slopes of the Bolivian Andes, is almost beyond the limits of the geographical range of Guanaco, which is by no means such a denizen of the plains as Prof. Huxley would infer, the existence of a fossil Auchenoid mammal (a so-called *hueso de gigante*") at that place is a fact of much more importance than the existence of a similar animal at Corocoro, in the elevated valleys of the Aymará country, at the foot of the enormous Illimani.

As Mr. Forbes, in the memoir preceding Prof. Huxley's, mentions at great length the Salinas, the volcanic origin of common salt, and the physical geography of Peru and Bolivia, I may be permitted to indicate that much valuable information on these subjects is to be found in Mr. W. Bollaert's "Antiquities and Ethnology of South America," 8vo, London, 1860, and in his paper in the "Journal of the Royal Geographical Society," vol. xxi., 1851, with a map. Apparently the researches of both MM. Castelnau and Bollaert have been unknown to Messrs. Forbes and Huxley.

The specific name *boliviensis*, applied by Prof. Huxley to the smaller form, will no doubt be abrogated by succeeding naturalists, as founded on a misconception of the geographical distribution of the genus.

Prof. Huxley, impugning the philosophical laws of "correlation of structure" as defined by Cuvier and Owen, suggests that, upon the Cuvierian method of induction, a palæontologist, reasoning alone from the cervical vertebra of *Macrauchenia*, would have confidently predicted its Cameloid affinities. But when Prof. Huxley founds an argument, put hypothetically into the mouth of an ideal adversary, upon a structure so liable to variation as the perforation by a blood-vessel of a cervical vertebra, it can hardly be accepted as a correct exemplification of the principal which Cuvier has so successfully applied. The non-perforation of a cervical vertebra by an artery is certainly not such a character, subserving an important purpose, and denoting ordinal distinction, as the presence of a marsupial bone in an opossum, with which Prof. Huxley compares it. The analogy which it is attempted to deduce, as adverse to the principles of correlation, therefore totally fails, whilst this high law of comparative anatomy, "*aussi certaine qu'aucune autre en physique ou en morale*," remains unimpaired by the re-discovery of Macrauchenian remains in the Andes.

Your obedient servant,

Judd-street, Brunswick-square, June 24. CHARLES CARTER BLAKE.

GEOLOGICAL EVIDENCES OF THE DELUGE OF NOAH.

DEAR SIR,—Although it is a rule with me to abstain from mixing up biblical and geological questions, believing it to be unwise, and by no means calculated to be of service to either, I am for once induced by the first query of your correspondent S. M., in the last number of the "GEOLOGIST," to depart somewhat from this rule.

The query to which I refer is, "What evidence have we, geological or otherwise, apart from the history of the Bible of the existence of the Deluge?" Now, waving the question of the universality of the Deluge, I would ask, What geological evidence of this event does the Biblical narrative warrant our expecting? True, we are told that "All the fountains of the great deep were broken up, and the windows (flood-gates in the margin) were opened;" but these, I apprehend, are poetical—what if I say hyperbolical—expressions simply intended to convey an idea of the rapid and great rising of the waters.

When Noah sent forth the dove the second time, we learn that "The dove came into him in the evening; and, lo, in her mouth was an olive-leaf plucked off; so Noah knew that the waters were abated from off the earth." Now the olive-leaf

could only warrant the inference Noah drew from it—and, as the sequel shows correctly—on the supposition that the dove had not found it floating, a waif, on the diluvial waters, but had plucked it from a tree still standing in its place and, indeed, growing. The Deluge, then, was not equal to the uprooting, breaking, or killing an olive tree; *a fortiori*, it was not equal to the production of geological phenomena such as man would be likely to recognize many years afterwards as its effects, and the proofs of its existence.

I am, Sir, yours, &c.,

Lamorna, Torquay, July 3rd, 1861. WM. PENGELLY.

SPIRIT OF GOOD BOOKS.

MR. PRESTWICH'S AND MR. EVANS'S PAPER ON FLINT IMPLEMENTS.

(Continued from page 328.)

THIS Boulder clay caps all the hills around and forms a low table-land, through which the valleys are cut. Its very uneven base rests on white and yellow sands and gravel (5). In some places, however, thick beds of ochreous and ferruginous subangular flint-gravel, with subordinate beds of sand, form low hills subtending the main plateau along the valley of the Waveney. This gravel (2) is newer than the Boulder clay against which it usually slopes off, running, in thin patches, up some of the lateral valleys.

"The top of the freshwater deposit of Hoxne reaches within six or eight feet of the summit of the hill, of which it forms an unbroken and uniform part. The adjacent hills are of about the same height, and there is no ground above a few feet higher for some miles around. No existing drainage, nor any possible with this configuration of surface, could have formed these clays and gravel beds, at the relative level they now occupy.

"Since writing the above, I have had the pit and the intermediate ground to the Waveney levelled. The top of the pit proves to be forty-two feet above the adjacent brook, fifty-three feet above the Waveney, and one hundred and twelve feet above the sea. With Sir Edward Kerrison's courteous permission, we had also several trenches dug in the park to trace the extention of the freshwater deposit.* Altogether there have been sixteen trenches and borings made in and around the pit.—(October, 1860.)

"The presence and abundance of perfect shells of *Valvata* and *Bithinia*, and the quantity of vegetable matter render it probable that these beds were accumulated by a slow stream, or a small marshy lake or mere, into which land-shells, the remains of land-animals, and drifted wood were carried down. The materials of this freshwater deposit are mainly such as would be produced and sorted by the slow wearing away of the Boulder clay. The clays and marls and the associated flint-gravels, with the pebbles of chalk, of quartz, and of hard sandstone, are materials just such as the artificial washing of the adjacent Boulder clay now produces in the same field—a pure calcareous clay on the one hand, and a heap of rough gravel and flints, and older rock pebbles, on the other. The level of the Boulder clay in the adjacent field is lower than the

* The results of these operations are embodied in the plans and sections plate x. of Mr. Prestwich's paper.