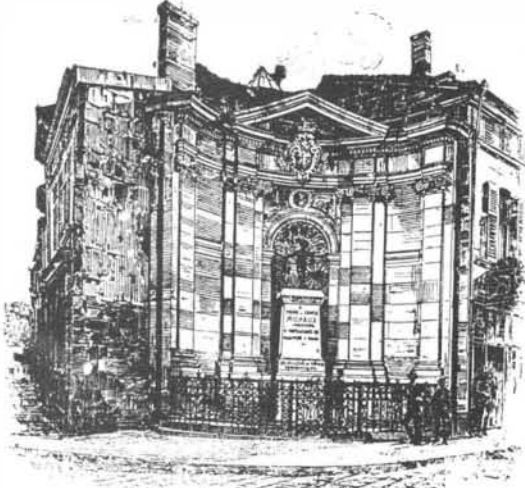


MONUMENT TO THE MEMORY OF THE INVENTOR OF THE BICYCLE PEDAL.

The velocipede was of comparatively little importance until a few years ago, but at present its use has become almost universal. This remarkable result has been due to the bicycle. This frail machine is used by turns for sporting, exercise, industrial and commercial purposes, and in war as well as peace. The popularity of bicycling in France is largely owing to the efforts of a popular paper, *Le Petit Journal*, which, since 1891, has not ceased to speak in favor of the exercise which was formerly disdained. In 1861 Pierre Michaux, aided by Ernest Michaux, applied the pedal to



THE MONUMENT TO THE MICHAUX BROTHERS.

the old velocipede, which was propelled by the action of the feet on the ground. Bicycles had then considerable success in the last years of the Empire. The war ruined both the Michaux, and France took little interest in the development of cycling until 1880, when the safety bicycle was put on the market. In 1892 a committee was formed, with M. Pierre Giffard as chairman, to honor the memory of Pierre and Ernest Michaux, who may be looked upon as the real initiators of the great movement in favor of cycling. In a year and a half several thousand francs were collected from cyclists, manufacturers and friends of the enterprise. As Pierre Michaux was born in Bar-le-Duc, the monument to the inventors of the bicycle pedal was erected at the intersection of two streets in that city. The architectural background for the work was designed by M. Demoget, while the charming bronze figure is a work by the sculptor Houssin. The inauguration of this monument took place Sunday, September 30, 1894. For the foregoing particulars and for our illustrations we are indebted to *L'Illustration*.

Ceramic Photographs.

The picture is on porcelain, or other vitreous ware, and jappaned; that is, its surface when finished is as



THE MONUMENT ERECTED AT BAR-LE-DUC IN HONOR OF THE MICHAUX BROTHERS INVENTORS OF THE BICYCLE PEDAL.

hard and durable as a good old-fashioned jappaned tea tray, for example. As the images are produced by the carbon process, it goes without saying that they may be in any color that may be desired.

The process is carried out in the following manner: A carbon print is produced, preferably by the single transfer method, on the ware, which may be a porcelain plaque, a glass or metal plate, indeed upon any impervious material upon which a carbon print can be developed, and which will also withstand a considerable degree of heat. So far as the production of the carbon image is concerned, there is nothing different from the ordinary method of procedure; it is after this part of the work is completed that the novel portion of the process comes in. We will here digress for a moment to explain tersely what is known as jappanning. This consists of coating the surface with a suitable varnish, in repeated thin layers, and then subjecting it for a time to a tolerably high temperature. The varnishes generally used for this class of work are amber and copal. The former yields, perhaps, the harder film; but the latter, if good, is little, if anything, inferior, while it is whiter, a consideration for our present purpose. It may be mentioned that it is not all amber or copal varnishes that are suitable for jappanning. Those that must be used are what are specially prepared for "stoving." The varnish we have used very successfully was purchased under the name of "white dial varnish." It gave a colorless film, and was exceedingly hard and bright when the picture was finished.

Mention was just made as to the varnish being applied in successive thin coatings. They are put on with a camel's hair brush, but a fresh coating must not be applied until the previous one is thoroughly dry and hard, this condition being hastened by a moderate heat. If any brush marks are apparent, they may be disregarded, as they will disappear in the final stoving or in the after operation of polishing. After the work has been stoved, that is, kept at a temperature of from 150 degrees to 200 degrees Fah. for some hours, it is allowed to cool. The surface is then polished, first with pumice powder, then with tripoli and oil, and finally with putty powder, as lenses are polished. It will now be seen that the surface will possess an exceedingly high polish, and, if amber be the varnish used, it will be as hard and durable as the amber used for the mouthpieces of cigar holders and the like.

