

We have already described that portion of the work which extends from Cumberland to Fairmont in the copy of the Railroad Journal for 3d July 1852, and shall confine ourselves for the most part to giving a rapid sketch of the whole road, more especially the western section just opened. The Baltimore and Ohio railroad is about 379 miles in length and although considerable heavy work exists on the 179 miles up to Cumberland, especially in the immediate neighborhood of the city of Baltimore no formidable difficulties are met with on the ascent to the base of the Alleghany ridges. The remaining two hundred miles from Cumberland to the Ohio involves the crossing of the numerous parallel ranges of the Allegheny system of mountains. From Cumberland the road follows the valley occupied by the north branch of the Potomac between the Knobly Mountain and the Front range, its general direction is about south west for about 20 miles as far as Paddy town, one terminus of the Manassas Gap railroad—here the road still following the course of the stream bends almost at right angles toward the northwest till it reaches the town of Piedmont. Two miles beyond the Potomac is crossed by a stone bridge and the grades that were before at the steepest 1 in 200 begin to be more abrupt. Ascending through the gorges of Savage river and Crab-tree Creek the grade is about 1 to 45. In 15 miles the ascent is about 1625 feet along the side of the Great Backbone Mountain until the watershed is reached of the streams falling into the Chesapeake and those of the Ohio at Altamont. Along the valleys of the Great and Little Younghogheny rivers and Snowy Creek the grade is moderate varying from 1 to 100 and 1 to 200. From Cranbury summit along the ravine of Salt Lick Creek the line descends with slopes of 1 in 45½ taking in its course two tunnels, one of 500 and the other of 400 feet in length. Through the valley of Cheat river the grade is ascending and about 1 in 50. Near the summit of one of the offshoots of the Laurel Hill range the mountain is pierced by Kingwood Tunnel 4100 feet in length and the longest on the line of the road. From this point the road descends the valley of Racoon Creek first at grades of 1 to 50, and then of 1 to 153 till it reaches Tygerts' Valley river, along the course of which it runs, the steepest grades being 1 to 200 until it arrives at the town of Fairmont.

A short distance below this town the road enters the ravine of Buffalo Creek which is crossed three times within a distance of 15 miles from Fairmont by bridges constructed with timber string pieces and cast iron posts and wrought bars. About 17 miles beyond Fairmont, the flourishing village of Mannington is met, and still ascending at grades of one in 200, it is carried through the gorge of Piles' Fork, crossing the stream five times in its course. On reaching the head of this stream at Glover's Gap, about 28 miles beyond Fairmont the road passes the ridge dividing the waters flowing into the Ohio from those of the Monongahela by deep cuts and a tunnel 350 feet long. After passing through this, the road descends by Church's Fork of Fish Creek at grades of one to one hundred. In passing through this valley the road crosses the stream eight times within four miles, and traverses 3 tunnels, Soles' 112, Eaton's 370, and Martins 180 feet long. The general direction of the road from Fairmont to the Littleton station on Fish Creek, is north westerly. Pursuing this direction, the road soon encounters the Broad tree ridge. The line leaving abruptly the margin of Fish Creek,

turns up the ravine of Broad Tree, running along the side of a precipitous hill until it reaches the mouth of the tunnel, here a temporary road is used for the purpose of climbing the mountains until the completion of the tunnel which is to pierce it. The ascent by this temporary road is not only extremely picturesque, but is almost as interesting a work of engineering art as the tunnel beneath. It is laid in the form of a succession of zig-zags terminating at each angular point by a straight line of road, so that each zig zag and its continuation form a figure resembling the letter Y. At the angular points are switches so that the process of ascent is accompanied by a change of the relative position of the engine and its load. Thus the train, headed by the locomotive, after passing the switch at the angle, runs out at the tail of the Y, it is then stopped and the switch changed so as to correspond with the other branch of the Y; the engine is then reversed and pushes the train before it until the next angle is reached, when after running out on the straight line beyond the switch, the engine is again reversed and pulls the train up the next reach. On the eastern fall of the hill, above Broad Tree or Pettibone tunnel, there are two zig zags, on the western side which is much more precipitous, there are five, the length of these latter tracks being shorter than on the eastern slope. The summit of the hill is about three hundred feet above the level of the permanent track at the tunnel, and the grade varies from 293 to 340 feet to the mile, permitting each engine to carry up two loaded cars or 25 tons. At Kingwood tunnel the temporary road ascended a grade of 5:0 feet to the mile, and only one car or 12½ tons was the load of the engine. The total ascent in perpendicular height at Kingwood by the temporary track over the summit was 220 feet, the trains were exposed, however, to the risk of sliding down hill with the wheels locked, an event which could not happen on the lower grades of the ascent on the zig zags over the Broad Tree summit.

