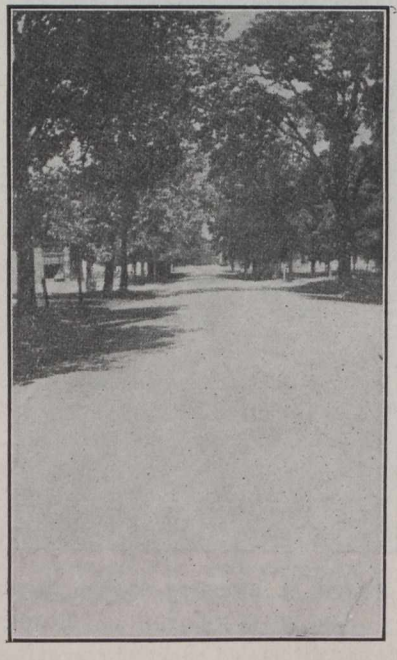
section was about 1,200 gallons per day. After pouring the tar on the road a small quantity of ¾-inch stone was then applied, just sufficient to keep the roller from the tar compound, and the surface was well rolled. Stone chips about ½ inch in size were then spread on and well rolled in. A light coating of ¼-inch screenings and dust was put on, to protect the road surface until the compound had a chance to get set up. This was rolled until firm. On the remainder of the section, 127 feet in length, the compound was applied in two coats. On the top course of stone, which had been filled previously with ¾-inch stone, well rolled in, 1.67 gallons per square yard was poured, at a temperature of 250 deg. F. This was applied at the rate of 1,000 gallons per day. Sufficient ¾-inch stone was spread over the surface to keep the roller from sticking and was well rolled in. A surface coating of .44 gallons per square yard, at a temperature of 280 deg. F., was then put on at the rate of 3,000 gallons per day. One-half inch chips were put on and well rolled in. This was followed by a light coating of ¾-inch screenings and dust, to protect the road surface while setting up. On this section, therefore, there was applied a total of 2.11 gallons of the compound per square yard.



Section IV. Tarvia "X" Binder.
Ohio State Experimental Road.

The weather conditions during the construction of the second part of this section were slightly unfavorable, due to a shower at night, which delayed the completion of the rolling of the section.

This section seems to be in the same condition throughout, no difference being evident, due to the two methods of construction. At one point on the road, where the seepage water from an overhead railroad crossing had dripped on the road surface, the binding material has been entirely removed from about the stones, leaving them entirely exposed. This erosion may be due to the fact that the water has dropped through a distance of about 15 feet, and may not indicate that the binding material is likely to be washed away when ruts and hollows furnish an opportunity for the water to act on the road surface.

Experiment No. 8—Fairfield Asphalt Cement.

This material, which is described as a refined asphaltic cement, was applied to the top course of a two-course macadam road. This top course consisted of stone from 1½ to 3 inches in size, in a layer 4 inches thick, and it was thoroughly rolled before applying the asphalt, but without any screenings or other filler. The asphalt was heated in a small heating tank at the side of the road and applied on the road by the use of buckets. The work was done about the first of August, when the weather was extremely warm. The asphalt had been shipped in barrels, and it was so heavy and viscous that in order to remove it the barrels were cut in halves with axes, and on account of its adhering to the staves it was frequently necessary to throw them into the heating tank to save the material. After the asphalt had been applied, stone chips, varying in size from ½ to ¾ of an inch, were applied to the surface of the road to a depth of about ½ inch. This was then thoroughly rolled, the chips being forced into the voids of the macadam, and also forming a surface over the top which prevented the asphalt sticking to the roller. When this rolling was completed, the road was ready for travel.

This surface is in splendid condition, and even under the weight of the 9-ton roller mentioned, it did not show marked depressions where the calks on the wheels had pressed.

Experiment No. 9—Asphaltoilene.

In the manufacturer's description of this material it is stated that it "is made from a heavy natural oil with an asphalt base and not containing paraffin. This natural oil contains so little of the illuminating oils or valuable products that it is not worth refining for their extraction. It is, therefore, never 'cracked' or coked, but contains a high percentage of liquid asphalt with sufficient oil to act as a solvent and vehicle."

This material was applied on a macadam road prepared after the manner of experiment No. 8, excepting that the stone in the top course ranged in size from 1 to 2½ inches. The material was heated in a small heating tank placed at the side of the road and poured on the road with buckets.

After the asphaltoilene had been applied, ½-inch stone screenings and dust, in about equal parts, were spread over the surface of the road to a sufficient thickness to fill the voids and make a smooth and uniform surface, and the road was rolled until it was thoroughly consolidated and the asphaltoilene showed a tendency to stick to the wheels of the roller.

This section showed plainly the marks of the traction engine wheels, and also the prints of horses' hoofs, much after the manner of an asphalt pavement. The surface is smooth and dustless.

Experiment No. 10—Wadsworth Macadam.

This material is Kentucky rock asphalt, very finely ground. It was applied on the top course of a macadam road, prepared after the manner of experiment No. 9. About one inch of the asphalt was spread over the surface of the stone and evenly distributed with hand rakes, and then thoroughly rolled with a steam roller, forcing the asphalt into the spaces between the stones. This probably penetrated beneath the surface of the stone for an inch or more. After this had been thoroughly rolled, another layer of about one inch of asphalt was spread, and this was again rolled thoroughly. This material was applied in warm weather, but without artificial heat. When first completed the road tracked very readily; horses' feet and the wheels of vehicles marked it in such a manner that it seemed that it would soon be destroyed. After a few weeks of travel, however, the surface began to get firmer, and in a short time became very smooth.

It is said that for some time after the completion of this section, the surface was so soft as to be easily marked by horses' hoofs and buggy wheels. At the present time the surface is excellent. It is as smooth and dustless as an as-