

the cliff. The disjointed buttress is severed from the main mass by a yawning rent, which will be slowly widened above, while the breakers breach it below, until the whole will fall into the surf, and expose the naked cliff behind to a repetition of the same waste.

If the joints are vertical the resulting face of precipice will be vertical also (Fig. 2); and this fact, combined with the singular durability of the flagstone, accounts for the sheer walls by which so much of Caithness and Orkney is girdled round. Any deviation from verticality in the joints will of course produce a corresponding departure in the resulting cliff. Hence where, as often happens in these regions, the joints are slightly inclined landwards, the precipices are actually made to overhang. In such cases it is easy to show that the beetling walls are not really eaten away faster by the waves below than by the subaerial agents above (Fig. 3).

Another singular feature of these northern coasts is the number of *gios*, or narrow steep-walled gullies, or inlets, by which the sea-cliffs are indented. Here again we trace the dominant influence of the joints. In fact, the waste of these shores may be compared to a gigantic process of quarrying, wherein the rains, snows, and frosts above, the springs and trickling water within, and the breakers below, are the unwearying workmen. Whether the sea-wall is demolished uniformly, or portions of it are allowed to remain as projecting buttresses, or isolated into massive quadrangular sea-stacks, or cut into deep narrow recesses, nature works along the joints as quarrymen would do, and thus the massive architectural character of these cliffs is preserved. At the same time the slow progress of atmospheric waste sculpts the bare wall of rock into its characteristically striped and fretted surface, and brings out the