keystone is not a separate course of stone but only a filler, and after it is applied the surface of the pavement should be mosaic in appearance After the sealcoat application the pea stone is spread in sufficient quantity to completely cover the sealcoat

In addition to skilful rolling required in the construction of a good bituminous macadam, it is essential that the pavement secure sufficient rolling to thoroughly compact the stone It is not believed possible to overroll a bituminous macadam after the binder has been applied It is good practice to require the rolling of the top course of stone to a firm set before the first application of the binder, although this practice demands more durable stone Back rolling for several days after the pavement is completed is essential In cold weather back rolling should be confined to the warmer part of the day

In conclusion, it may be said that a successful bituminous macadam generally follows when the essential details of construction are adhered to, while the slighting of these essential details of construction often spells failure In other words, constant care during the whole construction process should be taken and faults corrected as they occur

PROGRESS REPORT ON A FIELD EXPERIMENT ON INTRODUCTION OF PLANES OF WEAKNESS IN CONCRETE SLABS

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The first report on this experiment appears in the Proceedings of the Fifth Annual Meeting of the Highway Research Board, December, 1925, pages 122 and 123, and was made by W D Somervell It states the nature of the experiment which, briefly, is the introduction of transverse planes of weakness, 2 inches deep, spaced at 40-foot intervals on tangent and curve

The experimental section is a portion of a 9-mile concrete pavement, 16 feet wide, 7 inches-6 inches-7 inches cross section, and reinforced 2½ inches from the top The steel fabric used was No 3 gage metal across the pavement spaced 6 inches and No 3 gage spaced 12 inches lengthwise of the pavement The 4 outer members on each side parallel to the edge of pavement were increased in size to No 0 gage The reinforcement was stopped at each plane The concrete was 1½-minute mix with proportions of 1 1½ 3 using gravel as coarse aggregate Pavement cores taken at age of 7 months

showed an average crushing strength of 3,000 pounds per square inch The actual thickness of pavement, as shown by the cores, does not vary from the theoretical thickness by more than 0 3 of an inch

As stated in the first report, the planes of weakness became effective before the end of the curing period This was evidenced by cracks through the entire slab at each plane A later inspection by W D Somervell in October, 1925, showed no further cracks The road then passed through the winter of 1925 and summer of 1926.

On September 21, 1926, a field inspection revealed only one crack on the 2,000 feet section The pavement immediately adjacent on the north and on the south was laid under the same specifications, but had no planes of weakness except the joints at end of each day's run The 800 feet to the north showed 30 transverse cracks varying in spacing from 5 to 100 feet The 800 feet to the south showed 17 cracks varying in spacing from 21 to 150 feet The 2,000 feet with planes of weakness has developed one transverse crack since October, 1925 There are no longitudinal cracks in the test section or pavement immediately adjacent Some other portions of the 9-mile project show frequent transverse and short longitudinal cracks, especially near the northern end The cracks and planes of weakness have been fairly well protected by tar or asphalt filler

From the foregoing the following conclusions can be drawn relative to the utility of planes of weakness

1 That they tend to regulate to a definite minimum the spacing of transverse cracks, thereby decreasing the possibilities of pavement failure

2 That the regularity of their edges at the pavement surface is an advantage against spalling action

3 That they may be used successfully as longitudinal planes of weakness in the center of pavements as well as transversely

4 That there is a possibility of using them as an economic and effective substitute for premolded transverse and longitudinal joints

PROGRESS REPORT ON THE EXPERIMENTAL CURING SLABS AT ARLINGTON, VIRGINIA

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It is a well-known fact to those who have studied the behavior of a concrete pavement from the time of laying the concrete that many factors other than traffic affect the life of the pavement. Moisture changes and temperature changes in the concrete, together