

THE RIVERS OF WALES.

SIR,—May I be permitted to assure Mr. Strahan that it is not his criticisms to which I object, even though he still finds the second part of my paper too great a tax upon his credulity. What really concerns me, as a worker in the Principality, is, that the Quarterly Journal of the Geological Society should be open to speculation about the rivers of South Wales and closed to speculation about those of North Wales.

PHILIP LAKE.

August 8, 1902.

LITTORAL DRIFT.

SIR,—My friend Mr. W. H. Wheeler's new book on the Sea-Coast has been reviewed with such universal commendation that it may seem invidious to offer any word of criticism. But, as my own work in the same direction was reviewed in the *GEOLOGICAL MAGAZINE* some years ago, and as if Mr. Wheeler is right I am most undoubtedly wrong, it may be as well to point out briefly my reasons for divergence, leaving it to experts to decide the questions at issue.

Mr. Wheeler's conclusions are based, explicitly or implicitly, on some six hypotheses, viz. :—

- (1) That the tidal wave is a wave of translation.
- (2) That the flood-tide current generally, as a current, is a stronger current than the ebb-tide current.
- (3) That the flood-tide current generates tidal wavelets of translation.
- (4) That sea waves on approaching the shore become waves of translation.
- (5) That sea waves approaching the shore raise the mean level of the water, with the effect of adding temporarily to the volume of water above mean level, as compared with the volume below that level.
- (6) That the proportion of height to length of wave may be as much as 1 to 3.

Mr. Wheeler incidentally discusses a wave with the assumed proportions of 30 feet long and 10 feet high.

It would be scarcely possible to discuss the evidence, mathematical, observational, and experimental, on these six points, under some two or three hundred pages.

In this as in many other cases controversialists do not use the same terms with the same meanings, so that the nomenclature must first be cleared, e.g. :—

- (1) The tidal wave, due to the attraction of moon and sun, gives rise to two currents, an ebb and a flood; but, when the flood runs up a channel such as the Severn, and creates a 'bore,' observers are apt to speak of such bore as the tidal wave itself, instead of as a subsidiary wave due to the retardation of the tidal flow-current in the river.
- (2) As the flood-tide current at sea runs, as a rule, three or more hours after high-water, the term 'flood tide' is ambiguous.