

RAILWAYS.

W^e consider the proceedings described below, at the opening of the Stockton and Darlington Railway, as of great general importance. Though Mr Wood had made a number of experiments at Killingsworth with much care, yet from the shortness of the railroad, its faulty construction, and various other circumstances, the results gave but an imperfect idea of what the real advantages of this species of communication were. The Stockton and Darlington railway is of malleable iron, and of the most approved form. The locomotive engine too, as we learn from a gentleman of skill, who was present, is of a much better construction than those hitherto used. It will be seen, that upon a road undulating a little, and only slightly inclined in its general course, a speed of twelve and fifteen miles an hour was attained, while the locomotive engine was dragging the enormous quantity of ninety tons. The whole train of 36 vehicles must have occupied a line not much less than 400 feet in length—that is, as long as the east side of the South Bridge, from the Cowgate arch to the High Street! Think of 600 persons, besides 12 loaded coal waggons, moved by one engine, and that too, with such rapidity! Had the 12 loaded coal waggons been removed, the train of carriages shortened from 400 feet to 100, and the passengers reduced from 600 to 100, it is obvious that the velocity would have been greatly increased. Perhaps the average velocity might have been raised to 15 miles an hour, and the velocity at the most favourable parts of the road to 20 miles! We may remark, however, that when carriages for passengers ply on railroads, the velocity will not be allowed to change with the nature of the railroad, but will be kept uniform by varying the amount of moving power. Mr BUNSTAL adopts this method in his steam-coach for common roads. The facility too, with which elevations are surmounted by means of the fixed engine, will be observed. Thirteen loaded waggons were drawn up an inclined plane a little more than a mile long, in 7½ minutes (8 miles an hour); and a single rope, passing out from the fixed engine, acted at this extraordinary distance. The coach for passengers, in which the proprietors travelled, is, it seems, to ply on the road from Stockton to Darlington. Since it carries only 16 or 18 inside passengers, we presume it will not be moved by a distinct engine, but merely attached to a train of loaded waggons. Indeed, as the road is a single road, it will be necessary that all the vehicles which travel on it, should keep nearly the same speed of movement.

We understand that the survey of the railroad from Leith to Glasgow, Paisley, and Ardrossan, is now nearly completed, and that the ground has been found extremely favourable. It passes along Brierch Water (the south branch of the Almond), and on by Alan-town and Holytown, to Glasgow. It rises about 600 feet from Edinburgh to the summit level near the sources of Brierch water, without a single inclined plane, and by an ascent so very gradual, that to the eye it will not sensibly differ from a continued level. From the summit level to Glasgow, there is but one inclined plane. The line is but a trifle longer than either of the common roads; and it passes through districts supplied with an inexhaustible store of coal and iron. The transportation of these materials will be so much the more easy, as they are chiefly found towards the highest part of the road, and the carriage will be along a continued descent to the capitals of the east and west of Scotland. From the success of this experiment at Darlington, and from what we have learned otherwise, we have no doubt that when the Edinburgh and Glasgow railway is formed, stage-coaches moved by locomotive engines, will commence plying at the very first, with a velocity of 15 miles an hour. A person may then breakfast in Edinburgh, proceed to Glasgow, do business there for an hour or two, and return to Edinburgh to dinner! We shall travel, too, we believe, with less noise and less risk than at present; we shall enjoy the freedom of locomotion which we have now in the track-boat or steam-boat; and it will be no small addition to the comforts of the journey, that while we outrun the fleetest hunter in speed, the privilege will not be enjoyed at the expense of some poor tortured and over-driven animals.

Articles in newspapers are often got up from imperfect information; but we have it in our power to state, that the statement subjoined was prepared under the eye of two skillful engineers, who witnessed the experiment from first to last, and took accurate notes of every thing material that occurred.

Stockton and Darlington Railway.—On Tuesday the 27th September, that great work, the Darlington and Stockton Railway, was formally opened by the proprietors for the use of the public. It is a single railway of 25 miles in length, and will open the London

