

3. Where Hopkins's results on the power of water to move materials?

4. How does Mr. Tylor arrive at a velocity of *three times excess* of present velocity in paragraph four?

MCJAMES.

INDIA.

#### FOSSILS ON CLEAVAGE PLANES.

SIR,—Until I read Mr. Carruthers' article in the January Number of the *GEOL. MAG.* I had never realized how completely fossil plant remains might be simulated by annelid trails. To me, moreover, there was a special interest in the concluding sentence, which recalled to my mind an inquiry which I had been pursuing some two years ago. I was not then aware that the subject had been touched upon by Dr. Sterry Hunt, nor have I seen the paper by him to which Mr. Carruthers refers. I feel however disposed to call attention once more to the subject as it then presented itself to me. I must not reproduce remarks which have occupied more than two pages, nor do I see how I can well abridge them. But I will ask leave to refer Mr. Carruthers and the readers of his interesting article to a letter by me in the September (1880) Number of your *MAGAZINE*, pp. 430-2. It was there pointed out that not only "fucoids" (which might very probably have been annelid borings), but that *Graptolites* also had been found upon cleavage planes.

KENTISBEARE, COLLUMPTON.

W. DOWNES.

#### DR. HECTOR'S "NEW ZEALAND GEOLOGY."

SIR,—I see in the January Number of this *MAGAZINE* a notice of the above Memoir, in which Dr. Hector classifies the Coal-producing strata of New South Wales as Permian. There has long been a dispute amongst Australian geologists as to the age of these deposits, many supposing them to be Triassic, or even Oolitic, presumably upon the presence of *Glossopteris*; but it would be of interest to know Dr. Hector's reason for placing them amongst the Permian. In the many conversations which I have had with the late Rev. W. B. Clarke, F.R.S., upon the subject, he has invariably upheld their true Carboniferous age, and, as a field geologist who has had much experience amongst the Coal Fields of South Wales, Somersetshire, and New South Wales, I certainly cannot see much doubt on the subject. The Wianamatta Shales, noticeably in the Parramatta District, bear a close lithographical resemblance to the shales, clods, and cliffs of the Gilfach-fargoed, and Mynyddslwyn, Upper Carboniferous deposits of Glamorgan and Monmouthshire, and also contain obscure impressions, which certainly look like Stigmarian rootlets. The Hawkesbury Sandstone, which underlies the Wianamatta Shales, contains numerous cavities, especially at St. Leonard's, Sydney, which look very much as if they had been filled by Carpoliths, like the *Trigonocurpum* of the Pennant of South Wales and Somersetshire, and indeed bears a lithographical resemblance to that deposit. The Upper Marine Beds and Upper Coal-Measures of the Newcastle (N.S.W.) and Bulli Districts contain, besides *Glossopteris*, undoubted Sigillarian and