

## LEVEL STEPPES OF RUSSIA, AND THEORY OF MORAINES.

IN the level steppes of Russia, where the traveller may journey without seeing a hill for weeks together, the rocks have their grooved and polished surfaces. And even in localities where there *are* hills, the hills not unfrequently merely add to the difficulty. The lofty top of Schehallion, for instance, is grooved and polished; and, pray, from what neighbouring eminence could the glacier have descended on it? Extreme, however, as the difficulties that environ the phenomena may seem, they have been manfully met by Agassiz, and dealt with in a style in which only a man of genius could have dealt with anything. And if difficulties still attend his theory, there are at least other difficulties which it ingeniously obviates; and it seems but right, at all events, to give it generous entertainment and a fair trial, until such time as it may be found untenable, or until at least something better turns up to set in its place.

The flat steppes of Russia have, I have said, their groovings and polishings: they have also their moraine; and so enormous is the extent of the latter, that for week after week the traveller may find it stretching through the central wilds of the empire, on and on without apparent termination, by North Novogorod towards Pinsk, as far as the confines of Silesia. It exists as a broad belt of erratic blocks, mingled with heaps of gravel, and resembles, from its linear continuity, the scattered remains of some such vast wall as that which protected of old the Chinese frontier from the Tartar. And here, says Agassiz, is the moraine of a glacier that had for its centre no group of local eminences, no vanished Alps of the Frozen Ocean, but the North Pole itself. The ice of the Southern Pole advances as far. Could we but reverse the conditions of the two poles, the northern