market to the collieries in the western part of the county of Durham, as well as facilitate the obtaining of fuel to the country along its line, and the northern parts of Yorkshire. The line of Railway extends from the collieries in a direction nearly from west to east from Wilton Park and Etherly, near West Auckland, to Stockton-upon-Tees, with branches to Darlington, Yarm, &c. and is chiefly composed of malleable iron rails. At the western extremity of the line a deep ravine occurs at the river Gaundless, on the summit of the hills, on each side of which permanent steam-engines are fixed for the purpose of conveying the goods across the two ridges. The engine on the western side of the vale is called the Etherly engine; and that on the eastern side the Brusselton engine; the latter of which, in addition to conveying the goods up from West Auckland, also continues the transit down the eastern side of the ridge: below this, to the east, the country, though undulating, is pretty flat, and the conveyance is performed by locomotive engines. To give eclat to the public opening of the road, a programme was issued, stating that the proprietors would assemble at the permanent steam-engine, below Brusselton Tower, about nine miles west of Darlington, at eight o'clock. Accordingly, the committee, after inspecting the Etherly engine plane, assembled at the bottom of Brusselton engine plane, near West Auckland; and here the carriages, loaded with coals and merchandize, were drawn up the eastern ridge by the Brusselton engine, a distance of 1960 yards, in 7½ minutes, and then lowered down the plane on the east side of the hill, 600 yards, in 5 minutes. At the foot of the plane, the loco-motive engine was ready to receive the carriages, and here the novelty of the scene and the fineness of the day had attracted an immense concourse of spectators—the fields on each side of the Railway being literally covered with ladies and gentlemen on horseback, and pedestrians of all kinds. The train of carriages were then attached to a loco-motive engine of the most improved construction, and built by Mr Geo. Stephenson of Newcastle, in the following order:—1. Loco-motive engine with the engineer (Mr Stephenson) and assistants—2. Tender, with coals and water—next, six waggons loaded with coals and flour—then an elegant covered coach, with the committee and other proprietors of the Railway—then 21 waggons, fitted up on the occasion for passengers—and, last of all, six waggons loaded with coals, making altogether a train of 36 carriages, exclusive of the engine and tender. Tickets were distributed to the number of near 800, for those which it was intended should occupy the coach and waggons; but such was the pressure and crowd, that both loaded and empty carriages were instantly filled with passengers. The signal being given, the Engine started off with this immense train of carriages, and here the scene became most interesting—the horsemen galloping across the fields to accompany the engine, and the people on foot running on each side of the road endeavouring in vain to keep up with the cavalcade. The railway descending with a gentle inclination towards Darlington, though not uniform, the rate of speed was consequently variable. On this part of the railway it was intended to ascertain at what rate of speed the engine could travel with safety. In some parts the speed was frequently 12 miles per hour; and in one place, for a short distance, near Darlington, 15 miles per hour; and, at that time, the number of passengers were counted to 450, which together with the coals, merchandize, and carriages, would amount to near 90 tons. After some little delay in arranging the procession, the engine, with her load, arrived at Darlington, a distance of eight miles and three-quarters, in sixty-five minutes, exclusive of stops, averaging about eight miles an hour. Six carriages, loaded with coals, intended for Darlington, were then left behind; and, after obtaining a fresh supply of water; and arranging the procession to accommodate a band of music and passengers from Darlington, the engine set off again. Part of the railway from Darlington to Stockton has little declivity, and in one place is quite level; and, as in the upper part it was intended to try the speed of the engine, in this part it was intended to prove her capability of dragging a heavy load, and certainly the performance excited the astonishment of all present, and exceeded the most sanguine expectations of every one conversant with the subject. The engine arrived at Stockton in 3 hours and 7 minutes, after leaving Darlington, including stops, the distance being nearly 12 miles, which is at the rate of four miles an hour; and upon the level part of the railway, the number of passengers in the waggons were counted about 550, and several more clung to the carriages on each side, so that the whole number could not be less than six hundred, which, with the other load, would amount to about eighty tons. Nothing could exceed the beauty and grandeur of the scene. Throughout the whole distance, the fields and lanes were covered with elegantly dressed females, and all descriptions of spectators. The bridges, under which the procession, in some places, darted through with astonishing rapidity, lined with spectators cheering and waving their hats, had a grand effect. At Darlington the whole inhabitants of the town were out to witness the procession. But though all along the line, people on foot crowded the fields on each side, and here and there a lady or gentleman on horseback, yet the cavalcade was not joined by many horses and carriages until they approached within a few miles of Stockton; and here they situated of the railway, which runs parallel and close to the turnpike road, leading from Darlington to Yarm and Stockton, gave them a fine opportunity of viewing the procession. Numerous horses, carriages, gigs, carts, and other vehicles, travelled along with the engine and her immense train of carriages, in some places within a few yards, without seeming the least frightened; and at one time, the passengers by the engine had the pleasure of accompanying and cheering their brother passengers by the stage coach which passed alongside, and of observing the striking contrast exhibited by the power of the engine and horses—the engine with her 600 passengers and load, and the coach with four horses and only 16 passengers. In contemplating the events of the day, either in a national point of view, or as the efforts of a company of individuals furnishing a speedy, efficacious, and certain means of traffic to a wide and extended district, it alike excites the deepest interest and admiration; and the immense train of carriages covered with people, forming a load of from 80 to 90 tons,

gliding as it were smoothly and majestically along the railway, through files of spectators, at such an astonishing rate of speed, left an impression on those who witnessed it that never will be forgot. Part of the workmen were entertained at Stockton and part at Yarm, and there was a grand dinner for the proprietors and their more distinguished guests at the Town Hall, in Stockton. Mr Meynell, of Yarm, was in the chair, and the Mayor of the town acted as vice-president.—*Newcastle Courant.*