

carry up the spandrels of the arch to an angle of 75 degrees or within 15 degrees of the crown on each side.

4—By a very light centre, (capable of being handled by two men,) to key up the crown in sections of 2 feet, shifting the crown centre continually, (upon a platform carried by the detached system,) as each successive section of the crown is keyed up and packed.

Those who are conversant with practical affairs, will at once perceive that, by working in long sections, course by course successively, the cement will set in one part whilst the workmen are engaged at another; and that by the division of labor indicated in the above outline, a very large force can be employed upon the arch, and so organized as to finish each part in detail; the most tedious portion, that of keying up, being limited, by the mode of operation, to 30 degrees of the crown alone, or but one-sixth of the semi-circle, can be advanced by working only from a single point, at the rate of 10 feet lineal per day.

Some curiosity having been expressed with regard to the probable detention at, and the mode of transit through the tunnel, I propose, before dismissing this subject, to dwell briefly upon both.

The canal for some distance both in approaching and leaving the tunnel, has from economical considerations been planned with a single boatway, as follows :

	<i>Feet,</i>
Canal contracted to a single boatway adjacent to the south portal,	200
Tunnel, (in length)	3118
Canal contracted to a single boatway adjacent to the north portal,	894

Total length of canal contracted to a single boatway, 4212

The speed of loaded boats upon canals is usually taken at  $2\frac{1}{2}$  miles per hour, and this may be considered as the maximum pace of fully freighted boats. Owing to the contraction of the water way and other causes, in the tunnel, the progress of boats in their transit through will be slower than upon the open canal, and will not probably exceed the rate of  $2\frac{1}{4}$  miles per hour or 198 feet per minute.

A single passage through a lock of 8 feet lift may be practically regarded as requiring upon an average 5 minutes, and an alternate or cross passage of two boats 10 minutes.