

directly and exclusively from the crushing of the superficial rocks as they follow downwards the shrinking nucleus. The former is my view, the latter Mr. Mallet's. Let us clearly understand each other, and there need be no disagreement between us on other points.

G. POULETT SCOPE.

PALÆOZOIC STARFISHES.

SIR,—In the January Number of this MAGAZINE a list is given of Palæozoic Starfishes. It is not, however, complete yet. Allow me to call your attention to a paper by Simonowitsch (Sitzungsab., Wiener. Ak. 1871, Band 64), where the following new species were described:—*Aspidosoma petaloïdes*, Sim.; *Asterias acuminatus*, Sim.; *Xenaster margaritatus*; *Xenaster simplex*.

This last genus is a particularly interesting one. All the above are from Devonian beds. The following have also been apparently overlooked:—*Aspidosoma Arnoldii*, Goldf.; *Calaster latescutatus*, Sandb.; *Asterias rhenana*, Müll.

These will considerably enlarge your list of Devonian species.

E. B. TAWNEY.

“CREEPS.”

SIR,—Happening to read, in your March Number, Mr. R. Mallet's letter “In reply to Mr. Scope's Observations, etc.,” the “Creeps” of the Coal-fields, as described in Lyell's Elements, and in Naumann's Lehrbuch der Geognosie, at once occurred to me. Indeed, I should be very happy to learn, and be much obliged to any one who would be so kind as to inform me, whether similar causes might act upon a large scale, producing earthquakes, igneous ejections, and even elevation of mountains.

Supposing a large excavation to have been made by the eroding and dissolving action of subterranean waters (or by other means), a sink-hole or subsidence of the soil may result; but were an uplifting and fracturing of the floor with a rubbing a total impossibility, would this rubbing be sufficient to produce heat? Agreed, heat would result; let us multiply the masses twice, or thrice, perhaps a greater amount of heat arises? Finally: Some part of the earth's crust having, from any reason, lost its stability or power to resist the tension, *creeps* upon a large scale taking place, fissures being produced, rubbings would result, a fragment some miles of width rising slowly, dislocations (*structure en éventail*), upheaval or subsidence of the soil or crust, and igneous ejections or even volcanic phenomena being caused; would such a state of things be at all compatible with the present state of science—or of nature?

“Mi pare però che farebbe veramente un vano sforzo d'ingegno chi volesse spiegare in questo modo le oscillazioni della crosta del globo.”—Stoppani, Corso di Geologia, iii. § 473, 1873.

“Unter diesem von der Mitte aus abwärts wirkenden Druck bildete sich in dem Feldspathgebirge die fächerförmige Schieferung aus.”—Studer, Geol. der Schweiz, vol. i. p. 172, 1851.

“Les tremblements de terre, dont la cause est plus mystérieuse, malgré les travaux si remarquables et si précieux de M. Alexis