general law regulating the conduct of running water, — that two equal streams do not, when united, occupy a bed of double surface. Nay, the width of the principal river, after the junction of a tributary, sometimes remains the same as before. The cause of this apparent paradox was long ago explained by the Italian writers who had studied the confluence of the Po and its feeders in the plains of Lombardy.

The addition of a smaller river augments the velocity of the main stream, often in the same proportion as it does the quantity of water. Thus the Venetian branch of the Po swallowed up the Ferranese branch and that of Panaro without any enlargement of its own dimensions. The cause of the greater velocity is, first, that after the union of two rivers the water, in lieu of the friction of four shores, has only that of two to surmount; 2dly, because the main body of the stream being farther distant from the banks, flows on with less interruption; and lastly, because a greater quantity of water moving more swiftly, digs deeper into the river's bed. By this beautiful adjustment, the water which drains the interior country is made continually to occupy less room as it approaches the sea; and thus the most valuable part of our continents, the rich deltas and great alluvial plains, are prevented from being constantly under water.*

River floods in Scotland, 1829. - Many remarkable illustrations of the power of running water in moving stones and heavy materials were afforded by the storm and floods which occurred on the 3d and 4th of August, 1829, in Aberdeenshire and other counties in Scot-The elements during this storm assumed all the characters land. which mark the tropical hurricanes; the wind blowing in sudden gusts and whirlwinds, the lightning and thunder being such as is rarely witnessed in our climate, and heavy rain falling without inter-The floods extended almost simultaneously, and with equal mission. violence over that part of the north-east of Scotland, which would be cut off by two lines drawn from the head of Lochrannoch, one towards Inverness and the other to Stonehaven. The united line of the different rivers which were flooded could not be less than from five to six hundred miles in length; and the whole of their courses were marked by the destruction of bridges, roads, crops, and buildings. Sir T. D. Lauder has recorded the destruction of thirty-eight bridges, and the entire obliteration of a great number of farms and hamlets. On the Nairn, a fragment of sandstone, fourteen feet long by three feet wide and one foot thick, was carried above 200 yards down the river. Some new ravines were formed on the sides of mountains where no streams had previously flowed, and ancient river channels, which had never been filled from time immemorial, gave passage to a copious flood.

The bridge over the Dee at Ballater consisted of five arches, having upon the whole a water-way of 260 feet. The bed of the river, on which the piers rested, was composed of rolled pieces of

[†] Sir T. D. Lauder's Account of the Great Floods in Morayshire, Aug. 1829.

[•] See article Rivers, Encyc. Brit. and Rees's Cyclopædia.