The following description of the ascent by one of the guests of the company during the recent excursion, gives a lively picture of the scene:

We entered at Broad Tree creek a wide mountain gap, extending for nearly a mile, which suddenly closed before us with an immense bluff, thro' which there was no outlet, over 300 feet to its summit above the level on which the track below is laid, and under which Pettibone tunnel is being constructed. At the foot of this mountain the mouth of the tunnel was discerned, with the lamps of the miners glaring within. Our entire train consisted of twenty-six cars, and thirteen of Ross Winans' most powerful locomotives were in waiting, puffing and panting like war horses, ready to take us across the summit of the rugged mountain before us.—After some delay, during which darkness closed in upon us, two cars were harnessed to each of the iron horses, and all being in readiness, the ascent was commenced, the first locomotive turning out of the first Y, as it is called, before the second one is started, and so on until the whole side of the mountain was dotted with those fiery monsters, which, in the darkness presented a scene that was perhaps never before witnessed in the world, and probably may never be again. The ascent of the mountain is by tacking to and fro on its side, up to its summit, and then down in a similar manner on the other side, the track being laid in deep and broad cuts on the side of the mountain. These tracks run so closely parallel with each other, but at different elevations, that at times the trains were so near together that the passengers could call up or down to each other, and be distinctly heard, as they passed.

On reaching the summit, those in the seventh of the thirteen trains had a full view of the six locomotives following after them on the one side, and the six descending on the other, each belching forth

fire and smoke, whilst the miners going to their work in the shafts, and at either end of the tunnel, bearing hundreds of lamps and moving to and fro in the distance at the base of the mountain, gave the finishing attraction to this grand spectacle.—The western slope of the mountain is more precipitous and difficult than the eastern, and it was truly a grand sight to look up and see, "rank above rank," the various trains tacking like ships on the ocean's wave, down the terraced mountain side.

On leaving the tunnel the line descends along the hill skirting the north fork of Fish creek, by a series of deep cuts and heavy embankments. After passing Bell's Mill the creek is crossed by a bridge of similar construction to those already described, and after ascending Hart's and Four mile runs, it reaches the Welling tunnel at the 50th mile beyond Fairmont. This tunnel pierces the ridge between Fish creek and Grave creek, and is 1,250 feet in length. From the tunnel the road pursues the ravine of Grave creek for 17 miles to its mouth on the Ohio, crossing the stream eight times in its course. At this spot near the pleasant village of Moundsville, the road passes one of the ancient mounds a relic of the race which formerly inhabited the banks of the Ohio. This remarkable object is 80 feet in height and 200 feet broad at its base.—For the remaining distance, as far as Wheeling, the road skirts the Ohio, and for the greater part of the distance, runs over a beautiful stretch of bottom land. At 2½ miles below Wheeling creek, the outer station is situated where the grounds are prepared for the erection of engine houses, shops, etc.—About two miles below the creek, the line strikes the bank of the Ohio, and follows along Water-st. to the inner station in the city of Wheeling.

We have thus given a rapid review of the history and physical characteristics of this important work, belonging to a company, the stock of which including the bonds of the State of Maryland is over twelve million of dollars, all paid up and to represent when complete in equipment, a capital of about twenty millions. The total number of locomotives in use and contracted for at the time of the last report was 140—and the number of burden cars appropriated for general traffic 2,290. The cost of the road between Baltimore and Cumberland was stated in the last report of the Treasurer, 1st Oct., 1852, at \$8,774,544 76, that of the portion west of Cumberland, at \$7,271,732 57.

To this must be added the 2½ millions recently authorized for a second track and extra equipment to accommodate the coal trade of the Cumberland basin. The financial interests involved in the road will then be represented, by stock \$9,188,300, State of Maryland bonds \$3,200,000, and various loans including the 2½ million for the coal trade, amounting to about \$5,627,123. Of course in the detailed account other items of necessary expenditures and expenses are introduced, but the above sums exhibit the main features of the cost and the manner in which the various proprietary interests are held.

Iron in Tennessee.

The Nashville Whig gives a tabular statement of the capital and product of the iron interest on the Cumberland river, together with the number of hands employed, and the amount of pork and corn consumed per annum at the 21 furnaces, 9 forges, and 2 rolling mills therein enumerated. The following is the recapitulation: 19 furnaces, 29,200 tons metal; 9 forges, 10,600 tons blooms; 2 rolling mills, 4,700 tons of iron. Total, 44,500 tons; 1,400 kettles. Capital, \$1,216,000. Value of products, \$1,678,000. They employ 1,395 white men, and 1,810 negroes.