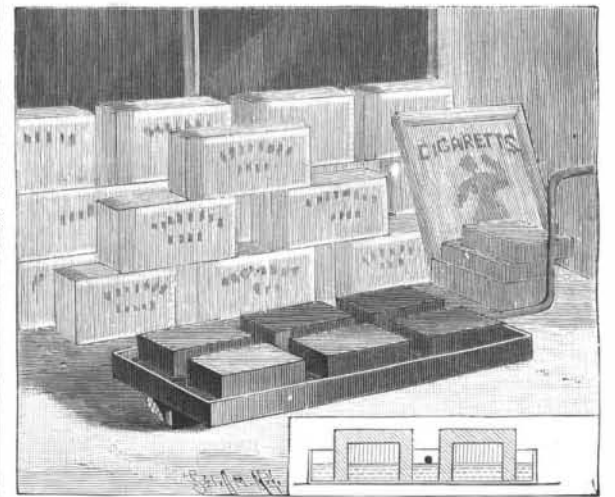
Here is the way we proceeded. The carbon print was developed on an opal plaque and allowed to dry. A thin coating of the white dial varnish was then laid on with a flat camel's hair brush. It may be mentioned that the varnish used for this coating was thinned with about an equal bulk of turpentine. Successive coatings were then applied, and finally the picture was stoved and polished as just described. The source of heat for the stoving in our experiments was the oven of the domestic kitchen, and it answered the purpose well, as the heat was perfectly under control.

In making pictures by this method it may be ad-

visable to employ a tissue that contains a maximum of pigment and a minimum of gelatine, so that the film bearing the image is of a somewhat porous nature. The first coating of the varnish will then permeate it, and so bind it more firmly to the ceramic base. It is needless to mention that the pictures can be colored, if desired, before they are jappaned.—*British Journal*.

A TOBACCO OR CIGAR MOISTENER.

The illustration represents an improvement designed to facilitate the moistening of the air in show cases, etc., in a more effective manner than by the use of sponges, as usually employed. It has been patented by Mr. Jay A. Robinson, of Denver, Col. The moistener consists of a rectangular hollow porous block, having an open bottom and with its lower edges roughened to permit the entrance of water. A number of these blocks are placed in a tray containing water, and the tray may, if desired, be connected with inlet and outlet pipes to maintain a constant supply of fresh water, although this will not be necessary for ordinary use. These blocks are designed to present a better appear-



ROBINSON'S TOBACCO OR CIGAR MOISTENER.

ance and be more conveniently attended to than sponges, while exposing a larger moist surface to the air.

The Causes of Epidemics.

In a lecture given recently to the Halifax Scientific Society, Dr. Solomon Smith drew attention to the fact that to produce an epidemic prevalence of any disease the co-operation of many causes was necessary. These factors might be grouped as:

1. Those which increased the susceptibility of individuals, about which we knew but little.
2. Those which favored the outside growth and development of the infection—heat, moisture, organic impurity of soil and water, aeration of soil, etc.
3. Those which favored the fouling of the water, floods or droughts, according to circumstances, varying level of subsoil water, construction of wells, tanks, and water supplies, their relation to cesspools, and surface pollutions, and social habits of the people by which such pollution was encouraged and carelessness as to drinking foul water induced.
4. Those by which the infection was transmitted from place to place, especially movements of large masses of people, as in pilgrimages and wars, and the rapid distribution of cholera-infected people over large areas in some part or other of which a suitable nidus for fresh growth of the infection would be likely to be found.

Cholera was, no doubt, continually being exported from its home in India; but it only occasionally became epidemic in those places where it was an exotic, and when this happened we must look for an explanation not merely to water carriage, which was the mere mechanism of its spread, but to a coincidence of those varied and complex causes which assisted in the intensification of the disease. To some extent the production of an epidemic was analogous to the opening of a "word" lock. As all the letters must be placed in position before the lock could be opened, so many factors must combine before an epidemic of cholera could be caused. The converse of this, however, was also true, and on this was founded our protection from cholera, for however little we might know with precision about some of the multiplex causes of a cholera epidemic, we did know that one essential cause, one letter to the lock, was the swallowing of the poison, and thus by a provision of pure water we were able to break up the combination by which alone an epidemic could be produced.—*British Medical Journal*.

Nitrate of Soda Freezer.

Instead of ice and salt, nitrate of ammonia is used. For a small ice cream freezer, 7 pounds of the nitrate and 3 quarts of water. The freezer is then rotated. The cream or water is quickly frozen if the material is first cooled down before applying the nitrate. The nitrate is recovered for reuse by evaporating the solution to dryness on the kitchen stove.