3. The same species. Side view of one of the arms, showing the tuberculate outer surface and the smooth and truncated upper surface of the marginal plates. This is 9.5 times natural size. Photograph by Porfessor Hudson.

4. The same species. View of the same arm, looking down from above, showing the pits in the adambulacrals, and the closely fitting "covering plates." This is 9.5 times natural size. Photograph by Professor Hudson.

NOTE ON A RIPPLE-MARKED LIMESTONE.*

BY E. M. KINDLE.

The occurrence of ripple-marks on sandstone is a common phenomenon to every geologist, and nearly every one has observed these beautiful flutings in process of formation on the sands of lake or sea shore. The literature on ripple-marks relates almost entirely to these familiar sand or sandstone ripples. The occurrence of ripple-marks on limestone seems to be a phenomenon of such relative infrequency that it appears desirable to record an example which has come under the writer's notice.

The ripple-marks which will be described characterize certain Devonian limestone strata in northern Manitoba. The basin of Lake Winnipegosis is excavated chiefly in limestone of Devonian age, and the principal outcrops of these beds in Manitoba occur around the shores and on the islands of this lake. The best exposures of the Devonian strata about the southern end of the lake, appear on Snake Island.

This island, as noted by Mr. J. B. Tyrrell[1], is classic ground in western geology, having furnished the collection of fossils made by Prof. H. Y. Hinde in 1858, which first determined the presence of Devonian rocks in Manitoba, but the ripple-marked limestone appears not to have been noted by previous observers.

I visited this locality during the past summer, and in company with Mr. A. MacLean examined the interesting ripple-marks which are best exposed on the surface of a large block of limestone which has broken down from the cliff near the northwest corner of the island. This cliff is shown in plate VII,

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[1] Tyrrell, J. B.—Report on Northwestern Manitoba with portion of adjacent districts of Assiniboia and Saskatchewan: Geol. Surv. of Can., Pt. E, Vol. V, 1889-90-91, (1892) p. 163 E.